Grading Guide for Early American Copper Coins

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Dedication

We dedicate this book to everyone,
past, present and future,
who has a passion for early American coppers.

Preface

In one of his books, Q. David Bowers wrote, *"sometimes, early copper* [*coins*] *cannot be neatly pigeonholed into grade categories*." While true, that does not mean that guidelines and standards for their grading do not exist or that it is pointless to put them into print. There have been several attempts to produce an early copper grading guide using EAC standards, beginning at the second annual meeting of EAC in 1969, but none of them went anywhere. The excuses included that there would be too much politics, or members couldn't agree on grades or were of the opinion that a grading guide for large cents would have to include every variety because of their unique characteristics, *etc*., *etc*. The perfect always proved to be the nemesis of the good. The most serious effort appears to have been coordinated by Phil Ralls in 1982-3; it was to have involved high quality black-and-white photos of large cents only. By the end of 1985, discussion of it had disappeared from the pages of *Penny-Wise*. In 1992 and 1993, a number of letters were published in support of the development of such a guide, and a committee was established to develop and maintain a large cent condition census, but again nobody followed through on either topic. Since then, there have been rumblings at regional meetings and in the pages of *P-W*, but nothing has developed. As with any project of this type, someone needed to take ownership and see it through.

In early 2012, on the CopperNotes forum (eacs.org/region8/), some EAC members were discussing the problems in grading early American copper coins. We noted that there were significant discrepancies between the grades assigned by commercial grading services and those commonly accepted by collectors specializing in early copper. However, there was no reference that explained what goes into grading early coppers by EAC standards. While there were a number of books that purported to discuss how to grade them, all used the commercial standards prevalent in the rest of the US coin series and did not address the way grading is done within EAC. Most books devoted to grading, specifically, were inadequate as well, as their images were either line drawings or low-resolution black and white images. Even the newest and best grading books only showed detail or technical grades by commercial standards, which collectors believe are looser than those used in EAC. Little or no discussion was made of the concept of net grading. There was a clear need for a reference with high quality color images accompanied by written descriptions to match the images in an in-depth book that would tell the story of sharpness and net grading as practiced within EAC and so would help to demystify the process.

After talking with a number of copper collectors, exchanging numerous e-mails and meeting at regional coin shows, the authors decided to write the book we had wished to buy. Bob provided the initial impetus. Dennis volunteered to draft the section on grading large cents; Bill volunteered to draft the half cent and net grading sections and organize the layout and images; Ray took on the most frightening task – the grading of Confederation era coins. All of us contributed to the text and edited each other's writing; this has been a truly collaborative project from the beginning.

While most of us have been collectors and EAC members for over 20 years, an initial concern was that some would consider us very presumptuous to tell the rest of EAC how to grade. Fortunately, this potential criticism was rendered moot. Times have changed, and a number of major half and large cent collections have come on the market in recent years at Ira and Larry Goldberg, Auctioneers and at Heritage Galleries. These coins were assigned grades according to EAC standards by Bob Grellman for the Goldbergs and Mark Borckardt at Heritage. Both auction houses readily agreed to allow us to use their images and grades in this book. Thus, the grades you will see have been assigned by either Borckardt or Grellman. (In one case, the coin illustrated had not sold at auction recently, but is presented at the grade at which it is carried in the condition censuses.) Similarly, Stacks-Bowers has handled a large number of colonial/Confederation era collections in recent years and offered their archives to us. Our job was not to grade the coins, but rather to select the best examples to illustrate the grades assigned by respected experts and explain why they were assigned.

It quickly became clear that a description of the differences between sharpness and net grading would not be enough. Many factors go into the process of authenticating and arriving at a grade and price for a coin, and we have attempted to cover that ground as well. For the past two years, we have worked on selecting images that clearly reflect what collectors of early American copper coinage consider to be honest and accurate grades. It has become a labor of love and an educational process. We have learned much about how copper has been graded—from BS (before Sheldon) to TPG (third party grading). In the process, our own grading skills have been significantly sharpened, and so we have become more knowledgeable collectors.

Another consideration in writing this book was which coin types to include. The choice was easy for half and large cents. We included them all plus a number of additional subtypes. The rich area of pre-Federal coins was a more difficult consideration. There are dozens of major types and hundreds, if not thousands, of varieties. For nearly two centuries, beginning with the Sommer Islands (Bermuda) Hogge Money, coins were minted expressly for use in the English-speaking colonies. Some forty years later, the first pennies (Cecil Calvert's denarium copper, minted in England) began circulating. Because the British Crown held that it had the exclusive right to mint coins, nearly all coins circulating in the Colonies were either minted in Great Britain or imported from France, Spanish mints in Mexico or other major European powers.

Until the start of the American Revolution, there was no significant mintage of copper coins in what is now the United States. Beginning with New Hampshire in 1776, a number of states began to consider coining their own money. Under the Articles of Confederation, a number of private tokens and patterns for proposed Federal coinage were minted. It wasn't until 1787 that the Congress authorized the first copper coins—the Fugio coppers, also called the Fugio Cents. Beyond the Fugios, we have elected to include only the more popular coppers minted by authority of the states under the Articles of Confederation. Once the Constitution was adopted, states no longer had the right to coin money.

This book should give you the basics of how to grade early copper coins. Our concept is to illustrate wear and other grading considerations for major types of Confederation era coins. For half and large cents, we show not only the major types, but examples of subtypes (*e.g.*, the high relief 1794 half cents, the Type 1 and 2 Draped Bust cents and the 1839 Silly/Booby head large cent variants) that are significant departures from the more standard designs. Because of the substantial differences in design and engraving, we have elected to show the grading of two different Chain cent subtypes and Liberty Cap large cents and half cents *by date*. We have tried to write our grade descriptions to show clearly what is required at each major grade level.

The choice of image sizes was based on the need for clarity – larger is better – and the constraints of page size and format. Coins in the sharpness grading sections (Chapters 4-6) are shown at approximately twice their diameters; thus the Massachusetts and US half cents are shown at a smaller size than the rest of the Confederation era coppers and the large cents. All images in the net grading section are shown the same size to make their various characteristics clear.

At the 2013 EAC Convention in Newark, Ohio, we presented the concept of a guide book for the grading of early American copper coins to the Board of Governors. It was met with enthusiasm and an offer by the Board to fund the printing of the book. The authors are donating any and all profits from the sale of this book to EAC to support EAC's educational activities.

We hope that our efforts will be perceived as an attempt to help collectors and dealers understand some of the more fascinating series of coins ever minted and that you, the readers, will find its contents useful in enhancing your grading skills and your understanding of the world of Early American Coppers.

Bill Eckberg, Bob Fagaly, Dennis Fuoss, Ray Williams

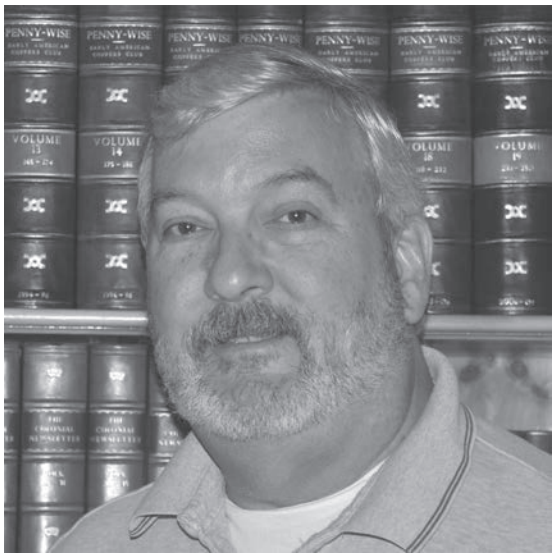
About the Authors

Robert L. Fagaly (EAC#5866)

A native of Nantucket, MA, Bob received a BS in Chemistry from San Jose State, a MBA from the University of San Diego and a PhD in Physics from the University of Toledo. He is the author of over 90 technical papers in the fields of physics and medicine and several on price-grade relationships in half cents, large cents and type coins. His coin collecting activities began with the Boy Scouts of America's coin collecting merit badge. After a hiatus due to college and raising a family, he restarted his collecting a decade ago after he came upon a coin shop in Carlsbad, CA where he lives. A chance meeting with Dennis Fuoss after the Walter Husak sale kindled his interest in copper and half cents in particular. This led to regular trips to the Long Beach Expos and EAC conventions. His goal is to add at least another dozen varieties to his existing 60 half cent varieties, and he looks forward to introducing his new grandson to the joys of early copper.

He is a Fellow of the Institute of Electrical and Electronics Engineers (IEEE) and an Emeritus Member of the American Society of Hematology and sits on the US Department of Commerce Technical Advisory Committee. He is a Merit Badge Counselor for the Boy Scouts of America and a member of the Society of the Cincinnati.

Raymond J. Williams (EAC#2928)



Ray started collecting coins at age 11 when he earned the Boy Scout Coin Collecting Merit Badge on his way to becoming a proud Eagle Scout. He collected cents, nickels, and dimes, placing them in the blue Whitman folders. Like most other boys in the late '60s, he got interested in girls and cars, and then went to college. He had been married for a few years before he dusted off his Whitman folders and tried to fill in the remaining holes, like the 1909-S V.D.B. cent, the 1914-D cent, and the 1955 Doubled Die cent. After completing the Lincoln cents, he tackled collecting Indian Head cents. Once he had completed that folder, he started a large cent collection, for which he completed a date set from 1793 to 1857.

While he was actively seeking different die varieties for Large Cents, he gained experience with colonial coins through his involvement with an estate. Colonials were fascinating and became his passion. A New Jersey resident, he gravitated to the Confederation era New Jersey coppers and recently contributed to a major book on the series, authored by Roger Siboni, Jack Howes and Buell Ish. He served as President of the Colonial Coin Collectors Club (C4) for over a decade, was an officer of the state organization (Garden State Numismatic Association, GSNA) for 19 years, and served as president of both the New Jersey Numismatic Society and Trenton Numismatic Club. He is a Fellow of the American Numismatic Society and a 30-year member of the American Numismatic Association.

William R. Eckberg (EAC#3395)

Bill was born and raised in Grand Rapids, Michigan, where he began collecting coins while in the Boy Scouts. Coin Collecting and Photography were the first two Merit Badges he earned on the way to Eagle. After graduating from Michigan and Michigan State, he lived in Northern Virginia from 1975-2011, where he worked as a Professor of Biology at Howard University, teaching and doing research on fertilization and early embryonic development. During the last dozen years of his career, he served as a department chairman and dean and finally as an administrator at the National Science Foundation, retiring in 2011. He now lives in South Florida with his wonderful wife, Susan, also an EAC member, and limits his research to numismatics.

He began collecting early coppers as a child, reconnected with them in the late 1980s, learning to attribute a dateless Liberty Cap large cent he had owned since childhood and getting hooked. He joined EAC in 1991, attending his first EAC convention in Boston that year. He has built and sold two half cent collections and has hosted three EAC conventions (in Fredericksburg, VA and twice in Annapolis, MD), served as Secretary and Chairman of Region 3, Chairman of Region 8 and currently, Vice President of EAC. He is a contributing editor of and regular contributor to *Penny-Wise*. For seven years until his retirement, he edited *The Virginia Numismatist*, the journal of the Virginia Numismatic Association, and served as 2nd Vice President of the VNA. He is also a member of C4, the West Palm Beach Coin Club and the ANA.

Dennis Fuoss (EAC#3824)

Dennis was born in 1952 in Paxton, IL, and spent his formative years attending public schools in Ford County, IL. Dennis was introduced to numismatics around the age of 12, when his father and his paternal grandfather gave him a Whitman folder for Lincoln cents, and invited him to search the family penny jar and extract coins to fill the holes in the album.

Coin collecting took a back seat to academic pursuits until about 1986, when a co-worker and fellow engineer named David Evans invited Dennis to join him for a lunchtime foray to a local coin store in Beaverton, OR. Thus began his renewed numismatic journey through Lincoln cents and Indian cents to his ultimate destination of Early Copper. An early EAC acquaintance was Doug Bird, who extolled the virtues of large cents while explaining EAC grading concepts. Dennis purchased his first 1804 cent from Doug in Portland, OR in 1990.

Dennis joined EAC in 1992, and attended his first EAC annual convention at Fredericksburg, MD in 2001. He has lived in Southern California since 2002, and tries to attend any copper coin auctions associated with the thrice-a-year Long Beach Coin Expo.

Acknowledgements

This book would not have been possible without the cooperation of Ira and Larry Goldberg of Ira & Larry Goldberg Coins & Collectibles, Inc., Los Angeles, CA (www.goldbergcoins.com/) and Heritage Auctioneers & Galleries, Inc., Dallas, TX (www.ha.com/). Without their generous offers to allow us to use their vast archives of half cent and large cent images along with assigned EAC grades, this book would not be in your hands. Thanks also to Stacks-Bowers Galleries (stacksbowers.com), which provided many images from their vast archive of Confederation era coins.

We would especially like to acknowledge Lyle Engleson of Goldberg Coins for his superior photography and generous assistance that went far beyond the call of duty.

We also thank The Professional Coin Grading Service (PCGS) for permission to use images and grades from the *PCGS Photograde* online grading guide.

Thanks also to Denis Loring who suggested the use of auction catalogs as a means for learning to grade, making this project far more legitimate than it otherwise could have been.

Many thanks to Harry Salyards, for providing an insightful foreword, and general editorial assistance with the manuscript.

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We offer special thanks to Kirk Thomas (EAC #5657), who has organized the printing and distribution of the book for EAC.

The authors wish to acknowledge a number of useful consultations and suggestions about grading for braided hair large cents from Gary Hahn, Fred Iskra, and Allen Ross. Special thanks to Mike Packard, Mike Spurlock, Denis Loring, Mark Borckardt and Harry Salyards, for helpful comments on sections of the book, and the members of EAC who commented on early drafts of parts of chapters 2 and 6 that appeared in *Penny-Wise*.

Above all, we thank Bob Grellman of M&G/Goldbergs and Mark Borckardt of Heritage who, for the past several years, have provided EAC grades for half and large cents in their auctions. Our job has been to take the grades they assigned and attempt to help the reader understand why these grades were given.

And finally, many thanks to our wives for their extreme patience during the writing and editing.

Foreword

The human mind sees by comparing: Good—Better—Best. In the beginning, coin grading was that simple, too—or perhaps even simpler: New—Worn. In the era of the first coin collecting boom in the US, following the 1857 withdrawal of the large cent and half cent, when the difference in value between those nascent grades was perhaps a few *cents*, that was sufficient. But increased demand brings not only higher prices, but also a much wider divergence in valuation. Today, a common Draped Bust large cent, worn nearly slick, might command only a few dollars; its uncirculated 'twin' from the same dies, tens of thousands.

So, money is at the root of the "Grading Problem." John Wright, taking his cue from Ambrose Bierce (*A Devil's Dictionary*), once defined "Grade" as "An attempt to justify price." As one consequence, commonly employed adjectives have long since ceased to be true to their standard English meanings. "Fine," for example, has deteriorated from something reasonably close to Mint State, to something the Brits might more honestly call just "Fair." This misapplication of standard terms may not be unique to numismatics; but it stands in glaring contrast to at least some other collecting areas, even in today's era of inflated prices. In the field of antiquarian books, for example, there's still a certain reluctance to apply the term "Fine" to anything but a near-mint copy.

Then there are the "About's"—"About Uncirculated" and "About Good." Just *how close* does the coin have to be to qualify as "*About* Uncirculated"? Consider Dr. William Sheldon's original definition of About Uncirculated 50 (from *Early American Cents*, 1949, page 41): "Close attention or the use of a glass should be necessary to make out that the coin is *not* in perfect Mint State. Typically, the AU-50 coin retains its full sharpness but is darkened or a little off-color."

Compare that straightforward—and conservative—usage, to the term as applied by the current generation of commercial graders, who stretch the "About" all the way down into traditional VF territory. As you peruse the book in your hands, you will understand that among its several goals is an attempt to restore "About Uncirculated" to its rightfully lofty place in the numismatic continuum.

Near the other end of the grading spectrum, at About Good, I'm reminded of the anecdote of the eight year-old carefully studying the coin so labeled, passed around by the visitor introducing the little boy's class to coin collecting, who raised his hand and asked, "What does 'AG' mean? About Gone?" "Gone" is, indeed, closer to the truth than "Good," for a coin like that!

Another impetus to the creation of this book—the realization of a thirty years' dream within the Early American Coppers club—is the currently widespread misuse of the term "Mint State." As the authors point out, many coins in today's certified holders, all the way up to "MS-63," aren't really Mint State. From an economic and marketing standpoint, we understand how this happened, and the authors, indeed, explain it well; but as the collectors who first introduced the term to the coin hobby, we aren't happy about it. "Mint State" should mean just that: the coin in the state as it left the mint—bag marked and grease stained, maybe, but absolutely unworn. The older term, "Uncirculated," suffered by comparison from a certain nebulousness—the coin might never have *circulated* from hand-to-hand, but still have been horribly abused: chop-marked, carved, or corroded, for example.

Part of the difficulty in attempting to practice "EAC Grading" has been the lack of a detailed illustrated guide such as this. But another, equally daunting difficulty has flowed from that very void: the sense that

"EAC Grading" is some kind of arcane mystery, passed on by word of mouth, and best left to a handful of sages and soothsayers. The degree of intimidation this imposes on the novice collector, especially, can be daunting. As editor of EAC's journal, *Penny-Wise*, I have received a number of confidential letters over the past 27 years, some from people whose bylines have appeared over articles in the pages of that journal, all lamenting that "I never learned to grade." Not everyone is comfortable approaching a perceived Grading Guru. Nor is everyone willing, or able, to attend one of the various grading seminars put on by senior members of the club. But everyone *can*, with the aid of this book, demystify the process.

Indeed, one striking feature of this guide is the authors' *confident tone*—it seems to say, again and again, 'You *can* learn to do this!' Yes, it takes a bit more work than uncritically accepting the number on a certified holder—or the word of a dealer, no matter how experienced. But if you carefully study the guidelines laid out in this guide, your efforts will be rewarded with a deeper understanding of *Quality*, as it applies to these workhorse coins of the early Republic.

Harry E. Salyards
Editor, *Penny-Wise*

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Chapter 1 - Introduction

This book is a guide for grading early American copper coins as practiced by collectors who specialize in them. These collectors, members of Early American Coppers and the Colonial Coin Collectors Club, have maintained traditional grading standards while the commercial standards of most of American numismatics have eased to the point where collectors of an earlier generation would not recognize them.

Because copper coins were the money of the people and (unlike gold coins) were heavily used in commerce, because they are heavy and soft, and because copper is more reactive to oxidation than silver or gold, they received more wear and damage than early gold and silver coins. Because their relative value did not fluctuate like that of gold and silver coins, they were less subject to mass meltings during their time of circulation. Thus, many stayed in circulation until they were unrecognizable due to wear or corrosion. Yet, because these coins were the money of the fledgling United States, and because the insults that plagued them add to their charm, the collectors of early copper are among the most dedicated and involved in all of numismatics. Nevertheless, the different grading standards early copper specialists use from the commercial standards in the rest of US numismatics and the different way we account for damage to coins from that used by the rest of numismatics has added an extra level of complexity and concern for those who might wish to collect these endlessly fascinating coins. This book is an attempt to address that complexity and concern by thoroughly describing the grading standards and processes used by specialists in the field and comparing them to the commercial standards and processes used in the rest of numismatics. We hope this will make copper collecting easier, more enjoyable and more fulfilling for all.

EAC - Early American Coppers

The Early American Coppers club (known throughout numismatics as "EAC") has more than 1200 members. Broadly speaking, the hobby involves the acquisition, study, discussion and promotion of early copper coins: large cents and half cents coined by the US mint from 1793 through 1857, and the various emissions authorized by the colonial and state governments. In 1981, EAC voted to expand its scope to include Hard Times Tokens.

EAC traces its origins to an ad placed by Herbert A. Silberman in the November 9, 1966, issue of *Coin World*. After listing duplicates for sale, the ad concluded: *"If you collect Large Cents, please write. We are trying to start a mail club to trade and discuss this series."*

As a result of the *Coin World* ad, Silberman was soon corresponding with collectors in 11 states. Letters passed from member to member with comments added along the way. One year later, on November 1, 1967, the Early American Coppers Club reached the level of 93 charter members. The number of charter members commemorated the first cents struck in 1793. Dr. William H. Sheldon received charter member number 1. Member number 4500 had joined by mid-1997 and member number 6000 at the end of 2011.

In 1970 EAC became a club member of the American Numismatic Association (ANA) with membership number C-64199. EAC was officially incorporated in 1972 in the State of New York as Early American Coppers, Inc. EAC is recognized by the IRS as a charitable organization and has received tax-exempt status under section 501(c) (3) of the IRS code.

Membership is divided into eight regions: Region 1: New England (CT, MA, ME, NH, RI, VT); Region 2: New York-New Jersey; Region 3: Mid-Atlantic (PA, DE, MD, DC, VA, WV, NC); Region 4: Southeast (SC, GA, FL, AL, MS, TN); Region 5: North Central (MI, OH, KY, IN, IL, WI, MN, IA, NE, SD, ND); Region 6: South Central (KS, MO, AR, LA, TX, OK, NM, CO); Region 7: West (WY, MT, ID, UT, NV, AZ, CA, OR, WA, AK, HI); and Region 8: Internet.

Emerging technologies have changed the way EAC members communicate. In 1993, a small group began to meet in a weekly moderated chat on the Internet. In 1997 the Internet group passed 100 members and was recognized as Region 8 of EAC. The EAC web page can be found at http://www.eacs.org.

Research Projects

EAC members voluntarily conduct research projects in various areas related to early American copper coins. The club provides no financial assistance but these activities are promoted through *Penny-Wise*. In the past, members have maintained:

- Inventories of Massachusetts and New Jersey coppers
- Fugio files
- Listings of half cent collections
- Listings of a condition census for half cents
- Inventories of collections of early, middle and late date large cents
- Listings of condition censuses for early, middle and late date large cents
- Photographic records of condition census coins.

EAC supports original research into early American copper coinage through original articles in its journal, *Penny-Wise* and the Garvin fund which awards scholarships to individuals to help further their understanding and appreciation of the early copper coinage of the US Mint.

National, Regional and Local Meetings

National meetings have grown from an evening dinner to a four day convention. The pattern in recent years includes a reception on Thursday evening, an educational forum on Friday evening, educational seminars on Friday and Saturday, a private EAC Sale on Saturday evening and a general business meeting Sunday morning. Non-competitive exhibits offer members an opportunity to show interesting items from their collections. A public bourse is open Friday through Sunday. In recent years, a very popular Grading and Counterfeit Detection Seminar has been offered prior to the Thursday reception. This seminar, covering EAC net grading, the use of copper pricing guides and how to spot counterfeit and/or altered coppers, is an excellent introduction to early copper coinage for the novice or expert collector, alike. The meeting site changes each year to bring the convention as close as possible to as many members as possible over a period of years.

EAC conducts a private auction sale of consigned coppers in conjunction with the annual EAC convention. Members send coins to the cataloguer prior to the sale and a catalog is produced and distributed to all members. A space on or near the bourse floor is reserved for viewing sale lots. Although mail bids are accepted and encouraged, most lots are sold to bidders who attend. Proceeds from the sale defray costs of the annual convention and help fund *Penny-Wise*.

An evening of "black velvet and white gloves" describes the Colonial, Half Cent and Large Cent Happenings held on Thursday evenings during national conventions. Coins for inclusion in the Happenings are announced in advance. Members are encouraged to bring their examples of designated varieties. Each variety is displayed on a table carefully watched by volunteer monitors. Members attending are encouraged to examine the coins and assign an order of preference for desirability. The Large Cent Happening, added in 1994 and the Colonial Happening, added in 1995, are patterned after the highly successful Half Cent Happening, which began informally in 1975 and was added to the conventions in 1986.

"Whist" matches are another activity between EAC members. Dr. Sheldon, writing in *Penny Whimsy* (Sheldon, 1958), credits Dr. George French with the invention of "old cent whist." In its simplest form, two collectors compare collections and score one point for having a variety and a second point for having a nicer piece than the competitor. More complex scoring may be used for games with several competitors. Whist is a popular activity when small groups gather and an antecedent of today's set registry collecting.

EAC is a friendly and inviting club; its members frequently get together informally to talk about coins and whatever else is on their minds. Regional Meetings are held in conjunction with national shows (*e.g.*, ANA) or large regional Coin shows (*e.g.*, Long Beach, Baltimore, Florida United Numismatists (FUN), *etc.*).

Penny-Wise

Penny-Wise is the award-winning journal of EAC. The first issue was published September 15, 1967. Dr. Warren A. Lapp of Brooklyn, NY was editor and publisher. William J. Parks of Orlando, FL, was printer and distributor. At the time EAC had 39 members and 75 copies of the first issue were printed. Prospective members received copies of the first issue until the supply ran out. The name was chosen because its initials duplicated Dr. Sheldon's *Penny Whimsy*.

A typical issue has its table of contents and a directory of club officers followed by a one-page "Introduction by the Editor." Articles featured in *Penny-Wise* cover the field of early copper. Some are scholarly and lengthy and may become the standard reference for a topic. Others are short, light-hearted or anecdotal. The journal publishes minutes of club meetings and reports from club officers. Regional meetings are announced and reported. Discoveries of new varieties and of new examples of rare varieties are reported. Letters to the Editor include commentary on member activities and reaction to events and previously published articles. Each issue has a section for "Swaps and Sales" where members may solicit an orderly succession of ownership.

All back issues of *Penny-Wise* are available on a DVD that is provided as a free benefit to all members. Called the *Penny-Wise Research Library*, it covers all issues from the first. Updates are issued every two years.

C4 – Colonial Coin Collectors Club

The Colonial Coin Collectors Club www.colonialcoins.org/, known to the hobby as "C4," was founded in 1993 to provide a forum for collectors of numismatic material related to the Early American era. As the organization evolved from its EAC roots, many aspects of both organizations are similar. The numismatic focus of C4 is the study of the coins, medals and currency that circulated in the Americas from the founding of the New World until the establishment of the first US Mint in 1792. The medals commemorating George Washington and others, such as the *Comitia Americana* medals commemorating Revolutionary War heroes, are also included, even though some of these were struck later than 1792 and sometimes much later.

For the past decade, C4 membership has averaged about 400. The establishment of an informal group of numismatists dedicated to colonial and Confederation era coinage was discussed by a small group of enthusiasts in Florida in early 1993. The first actual meeting of C4 was held at the ANA Baltimore Convention on July 30, 1993 at 1:00 PM. There was an attendance of about 60 persons. It was at this meeting that the initial format of C4 was discussed and established. The C4 membership is divided into seven regions, each of which has a representative on the C4 Board. The regions are divided as follows:

Region 1: New England (CT, ME, MA, NH, RI, VT, QC, NB, NL, NS); Region 2: (NY, NJ, PA, MD, DE, DC); Region 3: (VA, WV, NC, SC, GA, FL, AL, MS, LA, TN, AR, PR); Region 4: (OH, IN, IL, MI, WI, KY, IA, ND, SD, MN, KS, MO, NE, ON, MB); Region 5: (OK, TX, NM, AZ, ID, WY, CO, MT, UT, NV, Mexico); Region 6: (CA, HI); Region 7: (OR, WA, BC, AK).

C4 was incorporated in the State of New Jersey in 1993 and is recognized by the IRS as a charitable organization and has received tax-exempt status under section 501(c) (3) of the IRS code. C4 is a member club of the American Numismatic Association (ANA) in Colorado Springs and the American Numismatic Society in New York.

In August 1993 the first *C4 Newsletter,* known to members as "*C4N*," was written and mailed. The first C4 President and *C4N* Editor was Michael Hodder, well known numismatic researcher, author and cataloger. As this is written, *C4N* is in its 20th year of publication and has won several awards for its content, format and numismatic scholarship. The contents range from light-hearted short articles to well researched scholarly papers. The *C4N* is the communication platform that keeps all members informed and educated. The *C4N*

has recently been made available in a CD, using a searchable PDF format. Information about the CD and an index of the contents of all issues can be found on the C4 website: www.colonialcoins.org.

Starting in 1995, C4 has held annual conventions, always in the Fall. The first two conventions were held in Pennsauken, NJ in conjunction with the MANA Convention. The next 15 consecutive conventions were held in Boston in conjunction with the Bay State Convention. Starting in 2012, the C4 Conventions are held in Baltimore in conjunction with the Whitman EXPO in November. These conventions serve as a platform to give educational presentations to the membership and also educate the general public. There is also the sharing of ideas and research during social events and study groups. It is at this convention that the Annual C4 business meeting is held, where members can bring up topics and important votes are held.

In addition to conventions, C4 holds meetings at the annual EAC and Summer ANA Conventions. Many C4 members participate in the EAC Colonial Happening held on the Thursday night of each EAC Convention. This function is more of an informal social event where those present share coins questions and comments. The coins discussed are projected on a screen, eliminating the need for anyone to handle them. Other meetings are held around the country, at state and regional coin shows throughout the year. These are informal fun events, not formal stuffy meetings.

Until recently, C4 has held an annual private auction of colonial and Confederation era numismatic material consigned by members and open to bidding by both C4 and EAC members. These were held at the C4 annual convention. The cataloging was done by McCawley & Grellman and the catalogs published have proved to be invaluable numismatic reference books to the hobby. Starting in 2012, C4 has partnered with Stack's-Bowers to hold an annual auction of colonial and Confederation era material at the Whitman EXPO in November, where C4 also has its annual convention.

C4 has proudly published the following six scholarly books since its founding as part of its educational mission:

The Copper Coins of Vermont, and Those Bearing the Vermont Name by Tony Carlotto

John Hull and the 1652 Massachusetts Silver Coins by Louis Jordan

An Illustrated Catalogue of the French Billon Coinage in the Americas by Robert Vlack

The Hibernia Coinage of William Wood (1722–1724) by Syd Martin

The Rosa Americana Coinage of William Wood by Syd Martin

New Jersey State Coppers by Roger Siboni, John Howes, and Buell Ish (co-published with the American Numismatic Society

C4 has a well stocked lending library, which is available to members of C4 and EAC. For the cost of postage, members in good standing can borrow any title, thus promoting research and education. A catalog of titles available, and instructions on borrowing, is on the C4 website at www.colonialcoins.org.

C4 welcomes everyone that has an interest in any area of colonial numismatics. There are even members that don't collect coins but just have an interest in the numismatic history of the time period. C4 officers are elected every two years. These are unpaid volunteers that work for the love of the hobby and for the enjoyment of others. The elected officers consist of President, Vice President, Secretary, Treasurer and seven Regional Vice Presidents. Non-elected officers are the C4N Editor, The C4 Librarian, C4 Publications Chairman, C4 Education Chairman, C4 Exhibits Chairman, C4 Webmaster, and C4 Convention Chairman.

History of Coin Grading

The Beginnings of Coin Grading

Grading of US coins arose during the second half of the 19th century, as interest in collecting old coins increased, and coin collecting progressed from being a curiosity to a mainstream hobby. Grading was

originally used in an informal manner by dealers and auctioneers who were attempting to describe the items they were selling, often to buyers and bidders who would not have any opportunity to see the actual items or their images (photography was rare in numismatics at the time, and the Internet was a century in the future). Terms such as "Poor," "Good," "Fine" and "Uncirculated" were applied. In those days, "Fine" meant *slightly circulated*, or what we in EAC today might call Extremely Fine. Occasionally, there might be some elaboration to the description, such as "Mint red color," "above average surfaces," or "scratched." These coin descriptors did not have broad-based recognition. The very idea of grading standards was only a nascent concept at the time. The emphasis by collectors and dealers was on the rarity and historical significance of the object, with the condition being of lesser importance. It was the "Wild West" for coin collectors, and it was easy to make mistakes. Luckily, coin values were generally fairly low, and the price spread between low-grade coins and high-grade examples was relatively smaller than today.

In the early part of the 20th century, interest in coin collecting gained momentum, and the number of people pursuing coins for their collections grew rapidly. This put upward pressure on prices, which in turn led to the need for more detail in coin grade descriptions. Generally speaking, throughout the history of coin collecting, as the price spread between successive quality (*i.e.,* grade) levels has increased, the complexity of the grading system has also increased. H.O. Granberg, a member of the Committee on Classification for the ANA in the early part of the previous century, proposed the adoption of a uniform standard for the classification of the condition of coins. Coin dealers such as the Chapman Brothers began to use grading terms such as Very Good, Very Fine, *etc*., based on the amount of wear (technical grade) to supplement the sparse earlier grade descriptors. This level of specificity in coin grading was adequate until World War II.

A Guide Book of United States Coins

This book (Bressett/Yeoman, 1947-2014), commonly referred to as the *Red Book*, was first published in 1946 (but dated 1947) and has been updated every year but one. The *Red Book* is first-and-foremost a manual for US coin prices and not intended to be a guide to US coin grading. However, since price is correlated to grade, and the *Red Book* includes a section on "Conditions of Coins," it deserves some mention in this context. The earliest *Red Book* editions recognized only a few distinct adjectival grades (Good, Fine, Very Fine (for Seated Dollars) and Uncirculated). Later editions provided numerical grades along with the adjectives, plus intermediate grade levels were added for Very Good, Very Fine, Extremely Fine, and About Uncirculated. The descriptions for each grade level are very brief (just one or two sentences). For new collectors, the *Red Book* and the *ANA Grading Guide* (described below) are the two must-have books that provide the most education for the lowest cash outlay.

Sheldon – the Arrival of Numerical "Grades"

The use of numerical grade descriptions was introduced in 1949 by Dr. William H. Sheldon. When Dr. Sheldon published *Early American Cents* (Sheldon, 1949), his seminal work on early US large cents, he introduced the concept that a number corresponding to its relative value at its grade could be assigned to a coin and that this number could be used in conjunction with a basal value (which would depend on the rarity and desirability of the particular variety) to compute the coin's value. In other words, *the Sheldon scale was never intended to be a scale for* ***grading*** *coins, but rather a system for* ***pricing*** *them.*

Sheldon's scale ran from 1 to 70, which encompassed the entire grading spectrum: a "1" coin was recognizable and undamaged, but no better; a "70" coin was flawless and exactly as minted. All the other grades would fit somewhere between these two extremes. For Sheldon the descriptors were the grades and the numbers represented relative values of the more common 1794 large cents in the late 1940s.

> Basal State (1), Fair (2), Very Fair (3), Good (4, 5, 6), Very Good (7, 8, 10), Fine (12, 15), Very Fine (20, 30), Extremely Fine (40), About Uncirculated (50), Mint State (60, 65) and Perfect Mint State (70).

Using Sheldon's system, and considering a 1794 large cent with a basal value of $1, a Good (G-4) coin would be worth 4 x basal = $4 and an Extremely Fine (EF-40) coin would be worth 40 x basal = $40.

It is clear from the text of this chapter, and from the various references made by Dr. Sheldon to the correlation between grade and value that grading standards for early cents existed and that he understood how to use those standards. However, though he provided grade descriptions, they were so ambiguous as to be useless in discriminating one grade level from another. The primary value of Sheldon's book from the grading standpoint was to establish the 70-point scale that is now utilized for grading all US coins, and allude to the existence of grading standards that would enable market participants to assign a value to each and every copper coin.

The Sheldon system purported to be the beginning of the development of a "science" of coin pricing, but it soon failed in its ability to relate numerical grade to price. Within only a few years after his book was published, the pricing scheme he developed could no longer portray market pricing, despite modifications (Sheldon, 1958). The 70-point scale introduced by Sheldon remains in use to this day, but the numbers no longer correspond in any way to price ratios as Sheldon envisioned. The chief reasons for its practical failure were inflation and the changing tastes of collectors. Inflation in coin values, which began in earnest in the 1950s, led to expanding price differentials between grade levels. Collectors increasingly wanted the highest quality coins for their collections, and this desire drove the prices of high-grade coins up at a faster rate than lower-grade coins. Before long, a "40" coin was not worth 10 times as much as a "4" coin, but 20 times or more. Sheldon's relationship between grade and price was lost and has not returned.

A Guide to the Grading of United States Coins

Another important effort to define the nuances of coin grading for US coins was the 1958 publication of the first book dedicated solely to grading (Brown and Dunn, 1958). This reference book—usually referred to by its authors' names, Brown & Dunn, used written descriptions, together with detailed line drawings to illustrate each of the major grade categories recognized at the time, for all the important series of US coins.

Brown & Dunn utilized descriptive (adjectival) rather than numerical grades. This no-nonsense guide begins with a brief introduction and then launches immediately into the grading chapters that are arranged in ascending order of denomination from half cents through Double Eagles. Brown & Dunn used line drawings—rather than photographic images—to illustrate the critical wear points at each grade level. The illustrations are provided for the following circulated coin grades: About Good, Good, Very Good, Fine, Very Fine, Extremely Fine, and About Uncirculated. A brief description is provided for FAIR (but no illustration). The guide does not make any attempt to define intermediate grade levels (such as VF-30 *vs.* VF-20 or EF-45 *vs.* EF-40). Uncirculated grades are not described in the grading guide chapters, but there is mention of such uncirculated grades as: Choice, A-1, Select, and Gem in the introduction.

The authors provide a very insightful comment in their introduction when they say *"[t]he idea has prevailed among collectors and dealers that the grading of coins is a matter of personal opinion and that no two people will grade the same coin alike."* While this statement can still be made today, they follow it by saying *"standards can be set up for the various grades of circulated United States coins."*

The *Grading Guide for Early American Copper Coins* (this volume) is an attempt to make the commonly-accepted EAC grading standards for early US copper coins accessible to more collectors.

Photograde

This relatively short volume (112 pages) by James Ruddy (1970) enhanced the existing body of literature on grading by providing photographic images of actual coins to illustrate the various grades for US coins. In the introduction, the author points out the fact that rapidly rising prices for US coins resulted in larger differences in price between successive grades, and this created the need for improved precision in grade

descriptions. Each of the grades from About Good to Uncirculated (AG-3, G-4, VG-8, F-12, VF-20, EF-40, and AU-50) is described and illustrated for each US series from half cents through Double Eagles. It should be noted that this guide makes numerical assignments for the various grade levels (as defined by Sheldon), which Brown & Dunn did not. The introductory text also distinguishes PROOF strikes from business strikes, and mentions the concept of "split-grades" (*e.g.*, G obverse/VG reverse). Another innovative feature of *Photograde* was the inclusion of a chapter on Colonial coins. Illustrations were provided for Connecticut coppers, New Jersey coppers, and various Washington pieces. There was also a very informative section that discussed die breaks, overdates¸ mint-made adjustment marks, and clash marks. Counterfeits and cleaned coins were mentioned briefly, without much supporting information.

The Official A.N.A. Grading Standards for United States Coins

The American Numismatic Association (ANA) originally developed this guide (Bressett and Kosoff, 1977) with the stated goal to "standardize grading by defining significant degrees of wear and establish guidelines so that the various grades may be easily identified." The timing was propitious, as the phenomenal growth of coin collecting during the early part of the 1970s was being threatened by grading abuses and the resulting loss of confidence by buyers. To enhance the popularity of collecting and entice more money to enter the rare coin marketplace, a set of grading standards was required, and the largest US organization of collectors (ANA) responded with a comprehensive and well-written volume that defines technical commercial standards.

The first edition of the ANA grading guide used line drawings (much like Brown & Dunn), but these were later replaced by black and white photographs of acceptable (though not exceptional) resolution. The important grade steps, including Uncirculated, About Uncirculated, Extremely Fine, Very Fine, Fine, Very Good, Good, and About Good were illustrated, and some intermediate grades were described (*e.g.*, VF-30 was distinguished from VF-20, and EF-45 from EF-40). Three different AU grades (AU-50, AU-55, and AU-58) were described. Initially, there were only three mint state grades, Uncirculated (MS-60), Choice Uncirculated (MS-65) and Perfect Uncirculated (MS-70)—the last, except for modern coins, a mostly theoretical grade. Soon after, additional levels of mint-state (MS-63 and MS-67) were recognized and the adjectival equivalents dropped. The introductory chapters pay homage to the Sheldon 70-point numerical scale, provide a brief history of efforts to document the grading process, describe the elements that comprise the grade of a coin, differentiate between proof and business-strike grades, and even discuss prevailing practices in the rare coin market as they pertain to grading.

Within the early copper sections, the ANA grading guide provides useful footnotes that give the reader insight into some of the frequently-encountered die variety-specific anomalies that can lead to grading misconceptions (things like worn dies, die cracks, die clashes, and planchet characteristics like rough copper blanks). This information is more comprehensive than what can be found in most other non-copper grading guides. ANA standards are less stringent than EAC standards in VF and higher grades.

Grading Coins by Photographs

A relatively recent addition to the grading guide genre is *Grading Coins by Photographs*, by Q. David Bowers (2008). Building on a frequent theme of his *Coin World* columns, that coins assigned identical numerical grades are not all equal in value, he goes on to acknowledge the "gradeflation" that has affected both circulated and uncirculated grades assigned over the last 30 years—including the acknowledgement that "MS-61 [and MS-62] coins, including examples certified by the leading coin grading services, do indeed show wear." Reiterating that grading is neither objective nor scientific, he emphasizes that the decision to purchase any coin should be an aesthetic one. Some "Mint State" coins with discernible wear are dull and lifeless; others are highly lustrous, despite the rub of wear. Furthermore, across the grading spectrum, he notes that "Early American Coppers Club (EAC) interpretations are often lower than are certification service interpretations, this being true for all copper half cents and large cents." The early copper sections

of the volume are sprinkled with illustrative comments. For example, the Liberty Cap half cent used to illustrate EF-45, 1794 C-1a, was manufactured from "dies. . .cut in shallow relief and with low rims. This makes the coin much less sharp overall than the one illustrated for Mint State"—which happens to be a high-relief 1794 C-9. In discussing the VF-20 Liberty Cap cent, he notes that "The ANA grading standards suggest that 75% of the hair shows, while PCGS suggests 30-70% on varieties struck from higher relief dies, and less than 50% for others." To address the confusion fostered by such discrepancies, we have elected to illustrate the grading standards for the Liberty Cap cents in this volume *by date*. From time to time, he adds comments about luster—for example, that any residual luster on an EF Draped Bust cent is apt to be among the letters of LIBERTY. And apropos of the EAC standards delineated in this book, for that same EF Draped Bust, he notes that "By the standards of the Early American Coppers society, if the 'spit curl' in front of Liberty's ear is missing, the coin is not EF."

Making the Grade

Like Photograde, the ANA grading guide, Bowers' book and others described below, *Making the Grade* (Deisher, 2012), published by *Coin World*, is a visual guide to grading most series of US coins, including many half and large cent types, using commercial grading standards. 1793 half cents and middle date cents are omitted; Chains and Wreaths are lumped together as are all Liberty Cap cents and all 1794-7 half cents. Despite these limitations, extensive color-coded maps of focal areas and first wear points are a plus.

Third Party Grading

By the 1970s, the market for rare coins had expanded tremendously from the level seen in the 1950s. Furthermore, people began to view coins as a potential investment as well as an interesting hobby. This shift to investing in rare coins, together with accelerating price levels for coins, added impetus to the coin market's requirement for accurate grading.

In response to market demand for grading uniformity and accuracy, the American Numismatic Association's Authentication Bureau (ANAAB) initiated the American Numismatic Association Certification Service (ANACS) in 1978. For a fee, a US coin could be authenticated, graded, and returned to the owner with a certificate that featured a photo of both sides of the coin, together with ANACS' grading opinion for each side. ANACS used the numerical grading system (1–70) and graded coins using what are now called technical, rather than what came to be called market standards (see pp. 11-12 for a discussion of the differences between technical and market standards). For mint-state coins, ANACS generally recognized the grade levels that were prevalent in the commercial marketplace at the time, namely: Uncirculated (MS-60), Choice Uncirculated (MS-63), Gem Uncirculated (MS-65) and Perfect Uncirculated (MS-70). The ANACS grading service was immediately embraced by a large number of dealers and collectors. Demand for ANACS grading was so heavy at one point that the turn-around time became prohibitively long. The ANA also published The ANA grading guide, with the first edition appearing in 1977.

The ANA grading system was a solid step forward in the codification of grading for US coins. However, a few problems soon became apparent:

- The ANACS photo certificate did not provide absolute certainty that the coin which accompanied the certificate was the same coin pictured.
- The ANACS photo certificate did not protect the coin from subsequent damage or alteration.
- The practice of issuing separate grades for the obverse and reverse of each coin, while academically satisfying, created uncertainty regarding the market value of the coin in cases where the two grades did not match.
- A perception began to grow in the marketplace that ANACS, while struggling to keep up with demand for its grading and certification service, was not maintaining enough consistency in its grading opinions.

The Commercial Grading Revolution

In 1984, Numismatic Certification Institute (NCI), a division of Heritage Capital, was the first to certify coins using what we now call market standards. ANACS, the other grading service at the time, used technical grading standards. NCI provided a photo-certificate and a grade opinion, though its grading standards proved ultimately to be too liberal by later market standards. NCI published the *N.C.I. Grading Guide* (Halperin, 1986); the book was later retitled *How to Grade US Coins* and is now available for free on the Internet at www.coingrading.com/. Much of its philosophy, as well as many of its illustrations, were incorporated into the later PCGS grading guide. NCI stopped certifying coins in 1989.

The issues with ANACS and NCI grading and the increasing coin market demand for investment grade coins ultimately led to the market-oriented grading system that was introduced by the Professional Coin Grading Service (PCGS), founded by David Hall and several other coin dealers in 1986. PCGS was founded with the goal of "solving the grading problem" for US coins. The PCGS system retained the numerical 1–70 designation and addressed many of the shortcomings identified for the ANACS and NCI certificates.

The most significant innovation of the PCGS grading system was the use of encapsulation: the coin, after being authenticated and assigned a market grade, was encapsulated in a sonically sealed clear, hard plastic holder (slab). The numerical grade (a single number to designate the overall market grade opinion for the entire coin) was printed on the PCGS insert, which was also encapsulated in the holder, above the coin. Encapsulation was intended to provide protection from mechanical damage and also insure that the assigned grade never got separated from the coin; alas, slabs have been counterfeited and tampered with, so the protection they offer is less than certain. One grading service, NGC (see below) now publishes medium resolution photos of some of its coins in slabs on the Internet at www.ngccoin.com/certlookup/, offering another level of protection against fraud, if the collector checks the images.

Another important aspect of PCGS grading was their recognition of all numerical grades in the mint-state range (60–70). This level of detail in the assignment of grade was initially met with skepticism by the market, as the majority of numismatists did not believe that this level of grading precision could be consistently achieved. At least with respect to early copper, one can make a very strong case that it still has not been (see Chapter 2). However, the concept gained traction with a few series where the number of mint-state coins available was ample (*e.g.*, Morgan Dollars and St. Gaudens $20 gold pieces) and over time, general though not universal acceptance of the 11 Mint State grading increments has been won.

PCGS maintains a set of reference coins as grading standards. The company also eventually published its grading standards in a reference work titled *Official Guide to Coin Grading and Counterfeit Detection* (Hall, 1997). More recently, PCGS has published full color images of coins from all US denominations and types in many grades on the Internet (www.pcgs.com/photograde) and has created applications for smart phones and tablets to allow collectors and dealers easy access to their standards. These efforts are designed to maintain consistent grading standards for PCGS coins and to promote increased market confidence in PCGS grading.

The creation of the population report was another important PCGS innovation. The population report tabulates the number of coins of a particular type and date that have been assigned each grade by the grading service. While this is conceptually quite simple, the population report is voluminous, due to the large number of coin series and dates that are included for each series. The population report is even more intricate, due to the addition of significant varieties for some dates in each series, and the addition of superlative qualifying descriptors, such as "full head," or "cameo," or "deep mirror prooflike." As the number of coins graded has risen, the relevance of the population data has increased. Unfortunately, it is rarely possible to determine whether a particular coin has been graded previously, and for this reason the population report contains a large and unknowable number of duplicate submissions.

The PCGS grading system was immediately successful and gained very wide market acceptance. Other firms were quick to copy various aspects of the PCGS market grading system. One such company, founded shortly after PCGS, was Numismatic Guaranty Corporation (NGC). NGC used hard plastic holders similar to those from PCGS and also graded coins on a 70-point numerical scale. However, even though there are many similarities between NGC graded coins and PCGS graded coins, the grading standards of the two firms appear not to be exactly the same. Some collectors prefer one service, while others like the other. The subtle differences between the two systems of grading have resulted in a number of interesting instances of crossover arbitrage conducted by savvy numismatists, who hope to profit by exploiting the grading variance. ANACS, which was sold by the American Numismatic Association and is currently privately owned, has also modified its grading service to use market grading and incorporate encapsulation and other grading features that were pioneered by PCGS. There have been numerous other grading services introduced (the most respected being Independent Coin Graders—IGC), but market acceptance of these has been limited. Today the vast majority of third party graded coins are handled by PCGS and NGC.

Demand for high-grade coins, particularly certified mint-state coins, continued to increase, and as a result of this increasing demand, the price spreads between successive mint-state grades also increased. In response to this trend, PCGS (and other services) introduced something they call "plus" or "star" grades for mint-state coins. These new intermediate grades effectively added fractional values to the numerical grading scale—for example, a coin graded as MS-64+ by PCGS might be called a 64.5 grade. The implication is that this coin is worth more than a MS-64 coin, but not as much as a MS-65.

PCGS Official Guide to Coin Grading and Counterfeit Detection

This wide-ranging and very informative volume (Hall, 1997) provides a great deal of insight into many crucial areas of knowledge that matter in the rare coin marketplace, including how to grade US coins using PCGS commercial standards. In addition, there are sections on grading techniques, the elements that comprise a coin's grade, such as marks, wear, strike, luster, color, and eye appeal, and how the PCGS grading standards were developed. More importantly, there is an extensive and profusely illustrated chapter on counterfeit coins, as well as a chapter devoted to techniques for altering the surfaces of coins (commonly called "coin doctoring" in the industry; see chapter 2 for more on this as it pertains to early coppers).

The PCGS Grading Guide contains detailed information about how to grade each type from each denomination of US coinage, and covers the full range of the 70-point grading scale (from P-1 to MS-70). A number of ancillary designations for various denominations are also illustrated, such as full-head Standing Liberty quarters, and full split bands on Winged Liberty (Mercury) dimes. There are black and white illustrations for the most popular collector series (such as Indian cents, Lincoln cents, Buffalo nickels, and mint-state Walking Liberty half dollars), and there is a short section of color photos to provide insight into such color-sensitive grading topics as the color of copper coins, toning of silver coins, and surface-related issues with gold coins. Unfortunately, there are no photos of different grades of any early copper series. Indeed, none of the books listed above has images suitable for grading without magnification.

In our opinion, the most valuable thing about the PCGS grading guide is the insight that it provides into the coin market, the commercial coin grading industry, and the fundamental tools with which every numismatist must become proficient to survive and thrive.

Copper Specialist Books That Discuss Grading

Beyond Sheldon's limited efforts, there have been few attempts to describe EAC grading in print. All have been limited in scope and usefulness. None has attempted to describe the process of grading Early American copper coins using EAC standards fully—the reason for the creation of the present volume. This section provides a brief survey of the existing literature that pertains to early US copper coins.

American Half Cents, the "Little Half Sisters"

Roger S. Cohen's seminal work on half cents (Cohen, 1971, 1982) includes a section on Rarity and Condition, wherein Cohen provides a brief written description of the generally-recognized EAC grades from BS-1 to MS-70. There are no grading illustrations, and there is no attempt to differentiate net grading from sharpness grading.

Walter Breen's Encyclopedia of United States Half Cents

This opus on the half cent series (Breen, 1983) is a wonderful volume that should be in the library of any serious half cent aficionado. The front section of the book includes a photographic grading guide with large, sharp black and white images of each half cent type in adjectival grades from Good to Uncirculated. VG, F, VF, EF, and AU were also included where images were available. The various head styles of 1794 (Gynandroid Head, three different Normal Heads, and High-Relief Head) each get separate treatment. However, too many grades lack photographs, and several are illustrated by coins at the high end for the grade, reducing its usefulness.

Walter Breen's Complete Encyclopedia of US and Colonial Coins

This book by Breen (1988) is not specifically about early copper, but rather all US and colonial series. However, at the beginning of the listings for each type, it has very brief grade descriptions that attempt to identify the pickup points for each grade from Good to About Uncirculated. The brief descriptions focus on aspects that are critical for each variety in each grade and so are very clear and useful. Another important point is that this book is the only one, other than the very limited treatment in *Photograde,* that gives a guide for grading colonial and Confederation era coppers. Unfortunately, Breen tended to state opinions as facts in the introductory materials, so the reader would be wise not to take all that Breen claims as truth.

United States Large Cents

Bill Noyes' (1991a, b) tomes on *United States Large Cents (1793–1814)* and *United States Large Cents (1816–1839)* briefly discuss grading in a section titled "My Criteria and Advice for Buying Large Cents." This is recommended reading for any early copper collector. It does not address sharpness grading, but it does give information about the kinds of defects that do and do not affect the net grades of early large cents.

***Copper Quotes by Robinson* (*CQR*)**

This little handbook written and published by Jack Robinson (1984-2011) earned a solid reputation among EAC members for the extensive nature and the veracity of the information it contained. Price estimates for all of the available varieties of US regular-issue copper coins were listed according to grade and condition.

The pricing information in *CQR* must be used in conjunction with the guide to grading and condition that precedes the tabular data. Grade levels from AG-3 to MS-65 are briefly described, with further breakdown at each grade level of the factors that separate Choice coins from Average coins, and Average coins from Scudzy coins. Scudzy is a term "coined" and defined by Robinson in *CQR*. The discussion of condition when used to describe copper coins is one of the most compelling reasons to read this volume. The paragraphs on condition really get to the heart of a value system that is shared by many early copper collectors and can help the reader understand some of the ways that EAC grading differs from commercial grading systems.

Technical and Market Grading

We have introduced the concepts of technical and market grading. Technical grading focuses on the extent to which the coin has changed since it was struck, *i.e.*, the remaining luster and detail and any damage. Market grading is focused on the value of the coin relative to others of the same type and date. Indeed, one can say that *the purpose of technical grading is to describe a coin's preservation*, and *the purpose of market grading is to describe its value*. Consequently, as we discuss in Chapters 2 and 7, the market and technical grades of a coin often differ, and it is important for the collector to understand both. A slab grade

must always be understood to be a market grade; by contrast, the images on websites such as www.PCGS.com/Photograde or www.ngccoin.com/coin-grading-guide/ illustrate the technical standards that should be expected in coins graded by these services. Commercial technical grading as illustrated by the ANA grading guide shows standards used in most of US numismatics rather than the traditional standards still used in EAC. We have already alluded to the well-known fact that commercial standards have relaxed in recent decades – this is the "gradeflation" to which Bowers refers (compare the grade descriptions for VF and EF in Brown and Dunn with those in any recent commercial grading guide). In Chapters 5 and 6, we illustrate the traditional technical grading standards used today in EAC; in Chapter 2 we illustrate some differences between the technical standards used in EAC and those used in commercial grading.

As we discuss in Chapter 2, commercially market-graded coins can be worn and still be slabbed as "Mint State," even though they clearly are not uncirculated. This is confusing to many collectors, but it's easy to understand if one realizes that the coins the grading services usually see are Morgan dollars. These coins got jostled around in Mint-sewn bags for many decades before seeing the light of day. *Of course* they have friction on the cheek and hair, and bag marks all over from this handling. Yet we know for a fact, because we know they were removed from the Mint-sewn bags and thence sold directly to coin dealers and collectors, that they are, by definition, "uncirculated." An otherwise much less marked-up coin that has very light circulation wear is usually far more desirable to the collector, but how does one grade it? With circulation wear, the coin's technical grade can be no better than AU, and indeed, at one time AU-58 meant a choice, lustrous coin with light friction wear. However, its *value* is greater than that of the dinged-up uncirculated coin. Because the value determines the market grade, and the coin that is technically AU is worth more in the market than a dinged-up coin out of a Mint-sewn bag, the grading services upgrade the circulated coin to some level of MS. In EAC we don't do this. To be called Mint State by EAC standards, a coin can have no wear, friction or significant marks on it anywhere. This is a traditional technical definition for Mint State.

Coin grading has evolved for over 100 years, and it is safe to say that coin grading will continue to evolve along with the coin market. There is a widely quoted saying in numismatics: "buy the coin, not the slab." It is essential to keep in mind that the grade assigned to any coin is the opinion of one or more individuals at one point in time. Knowledgeable people can (and often do) disagree. Commercial third party market grading has increased the amount of knowledge available about US coins, but has also introduced added complexity to the coin selection process. What will happen to the market values of coins in current slabs when market forces (*i.e.,* collectors) decide, as they surely will at some point, that they will no longer accept circulated coins as Mint State? The same thing that happened to the values of coins with NCI and ANACS photo certificates – they dropped, and the certificates disappeared from the marketplace.

The wise collector develops her/his own grading skills and makes her/his own determinations before purchasing coins. As always, *caveat emptor*!

Handling and Preservation of Early Copper Coins

As we have discussed, EAC'ers have maintained traditional grading standards in the face of declining commercial standards. We want to preserve our coins so they continue to be available to future collectors in the grades they had when we bought them. Some collectors are obsessive-compulsive about how they handle their treasures; others are downright paranoid. Proper handling and storage are required to preserve their surfaces and color over time, but paranoia is not helpful. There are many ways to store old coppers, and each has advantages and disadvantages. We discuss the pros and cons of several of the most popular.

Handling

All coins are best handled by the edges. Some wear cotton gloves when handling particularly nice coins, but this seems to be rare any more, and gloves make it harder to keep from dropping the coin. Collectors are cautioned never to touch the obverse or reverse of a coin, but a brown circulated coin *has* been handled before. Touching it again briefly with clean hands won't hurt it. We have seen some advanced collectors

and dealers rub circulated coins to get a little oil from their fingers onto them. After all, this is how the coin developed its brown color, so a bit more handling shouldn't be shocking or cause disaster. The extent of handling that is allowable varies with the quality of the coin. If a coin is noticeably corroded, it probably doesn't matter how it is handled – you can't make it worse. In any case, NEVER touch the obverse or reverse of a Mint red or proof coin. A fingerprint can reduce its value by thousands of dollars!

Brushing: There are few things that seem as mystical to early copper collectors as brushing the coins. Even advanced collectors are sometimes heard whispering about brushing techniques. This, too, is not something to get overly concerned about. Simply put, a soft (non-metallic) jeweler's brush is rubbed gently over the surface of the coin. Use a couple of back-and-forth swipes in different directions. Don't scrub. The main purpose is to remove any dust or other light contaminants from the surface before they can corrode the coin. Many collectors brush their coins with a little oil or Blue Ribbon Conditioner, which contains an organic solvent and mineral oil as a protectant. The oil gives the coin an attractive sheen and protects the surface from oxidation. You can apply the oil to the coin with your finger or a cotton swab and brush most of it off, or you can daub it directly onto the brush. Different collectors advocate different techniques. We have tried both methods successfully; experiment with low value coins and do what seems to work for you.

Brushes get dirty as they pick up contaminants from the surfaces of coins. If they are used on recolored coins or coins with active corrosion, they get dirty very quickly. Obviously, you don't want to use a dirty brush on a choice, high-grade coin. Some collectors keep multiple brushes for use on higher and lower grade coins and on coins that have been cleaned and recolored as illustrated here. Some specialists recommend that all brushes be cleaned from time to time. This can be done easily by shampooing it with your favorite hair care product and then blow-drying it. In addition to cleaning dirt off the brush, the bristles become noticeably softer after a shampoo and blow-dry. Brushes are a lot cheaper than early coppers. We recommend that you buy at least two or three and experiment with them on lower grade or modern coins.


Dirty & clean brushes & preservative

Most collectors do not recommend that oils be used on red coins; rather, they should be brushed only with a clean, dry brush. Others report having no problem using oil on red coins. Though we have not experimented on this, it may come down to how clean your brush and your oil supply are. Products like Blue Ribbon darken eventually in an opened bottle (as illustrated; the product is almost clear when new), indicating that some kind of chemical change has occurred. The altered (degraded?) oil may darken a red coin. On the other hand, a copper coin that does not have any protectant on its surface is certain to darken. Ideally, one should test any such products on cheap red copper coins, such as modern Lincoln cents. It's your money, and it's is up to you how much you are willing to risk on a red coin's surface in this way.

Storage

Albums: This was the way most of us stored our childhood collections. Many collectors stored early coppers in albums in the past, though this seems to be a less popular approach today. Albums are convenient, don't take up a lot of space, allow the collector to look at the coin and to remove and replace it easily. However, the paper in these albums, like almost all modern paper, contains sulfur, so copper coins inevitably darken more quickly in albums. Also, those with transparent "slides" that allow the coin to be seen can scratch the high points of the coins, producing "slide marks." Albums can still be recommended for relatively long-term storage, but only for coins of middle and lower grades. Placing a red or partly red coin, or one with pristine or proof surfaces, in such a holder is an invitation to disaster.

Hard plastic holders: Some collectors use hard plastic holders that screw or snap together for short-term storage. These allow the coins to be shown to others without danger of them being damaged by fingerprints,

saliva, sneezes or the like. As long as the coin fits snugly in the holder, it is well-protected from physical damage due to handling, being dropped, *etc*. Such holders can be used for long-term storage, but they take up a lot of space, and they are not air-tight, so the collector needs to be vigilant in watching color changes or spots that may develop.

Slabs: These are a form of hard plastic holder and offer the advantages and disadvantages noted above. They are "sonically sealed," *allegedly* making them air-tight, which should protect coins against deterioration from oxidation. However, experience has shown that slabs are NOT air-tight (one long-time EAC member dealer tells a story of "dipping" a Peace dollar while in its slab). *Red coins have darkened, and fingerprints have developed on red coins sealed in slabs*. As a result, the major grading services no longer guarantee early coppers in their slabs against color change. Again, the collector must be vigilant lest the coin he purchased at great expense as Red ("RD") should darken to Red-Brown ("RB") and lose much of its value. Slabs can provide some comfort with respect to grade level; however, as we discuss in chapter 2, all services' grading standards are different from EAC standards. Slabs from reputable services provide a level of security that the coin is genuine. However, slabs have been counterfeited, so the collector's own knowledge is the best protection he has that his coins are genuine and accurately graded.

Flips: These are usually made of polyvinyl chloride ("vinyl") or Mylar. Dealers often have their inventories in such holders. They offer the advantage that both sides of the coin can be easily seen, and the flip takes up little space. PVC is the hard, inert plastic frequently used in plumbing. To make soft, transparent flips out of it, plasticizers (phthalates) are added. These degrade, producing hydrochloric acid (HCl, muriatic acid) that damages the surfaces of coins, and therefore they should be used only for short-term storage. We know of a pristine mint red 1853 cent that sold for a five-figure price in 1980 and was unfortunately left in its PVC flip; over the next 10-20 years, it suffered irreparable surface damage, losing almost all of its value in the process. The more rigid Mylar flips do not contain chemicals that damage coins, but because they are hard, the coin can become scratched (develop slide marks) in such flips.

Cardboard holders with a clear window: These, like flips, are favored by dealers because they take up little space, and both sides of the coin can be easily shown. An important difficulty with these is that tiny bits of the paper get onto the coin's surface where they cause corrosion spots which damage the coin. An even bigger problem is that they are held together with staples, and no matter how careful one is, eventually staples from these holders scratch coins. Do not use these! Staples are NOT our friends.

Paper envelopes with cotton liners: This method of copper coin storage is favored by more specialists than any other. The coin is placed into a cotton envelope, and that is placed into a standard paper coin envelope. The cotton liner protects the coin from the sulfur in the paper and provides a cushion in case the envelope is dropped. Early coppers have been stored in this way for many years without deterioration. However, if oil has been applied, the cotton absorbs it from the surface of the coin, drying it out. This dulls the surface, making the coin less attractive and more susceptible to corrosion. Consequently, the collector using Blue Ribbon or the like must repeat the application at least a couple of times a year. Even if oil is not used, the coin should be checked for surface film and dirt at least twice a year and brushed. This protects your coins and your investment. The collector who is not interested enough in his coins to look at them a couple of times a year should sell them to someone who is! Collectors who want even more protection can place the coin into an inert polyethylene bag, place that into the cotton liner, and place that into the envelope. Though soft, polyethylene does not contain the reactive compounds found in vinyl flips and does not damage coins. If the polyethylene bag is folded around the coin, it very effectively keeps air out and keeps the cotton from wicking the oils off the coin.

Poly bag, cotton liner and envelope

Chapter 2 - EAC Grading Guidelines

The purpose of this book is to illustrate the current standards and practice of grading as practiced within EAC, to show how it differs from commercial grading, and to make the process of EAC net grading as clear and understandable as possible. EAC grading differs from commercial grading, which is prevalent in other US coin series, as follows:

- An EAC grade usually consists of two grades. The first refers to the *sharpness* or degree of wear on the coin, *i.e.,* the technical grade. The second is a *net grade* after accounting for any post-strike impairment(s) to the coin, *i.e.*, the market grade. If there is a single grade, that means the coin has no significant impairments, and the net grade is the same as the sharpness grade. Commercial grading does not give separate sharpness and net grades, but provides a single overall grade.
- Sharpness standards for commercial grading also differ from those used in EAC; EAC standards are generally more strict, especially in middle and higher grades, and this book focuses on EAC grades. Differences between commercial and EAC sharpness grading are discussed on pp. 44-46.

Grading, whether by commercial or EAC standards, is subject to the grader's interpretation of attractiveness, and attractiveness resists quantification. Therefore, grading standards vary slightly from person to person, and even a single individual's standards vary over time. All honest graders *try* to be consistent, but the human eye and brain are not infallible. That said, there is a clear and definite consensus among knowledgeable collectors and dealers around what details are required for various sharpness grades. While there is more variation around how this or that defect affects a coin's grade and value, there is a general consensus even there.

Introduction to Grading – the Basics

What you will need:

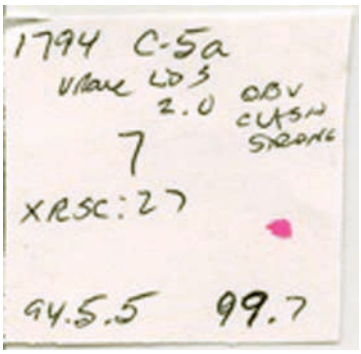
1. The coin you want to grade (out of its holder, if possible, so you can examine the edge).
2. A point light source, like a 100-watt incandescent bulb, in a fixture that will hold it about 12–18 inches above the area where you will work. The room should be otherwise dark. It is best if the light is enclosed in a fixture with a shade that prevents leakage of light into areas beyond the pool of light where you are working. Fluorescent lighting is not optimal for grading—the diffuse nature of the light makes it difficult to spot subtle scratches on the surface of the coin.
3. A magnifying lens. Recommended magnification is 5-10x. Higher powers of magnification may be needed for authentication but should not be necessary for grading. Small pocket lenses offer convenience (they fit in your pocket!), but larger lenses offer the advantage that they let more light through and let you see more of the coin.
4. A "safe" work surface below the coin. It is always best to have a neutral color fabric or foam surface below your coin to prevent any damage to the coin if it should fall.

The grading process (step-by-step):

1. Hold the coin by the edge (for example, between your thumb and forefinger). Without magnification, hold the coin under the light, and view both sides, to get your initial impression. At this point, you will only see problems if they are fairly obvious. Make a mental note of any problems, and record your impressions about the surfaces and eye-appeal of the coin (*i.e.*, is it Choice, Average, Scudzy or maybe in between? Refer to the definitions of condition on p. 17). For high-grade coins (AU or MS) you can get a good idea about the mint luster on the coin by slowly swiveling it under the light source and looking at the reflected light (it takes a little experience to know what original mint luster looks like).

2. Attempt to determine whether the coin is authentic (see Chapter 3). This step requires some knowledge about the differences between genuine coins and counterfeits. If you are not sure, and you do not feel confident about the coin's authenticity, seek help from a professional numismatist. If the coin looks authentic to you, continue grading it.
3. Determine the sharpness grade. Examine the obverse and reverse of the coin carefully with the aid of a magnifier to look at the remaining luster and detail. Later chapters discuss how the amount of hair detail remaining on a circulated large cent or half cent is the primary determinant of its technical grade. The amount of remaining luster is the key for Uncirculated and About Uncirculated coins.
4. Determine the net grade. Does the color look normal? Look carefully at any defects on the obverse, reverse, rims and edge. Consider how strongly they impact the eye appeal of the coin. Do they bother you enough to decrease the coin's value to *you*? If so, by how much? Look carefully at the date, lettering, devices and edge for possible signs of alteration or inauthenticity.

Many collectors keep notes of their examination of a coin. The illustrated envelope notes the date, variety, sharpness and net grades, description of significant defects, the provenance and die state. Many collectors and dealers also include the price paid, often in a code.



R. Tettenhorst's 2 x 2 envelope listing variety (1794 C-5a), die state (LDS 2.0; OBV clash), weight (99.7 gr) and grade (VG-7). XRSC:27 means it was lot 27 in the Roger Cohen Sale. 94.5.5 is his inventory number, meaning it was the 5th 1794 C5 in his collection.

While there are many ways to record a coin's grade, this is definitely *not* the way to do it.

Definitions of Condition:

C**ondition** is the main factor in net grading. The term "condition" as used by EAC refers to the quality of the surfaces of the coin. For the rest of numismatics, condition is a synonym for "grade." The logic behind the different usage is that copper coins are subject to more different sorts of damage/degradation than silver and gold coins typically receive.

When we first look at a coin we generally have a reaction of "wow!" "nice," "yuck" or something in between. These reactions are independent of sharpness grade. On one hand, a coin can be heavily worn and still have lovely surfaces, and on the other hand, a coin that went into the ground when new and is now badly corroded is still Uncirculated. The terms used for this description are "choice," "average" and "scudzy."

In recent years, some in the early copper market have gone farther with condition, adding terms such as "average plus" and "average minus." Whether this level of specificity serves a useful purpose is a matter for debate, and many collectors and dealers have not embraced it. Typically, an average plus coin prices a bit higher than the book value but not at the next grade level as a choice coin would. An average minus coin prices a bit lower than the book value, so it's not that complicated! Not all collectors and dealers even use these terms, but the concepts within them do affect price, so they are worth attention. The reader should consult a recent edition of *Copper Quotes by Robinson* for a more detailed discussion of condition.

Choice: Color and surfaces are much better than average for the sharpness level. Surfaces are smooth and color is original and attractive. No problems that would result in net grading are evident.

Above Average: Color and surfaces are better than average for the sharpness. Surfaces are relatively smooth and color should be original. Only very minor problems should be evident; the coin probably does not have to be net graded.

Average: Color and surfaces are typical for the sharpness grade level. Surfaces should be relatively smooth (for grades of VF-EF) or may have minor roughness/granularity (for grades of G-F). The color should be acceptable, but not necessarily original. Minor problems result in net grading by at most one or two grade levels. Knowing whether a coin is average for the grade requires direct examination of many coins.

Below Average: Color and surfaces are worse than typically seen for the sharpness grade. Surfaces may exhibit some roughness/granularity, or may be dull. The color may be unattractive and may be non-uniform, dark, or obviously not original. Significant problem areas result in significant grade deductions.

Scudzy: Color and surfaces are far worse than normal for the sharpness level. The surfaces may exhibit serious problems (corrosion, heavy granularity, scratches, damage, *etc.*). The color may indicate harsh cleaning or be very dark. Scudzy coins have big problems that make their eye-appeal much lower than normal. The net grade must be reduced by several grade levels.

Having defined different levels of condition of the surface, it is important for the reader to understand that these are all moving targets. The more a coin has circulated, the more evidence of handling it will have. A defect that would reduce the grade of a Mint State coin to AU or EF might not require net grading of a VG coin at all. A choice MS coin must have far nicer surfaces than a choice coin that has circulated.

Learning to Grade

The key to improving your grading skills is to look at (and grade) a lot of coins. The old adage of "practice makes perfect" applies here. The Grading and Counterfeit Detection Seminar offered at the EAC's annual convention is an excellent way to hone your grading skills. Auction catalogs (many of which are available on-line) often show high quality images. While many coins sold at auction tend to be in higher grades, some rarities are illustrated in lower grades, giving you an opportunity to see how experts grade a wide variety of copper coins.

Another way to gain confidence is to build your own grading set. The photograph on the right shows a Classic Head half cent grading set assembled by one of us (RLF) because of the lack of a good guide for grading early copper. Each coin was graded by one or more experts and has served as a guide when assessing coins for purchase. It is possible to put together similar sets of middle and late date half and large cents for a reasonable cost.

Color

An Early Copper "Color Set"

Red

Faded Red

Reddish Steel

Red & Brown

Light Brown

Golden Biscuit

Brown & Tan

Reddish Chocolate

Chocolate

Chocolate & Steel

Magenta & Green

Deep Steel

Olive & Steel

Medium Olive

Deep Olive

Greenie

Ebony

Mottled Chocolate

Speckled Brown

Woodgrain

Light Olive & Faded Red

Red, Brown & Green

Dark Chocolate

Light Tan

Cameo Contrast

Red & Steel

Blue & Purple

Rose, Steel & Red

Light Golden Brown

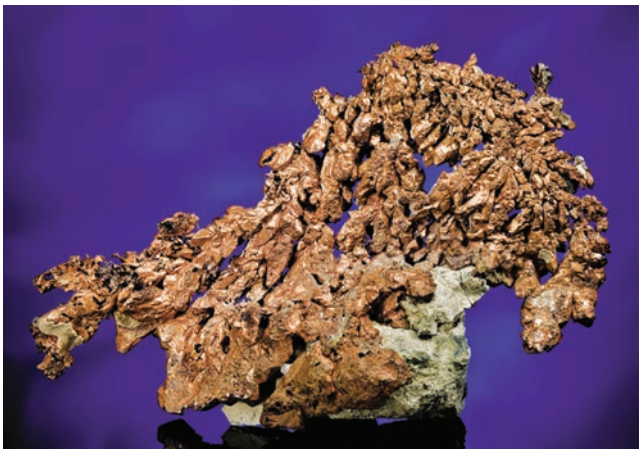
Sea Green

Red Speckled with Steel

Light Olive & Steel

Magenta

Mahogany



Native Copper

Natural Colors of Copper Coins

Like the Classic Head grading set shown on page 17, it is possible to assemble a color set. One of the best-known sets was put together by Dr. Sheldon. His 66-piece color set consisted of 6 Colonials and 60 large cents in a custom display case. This set was assembled to display a variety of colors and grades for early American coppers. It was sold to Dan Holmes in 1976, who kept the set intact. Unfortunately, over the next 33 years, further oxidation occurred, and many of the coins lost their vibrant colors (Goldberg's Dan Holmes Sale Part-1 Lot 571; Sheldon 66 coin Color Set, 2009). In the previous spread, we present our own color set, created from auction images and from our own collections, relying primarily on high-grade coins. We hope that this eye candy will convince the reader of the rich variety of colors that can be found on early coppers. The most natural color is the best color, and the colors in that set are all natural, though the darkest colors are much less desirable than the rest.

As we have discussed, copper reacts with acids and oxygen in the atmosphere and forms oxides, sulfides and other compounds. While this technically constitutes corrosion, when very light, the coin can turn a vast array of colors, including blues, greens, reds, browns and tans and even mixtures of these colors. In addition, minor impurities in the copper can cause additional color development as well as the development of mottled or speckled surfaces. While novices refer to early coppers only as Red, Red and Brown or Brown, such descriptions barely scratch the surface (pun intended). Collectors frequently talk about the richness of the range of natural colors to which early coppers can turn. Some even collect by color, developing a color set as Sheldon did.

A classic "greenie"

For native copper, natural color is reddish orange (p. 19). However, copper can assume other colors as it ages, with browns, greens, and tans being foremost among them. There is an entire subculture within EAC that is devoted to uncirculated large cents that have various shades of green or green-brown toning; they even have a nickname for the object of their desire: "GREENIES." The surface color of a copper coin depends on how incident light interacts with the surface and with the translucent layers of oxides and sulfides that form on the surface. The chemistry of copper can get quite involved, with multiple forms of copper oxides possible, in addition to sulfides, fluorides, phosphides, *etc*. Circulated copper coins usually develop their "penny brown" color through the repeated interaction with compounds that humans carry on their hands. Uncirculated coins can often be seen with iridescent overtones that compliment the underlying brown or tan color. The grade impact of the color on a copper coin can be neutral, positive, or negative, depending upon the perceived desirability of the color. The beauty is, quite literally, in the eye of the beholder.

Original Mint Red, slightly mellowed

Lots of red for a 1794!

Color is most important in Mint State grades where closeness to original Mint red is considered the best. However, red color is ephemeral (see p. 85 for a discussion of this), and many collectors are afraid to purchase expensive red coins because of the certainty that they will darken over time. That said, a few coins with original Mint red persist from even the earliest days of the US Mint; they are of the highest rarity now.

Technical Grading

Personal preferences differ for all collectors. That is why we all collect different things, have different careers and goals in life, and marry different spouses. However, for a healthy market to develop in rare coins, a standardized scale for wear was needed; as a result, a standard set of grade descriptors based on the amount of wear has arisen. Over many years, as discussed in the previous chapter, a consensus has developed around these general grade categories. As we have seen, grading based on the amount of wear on a coin is called technical grading.

EAC sharpness standards, particularly at grade levels above Very Good, are generally stricter than those used in the rest of US numismatics, approximating those of a half century and longer ago, and this commonly begets confusion (see below). The *general* sharpness standards for the following grade categories in typical EAC practice are shown below (see the standards in Chapters 5 and 6 for much greater specificity).

- **Basal State (BS-1) or Poor-1** – the coin is identifiable as to type, date and variety and is unmutilated, but it need not show a readable date or legend.
- **Fair (Fr-2)** - less than half of the legends are readable.
- **About Good (AG-3)** – most of the obverse and reverse devices are visible; the rims are worn down into the peripheral lettering.
- **Good (G-4, G-5 & G-6)** – obverse and reverse devices are fully outlined. Peripheral lettering is complete or nearly so.
- **Very Good (VG-8 & VG-10)** – there is a full rim on both the obverse and reverse. Some hair detail is visible on the obverse.
- **Fine (F-12 & F-15)** – at least half the hair detail shows on the obverse; leaves on the reverse are partly separated.
- **Very Fine (VF-20, VF-25, VF-30 and VF-35)** – at least two-thirds of the hair detail shows on the obverse; leaves on the reverse are further separated and often show veins.
- **Extremely Fine (EF-40 & EF-45)** – hair and leaf detail are full or very nearly so, with only isolated spots of wear. Traces of mint luster (cartwheel or frost) may be present.
- **About Uncirculated (AU-50 to AU-58)** – there are tiny rubbed spots separated by remaining luster. More luster is required for higher AU grades.
- **Uncirculated/Mint State (MS-60 to MS-70)** – there is no trace of wear or friction on either side of the coin. For MS-60 (Uncirculated), the coin may have uneven color; for MS-63 (Choice) it should have more even color and typically shows some original mint color; for MS-65 (Gem) it must have flashy surfaces and probably has some original red and for MS-70 (Perfect) it must be exactly as made except that the color may have mellowed somewhat over the years. Perfect Uncirculated early copper coins are not known to exist.

Notice that the above is a list of *grade categories that we consider to be distinct*. An AU is sharper than an EF, which is sharper than a VF, *etc.* However, coin wear does not happen in discrete steps; it is a continuous process. Therefore, not all VF (or G or VG or EF or AU) coins have the same amount of wear. Typically, there is disagreement about coins that fall near the boundaries of various grade levels. To account for this, the grading standards as described above indicate the *minimum acceptable detail* at each grade level. Learning to distinguish the minimum acceptable detail for each major grade category is relatively easy and is a key to learning to grade coins accurately. Remember, though, that very few coins will have exactly the minimum acceptable detail for a grade, so grading usually involves deciding into which grade category a coin fits. Not everyone will agree exactly on sharpness grades for all coins, but collectors who have experience will usually agree closely.

This brings us to the intermediate grade levels, like G-6, VF-30, EF-45, *etc*. These coins have more than the minimum acceptable detail for the nominal grade level (G-4, VF-20, EF-40, *etc.*), but not enough for the next higher grade. Why do we have these grades and what do they mean to the collector? The answer lies in the market for rare coins, and it varies at different grade levels. Some of them really mean little in today's market, because the difference in value is not significant. In Sheldon's day a typical G-6 coin was worth 50% more than a G-4, but usually not today. Similarly, there should be little, if any, premium for a VG-10 over a VG-8 or a F-15 over a F-12, and there is rarely more than a small premium for the higher EF or AU grades. However, in today's market there is often an even larger price spread through the VF range, so the differences between VF-20, -25, -30 and -35 grades can substantially affect the price of an early copper.

How can you tell if your coin has an intermediate sharpness grade? If, for example, the minimum acceptable hair detail for a F-12 is about half and your coin shows more than half, but less than the two-thirds needed for VF-20, your coin is probably a F-15. The process of interpolating the intermediate grades is the same throughout the scale. It isn't difficult, but it takes practice to do it well. Once you know the standards for the major grades, you can analyze the wear on any coin and see where it fits into the continuum.

Net Grading using EAC standards

Introduction to Net Grading

There is no such thing as an "official" EAC grade. *EAC does not grade coins, and nobody has the right to assign any coin a grade on behalf of the club.* When catalogers list an "EAC grade," it means that the grade given is the cataloger's interpretation of the coin's quality according to his understanding of EAC standards. How do we arrive at an EAC grade? We start with sharpness, but all coins of the same sharpness are not of equal quality or value. Early copper specialists use a unique grading process called *net grading*, frequently called *EAC grading*. It relates a coin's sharpness and surface quality to its relative desirability (and therefore also its market value) by taking surface quality and defects into consideration.

How impairments and other market factors are used brings us to the differences between net grading as practiced by EAC members and the commercial market grading used by the rest of US numismatics. Commercial market grading strives to come up with a single, overall grade for a coin that is determined by its price. In other words, a coin grades MS-62, for example, not because it is unworn, but because it is perceived to be worth more than what a low-end, banged-up UNC is worth. *Commercial MS-61s, 62s and even 63s nearly always show wear* (see p. 44). In EAC we reduce the net grade of a flawed UNC to AU or lower. The sharpness and net grades, together with rarity and demand, determine the price level. Since it aligns the technical grade with the value of the coin, the net grade can be thought of as like a market grade. However, *net grading was not developed for the purpose of pricing coins, but rather for establishing a condition census.* It was decided long ago that a coin of EF sharpness that was heavily damaged might net grade VG (see an example on p. 33), but is such a coin worth the same as a problem-free VG? No, it isn't.

In EAC we take impairments into account by net grading. Simply, it means that we deduct grade levels for defects of the kinds indicated and by doing so arrive at a net grade that describes the coin's relative quality. The art of net grading involves determining the seriousness of the defects in terms of how much they degrade the desirability of the coin. The major grading services have punted on the issue of grading coins with significant problems and label them as "GENUINE" or "DETAILS" so they don't have to give a lower grade to compensate for the coin's diminished desirability. However, this is not really helpful, because they give no indication of the severity of the defects that result in the designation. Such a coin may still be quite nice or it may be very ugly, and the grading services don't give us any help in deciding which, so such coins almost always sell for deeply discounted prices (and can offer an opportunity for collectors who understand net grading to get a bargain).

To illustrate the net grading principle as it can apply to most early copper coins with decent, if imperfect surfaces, consider the following practical, hypothetical example:

- You hold two copper coins in your hand (same date, variety and die state).
- One is VF sharpness, but with a relatively minor problem (hairlines, light porosity, or a rim bump).
- The other is a problem-free F-12 coin.
- If the prices are equal, which coin would you rather own?
- If you chose the F-12 coin, then the net grade of the VF coin is lower than F-12.
- If you chose the VF coin, then the net grade of the VF coin is above F-12.
- If you have trouble deciding, then the net grade of the VF coin is about F-12.

Net grading is not a mysterious dark art practiced by Druids as many seem to believe. Anyone can learn to do it, but since desirability is in the eye of the beholder, knowledgeable collectors will often disagree on the net grade of an early copper. Our goal is to provide the reader with tools to improve his/her sharpness and net-grading skills. We offer guidelines and urge every collector to develop and trust his own net grading skills. How the net grade of a badly damaged coin (*i.e.,* like the EF net VG example on p. 33) translates to value is one of the most confusing issues to collectors. It is addressed separately on p. 142.

Most early copper coins have one or more impairments. They can vary in number and severity, and can occur alone or in conjunction with others. Typical impairments include:

- Cleaning and recoloring
- Corrosion
- Rim bumps
- Scratches and/or nicks
- Planchet flaws

There are limitations to the way deductions are given. *We deduct grade levels, not points.* It is counterproductive to consider calling a defect a "1-point deduction" or a "10-point deduction," because the grading scale is not linear. At the risk of stating the obvious, an AU-50 coin net graded to EF-40 (a 10-point deduction) is still a very nice coin. A F-12 coin with a 10-point deduction becomes Fr-2 and must be about as ugly as a coin can be. A VG-10 or lower sharpness coin cannot have a 10-point deduction no matter what is wrong with it. Conversely, a G-4 coin with a 1-point deduction is an AG-3, but any coin graded between VG-10 to MS-60 cannot have a 1-point deduction as there are no defined grades separated by 1 point in that range.

Furthermore, the location and size of a scratch or other mark on a coin can have important implications for net grading. A mark of the same size impacts the grade of a half cent more than it does a large cent, because the half cent is a smaller coin. While there are some general guidelines that EAC members can follow for this process, and that we illustrate below, there are no hard rules, and there is room for individual interpretation. Different people respond in different ways to different problems, and thus it is possible for two individuals who are equally competent graders to derive different net grades for the same coin.

Prime Focal Areas

Prime focal areas of different large cent types

All defects are context-dependent. Thus the prime focal area on the coin is an important concept for net grading. This is the area where the observer's eye is focused, especially when first viewing the coin. For all early copper types, the focal area on the obverse is the area that includes Miss Liberty's face and the field directly in front of the face (as illustrated). A defect on or near Ms. Liberty's face or through the date detracts maximally, whereas a mark of the same size hidden in her

hair or the wreath detracts much less. Note that for early types (Chain, Wreath, Liberty Cap, and Draped Bust) the prime focal area runs out to the dentils (or, the border beads for coins of that design type, or all the way to the rim, in the case of chain cents), while on later cent types (Classic Head, Coronet, and Braided Hair), the stars on the periphery tend to abbreviate the prime focal area. This confers a slight eye-appeal advantage to these cent types, because marks located on or among the stars have less visual impact.

Prime focal areas of the reverses of two large cent types

For the reverse, the prime focal area includes the words ONE (or HALF) CENT and the area inside the wreath. When net grading a coin, more "weight" (*i.e.*, more consideration) is given to impairments (marks, corrosion, or discoloration) in the prime focal areas.

Net grading is part science, and part art form. The science of net grading is fairly straightforward:

- First, identify the defects.
- Then, define the severity of each defect (*e.g.*, the density of the corrosion, the length of the scratch, the size of the rim bump, the number and size of any marks).
- Then, ascertain the importance of the location of each defect. Is it in a prime focal area? The leaves?

The art of net grading involves determining the severity of the defects in terms of how much they degrade the desirability of the coin.

The examples shown on pp. 31-39 illustrate how some long-time EAC numismatists have net graded various coppers and give a good idea of how different impairments affect the net grade at different sharpness levels.

Impairments to Copper Coins

First, what do we mean by impairment(s)? We mean defects, or problems that impact the look of the coin in some way that diminishes its value. Because impairments (defects) play such a critical role in determining the value for early copper coins, it is important to understand the nature of impairments, and their general implications for net grading.

This section will discuss a number of distinct types of defects that are encountered with copper coins. Although this list is extensive, it is not exhaustive—for any defect that is not listed, the reader is encouraged to apply the general guidelines in this volume, and use his/her best judgment.

Cleaning and recoloring

Because the environment varies and metal impurities in the copper also vary, color changes as a result of oxidation and handling can wide-ranging, from reds to yellows, oranges, tans, browns and even greens, as we have shown. The reader will also find a vast array of colors in the sharpness grading sections. In general, as copper corrodes it darkens, so lighter colors are generally considered more desirable. That said, the vast majority of circulated early coppers are some shade of brown with the lighter shades the most desirable.

The red color of a Mint State coin that has been carefully preserved will turn to tan or light olive color and eventually to a light brown. Any and all of these colors on a Mint State coin indicate originality and therefore desirability.

Many, perhaps most, old coins have been cleaned at some point. In the past this was expected, but in more recent years the market has dictated that originality of color rather than brightness is best. Consequently, many cleaned copper coins have been subjected to treatments to recolor or darken them.

Novice collectors are always told never to clean coins, but professionals do it all the time and call it curating. What's the difference? Cynical collectors often conclude that the difference between cleaning (bad) and curating (good) is in who does the work: *me* = *bad*; *someone else* = *good*. Really, the difference is in whether the processes used stabilize and protect the coin (good) or damage it (bad).

Why and how are cleaning and curating done? When contaminants cause a copper to react with oxygen in the air and darken (corrode), the goal of a proper cleaning/curation is to remove dirt and other impurities that may damage the coin and to stabilize its surface so that no further oxidation will occur.

Some—not all—types of cleaning impair the surface of the coin. We consider three different types of cleaning:

- Removal of organic material or loose dirt that does not remove copper-containing compounds or alter the color.
- Chemically stripping the surface of all foreign material plus copper oxides, which alters the color of the surface but is non-abrasive.
- Use of abrasive compounds or tools that physically alter the surface and move metal.

Nearly all numismatists consider the removal of dirt to be acceptable. The simplest way is to dissolve it off using a gentle soap and water or an organic solvent like acetone, xylol or alcohol. However, cleaning of any kind leaves the surface of the coin unprotected from the atmosphere, so after a thorough rinsing and drying, the coin must be brushed with a little oil to protect it. Use organic solvents in a well-ventilated area.

Alternatively, many EAC'ers omit the soap and water or organic solvent and just use a small amount of oil (such as Blue Ribbon Coin Conditioner®), which is applied to the surface of the coin, and then a soft-bristle brush is used to work this fluid around on the surface. This removes loose dirt in the crevices of the design and leaves a thin coating of the lubricant on the surface, so the coin has a natural-looking brown sheen. This kind of cleaning is recommended as long as it is done with skill and care, as it protects the surface of the coin from deterioration and can enhance the value if the eye appeal of the coin is improved by the process.

The second type of cleaning is sometimes referred to as "dipping," because it is frequently accomplished by literally immersing the coin in a chemical bath that strips off the oxide layers as is done to remove tarnish on silverware. This is almost always a bad idea for copper coins, as the chemicals in the dip (usually thiourea) dissolve copper and leave the surface of a copper coin micro-pitted and an unnatural pale orange-pink color that is quite different from the color of an original Mint State copper. The chemical interaction at the coin's surface results in removal of the top few atomic layers containing copper and various compounds that copper forms when it reacts with the environment. If the coin being dipped is a Mint State coin, the original mint luster, which involves the interaction of light with the microscopic metal flow-lines on the coin's surface, can be diminished or destroyed completely. Dipping generally decreases a copper's market value (and net grade). The amount of deduction depends on multiple factors, such as how attractive the retoning looks and how much the original mint luster of a high-grade coin is impaired by the cleaning.

1795 half cent, the telltale pink of a dipped or abrasively cleaned coin

The third type of cleaning, abrasive cleaning, is almost never advisable and almost always results in a reduction in net grade. Techniques for abrasive cleaning include rubbing the coin's surface with an abrasive substance such as an eraser, automotive rubbing compound or household cleanser, abrading the coin with a metal-bristle brush (called "whizzing," if a high-speed rotating brush is used), or polishing the coin mechanically. This type of cleaning not only removes any oxides and debris that might be on the

surface of the coin, but literally moves the surface layer of copper. The coin is at best left with an unnatural surface texture and/or color, and at worst can be rendered an atrocity. This type of cleaning is typically very easy to detect, even by a novice collector. The coin's surface may contain myriad fine hairlines left behind by the abrasive, or the surface may be polished so heavily that it shines like a mirror. Neither of these conditions is normal for a mint-struck early copper coin. The net grade assigned to an abrasively cleaned coin depends on the sharpness grade¸ the severity of the cleaning, and the resultant eye appeal of the coin. However, most collectors of early copper consider such coins very undesirable, so the grading deductions are always large. Coins should be cleaned with abrasives only as a last resort and if destructive contaminants such as raised corrosion that are damaging the surface cannot be removed by any other means.

Recolored half cent with telltale traces of bright pink

Recoloring, now called "*restored toning*" by the less-than ethical, is the process by which dipped or abrasively cleaned coins are given a darker color. The intent is to simulate the natural color of a nice early copper. It is almost never successful when practiced by novices. In general, these processes involve sulfur which oxidizes the surface copper. Sulfur is not the sole toning agent during normal circulation, but in the hands of a skilled practitioner, good color can sometimes result. Usually, however, telltale traces of the unnatural color of the cleaned coin remain as seen with the coin on the left, or the coin must be darkened so much to remove all such traces that the coin becomes black, as shown on the right. Recoloring after dipping or abrasive cleaning damages the coin further. *Sulfur ointment, in particular, should never be used; it renders the coins' surface dull and eventually porous, destroying its quality for future collectors*. Avoid buying coins that are dark and dull, as they are almost certainly sulfur ointment-treated and will continue to degrade.

Cent cleaned and recolored to an unnatural black

The market dictates that the net grade of obvously recolored coppers be lowered, the deduction related to how close to normal the recoloring looks. The bottom line is whether or not the treatments leave the coin in a natural-looking state that is protected, and thus likely to remain so as long into the future as possible.

Post-strike Injury to the Coin (conditions other than cleaning)

Injury comes in many forms. Different injuries affect eye appeal and therefore market value differently, and different collectors have different standards as to the desirability of coins with particular defects. Furthermore, the same defect affects the net grade of coins of different sharpness differently. We expect coins that have been in circulation a long time and are heavily worn to be more marked up than others that were removed from circulation much sooner. Thus, defects are tolerated to a greater degree on lower grade coins. Here are some examples of post-strike damage that are frequently encountered in the copper coin market.

Microscopically porous half cent

Porosity (surface condition after removal of active corrosion)

As a coin circulates and ages, dirt and acids from the skin of those who handle them get on the coin and oxidize (lightly corrode) the surface. Copper coins are particularly susceptible to this. Usually, it is so light as to be undetectable except by the change in color. This is normal, expected and does not impact the net grade. Oxygen and water in the air, particularly in an acidic environment, accelerate corrosion, the development of verdigris, *i.e.,* metal oxides and sulfides on the surface. The amount of corrosion is a

Heavily porous cent net graded from G-4 to AG-3

major determinant of condition. If a coin has light porosity, it can still look attractive; however, if it has heavy porosity, for example from burial, it looks far worse and worse yet if the corrosion has not been removed.

Light surface porosity that reduces a VF-20 sharpness coin to a net of F-12, for example, might not affect the net grade of a G-4 coin at all. The 1800 half cent shown on the previous page has a sharpness grade of EF-45, but its net grade was reduced to VF-30 in a major auction sale. If a coin with such light porosity had a sharpness grade of VG or lower, it would probably not have been net graded at all. The large cent to the left has much heavier corrosion but it was only net graded from Good to About Good in the same auction that offered the microscopically porous half cent.

Scratches and Nicks

Scratches vary in length, depth, number, and location on the coin. All of these variables are involved in determining how much deduction in net grade will result from the scratch (or scratches). Fresh scratches with bright copper showing are more distracting than old toned-over scratches. Longer and deeper scratches are worse than shorter and shallower scratches. Scratches in prime focal areas affect the net grade more than those that are more hidden. Hairlines, light, thin scratches, often from light cleaning or wiping, affect grade less than deeper scratches.

1804 half cent scratched in the left field & hair

Rim Bumps

Early copper coins are relatively heavy, and made of soft metal—this is a bad combination for preserving high-quality rims. Like scratches, rim bumps can vary in severity, number, and location on the rim.

Rim bumps that are more severe result in a larger net deduction. Also as with other problems, such as corrosion or scratches, a rim bump on a heavily worn coin generally results in a smaller deduction than a bump of similar size on a coin with higher sharpness. Large cents, because of their size and weight, are more susceptible than the smaller and lighter half cents. Oddly, rim bumps impact the grade less in other denominations.

Light rim bump

Bends

The severity of a bend can vary from small (hard to detect) to gross (impossible to lay the coin flat on a planar surface). Any noticeable bend will result in a large deduction. However, if the bend is not visually detectable, the impact on the eye appeal is minimal. The net grade in such a case can be close to the sharpness grade for a low-grade coin (AG-G). For high-grade coins (sharpness >VF-30), the grade impact of a bend is substantially greater.

Punch marks (blunt trauma)

These can also vary in diameter, depth, and location on the coin. Really deep dents can also impact the other side of the coin (they cause a bulge on the other side, see p. 38). Obviously, just like a scratch, a tiny punch mark has a small negative impact on net grade, and a large one has a more severe impact.

Holes

This category can be thought of as an extension of punch marks if the punch makes it all the way through the coin, or holes can be created by other means (drills, for example). A hole is a severe form of damage.

For most collectors, a holed coin is not worth consideration unless it is an extreme rarity, although some collectors have used holed early coppers in key chains or jewelry (see the counterstamped coin illustrated on p. 29). Occasionally, a coin is found that has been holed and plugged; someone attempted to improve the appearance of a holed coin by plugging the hole with a compatible material and possibly tooling the plug to simulate the original features on the surface. If the workmanship is exceptionally good, the plug can restore some of the desirability/value lost due to the hole.

Holed, plugged and reengraved 1794 half cent - note incorrect waves in hair

Tooling

Tooling or re-engraving is a deliberate form of alteration of the surface by the use of needles or special engraving tools. Normally, tooling is performed either to minimize the visual impact of some other damage, or to "improve" some design element(s) previously lost to wear. As it is a form of deliberate alteration, tooling results in substantial deductions.

Burnishing is a form of tooling in which the surface of the coin is smoothed using a tool designed for this purpose. Burnished coins develop an unnaturally smooth, often mirror-like surface that is somewhat like that of a proof and therefore completely inappropriate for a circulation-strike coin. If done to remove corrosion pits, it can sometimes leave a coin looking better than had it not been done, but since burnishing moves metal, it is always a form of damage.

Tooling is not always done to deceive. Some forms actually create a new class of collectibles—for example, several EAC members collect large cents which have been tooled to create gears by making notches in the rim. Early copper coins, especially large cents found many non-numismatic uses. Cents were frequently nailed to barn doors to bring good luck. By putting two button holes into a copper coin, and stringing some twine through the holes, a child's toy called a "humdinger" could be constructed. All of this is considered tooling.

Whizzing

Whizzing is another form of deliberate surface alteration. It is the activity of using a rapidly rotating wire brush on the surface of a circulated coin. It is usually not done for the purpose of cleaning, but rather in an attempt to simulate original mint luster on a circulated coin. The sound of the wire brush gives the process its name. Whizzing always damages coins, as metal is moved in the process. It cannot be repaired. Most whizzed coins have sharpness of VF-35 or better, so MS detail can be approached. The key characteristic of a whizzed coin is an unnaturally brilliant luster that glows from many directions at once. A real uncirculated coin has luster that glows in a "cartwheel" around the coin's surface as you rotate it through the light; this results from the flow lines imparted to the metal during striking that radiate out from the center of the coin. Whizzed coins do not show cartwheel luster, but glow from many directions at once, because the rotary wheel raises circular lines of "luster" everywhere as it spins. Unfortunately, this is difficult to show in photographs but is obvious once it has been pointed out on an actual coin. The other dead giveaway characteristic of a whizzed coin is that metal is raised at the edges of design features. These are most obvious at the edges of letters and numerals. If you have a coin that exhibits such raised edges as illustrated, you almost certainly have a whizzed coin, even if it has been artificially circulated to reduce the unnatural luster. Though whizzing is not the

Whizzed half cent
It's hard to tell from a photo!

Arrows denote raised edges

epidemic that it once was, ALWAYS look carefully at the letters of any purported high grade coin with a strong glass to avoid being duped by a whizzed coin.

Foreign material deposits

All sorts of compounds can adhere to the surface of a copper coin. Some of this material is only loosely adherent, but other deposits can be quite tenacious. Organic deposits (carbon-based material) can often be removed with the use of common solvents. As long as these deposits have not reacted chemically with the surface of the coin to create a surface impairment, the organic deposit can be considered benign. Inorganic material on the surface of a copper coins presents more of a challenge. If the foreign material is a metal, removal without damage to the copper surface is difficult. Physical removal (with a tool) is also quite risky, due to the chance for mechanical damage to the coin's surface during removal. As with most other forms of damage, the grade impact of a deposit will depend on the size, location, color, and overall impact to the eye appeal of the host coin.

Counterstamps

1819 cent holed and counterstamped with an image of Lafayette in honor of his 1824 visit to the U.S.

Another common practice involved stamping letters, names, or logos onto a copper coin. The motivation in the case of the logo counterstamps seems frequently to have been cheap advertising. For other counterstamps, caprice seems to be the motive. There are collectors of early copper who pursue counterstamps for their own sake. For the remainder of the early copper community, counterstamps represent damage to the coin, but there are enough counterstamp collectors that such coins can sell for significant prices.

1828 half cent counterstamped with J.D.M. and a steamship

Planchet flaws

Technically, planchet flaws do not qualify as damage, since they do not occur post-striking. In most cases, unless they are severe, we do not net grade for them. However, they can affect the price of the coin, since they impact the eye appeal. Planchet quality was less consistent in the early years of the US Mint (1793–1814) but improved in the later years (1816–1857). Consequently, there is more toleration for planchet flaws in early-date cents and half cents than there is for later dates. A planchet flaw generally results in a lower price. For colonial era copper coins, poor planchets were more the norm than the exception, and colonial collectors pay substantial premiums for coins that are on problem-free planchets. As we have seen for scratches and dents, the grade impact of a planchet flaw (or flaws) depend on their severity and location.

1794 cent with horizontal fissures from a poorly annealed planchet

In the earliest days, the US Mint made its own planchets, some of which were striated as illustrated or had inclusions. Later, the mint purchased many of its copper planchets from Boulton & Watt in England, and their planchets were generally of excellent quality. However, during times of copper shortage, such as before and during the War of 1812, the Mint turned to other sources such as domestic mines and scrap copper—these planchets were often contaminated with trace amounts other elements (such as arsenic, antimony, or bismuth) as impurities in the copper.

Multiple Problems

We have discussed individual impairments. What happens when multiple problems are found on a single coin? The answer (of course) is "it depends." It depends on the sharpness grade of the coin, the number of problems, the severity of each problem, the location of the problems, *etc*. Obviously, the net grade of a coin with multiple problems must be lower than the sharpness grade. Although the net grading process is more complex when there are multiple problems, it is still fairly straightforward:

The problems must be considered in the order of their severity:

- First, determine the sharpness grade of the coin.
- Then, deduct grade levels for the most severe defect, to arrive at an intermediate net grade.
- After that, deduct more, if necessary, to account for any other problems until a final net grade is derived.
- Note: since the first defect has already reduced the grade of the coin, a second or third problem becomes less significant, and its effect on the net grade is less than if it had been the only problem.

Condition of the Surfaces

As we have seen, EAC members frequently refer to the condition of copper coins. The two most important characteristics that constitute the condition are: 1) color and 2) quality of the surface. The most desirable surface characteristics for early copper coins are unblemished, uniform, native aged-metal surfaces with natural color (see Chapter 1). Any roughness or interruption to a coin's surfaces is generally considered undesirable. Corrosive processes are usually responsible for the creation of roughness and/or spots on the surface. Copper is a very reactive metal and interacts readily with substances in the air and on the skin to produce various products with copper oxides and sulfides being prominent among them. The degree of surface roughness can run the gamut from lightly granular to heavily corroded, passing through numerous intermediate levels variously called granularity, porosity, and/or corrosion. Furthermore, the surface roughness can be uniform, scattered, spotty, or patchy. In addition to this, chemical corrosion can leave behind a residue with a multitude of colors, including black, bright green, bright red, and various combinations of these shades, depending on the exact chemistry behind the oxidation. Just as with cleaning, the net grade impact of surface impairments depends on the nature and magnitude of the impairment, as well as the sharpness of the coin. Small spots of corrosion, especially if hidden in a convenient place on the coin, not in the middle of the fields or in a prime focal area, lower the net grade by a relatively small amount. Light uniform surface granularity, especially if it is a natural brown color, may result in a little or no deduction from the sharpness grade to reach the appropriate net grade. Large spots of corrosion or heavy or non-uniform porosity causes large net deductions. It is not unusual for a coin with EF sharpness and heavy granularity, often accompanied by dark color, to net grade at the VG level, even with no other problems.

There are those (some call them "coin doctors," whereas others call them "curators") who exhibit skill at removing active corrosion from copper coins, and otherwise improving the appearance of coins with impaired surfaces. There is active debate within EAC about the relative merit of such services. Some claim they must further damage the coin to remove the harmful corrosion. In truth, if the coin "surgery" is conducted skillfully, and the repair is retoned to a natural look, the end result can be better eye appeal and higher market value.

Has this coin been cleaned?
Are you sure?

Net grading of Mint State sharpness coins

Few defects are tolerated in Mint State coins. Some discoloration is acceptable, but hairlines, significant corrosion, dings including rim dings or carbon spots are not. The images show MS sharpness coins which have been net graded; it is unusual for a MS sharpness coin to be net graded lower than AU, but one retoned coin shown was net graded to EF-45 because the recoloring job was poorly done.

MS-60 net AU-58+
a spot at star 11

MS-60 net AU-58
minor nicks

MS-60 net AU-58
cleaned and nicely retoned

MS-60 net EF-45
rim scrape below 84

MS-60 net AU-50
cleaned and retoned

MS-60 net AU-58 oxidation
and a hairline scratch

MS-60 net EF-45
poorly retoned

MS-60 net AU-58
pinpricks

Net Grading of AU sharpness coins

Expectations for surface quality of AU coins are very similar to those for MS coins. A minor hairline in a high-end AU coin such as the 1805 half cent may still net AU, but coins with marks or recoloring net grade to the EF range, as long as the defects are relatively minor. Cleaned coins that have not been recolored, such as the 1835 half cent, generally net grade to the VF range.

AU-50 net EF-40
cleaned and recolored

AU-50 net VF-30
cleaned

AU-55 net AU-50
a couple of hairlines

AU-55 net EF-45
scratches

AU-50 net EF-40
pin marks

AU-55 net AU-50 crud at ribbon
(strike does not affect grade)

AU-50 net EF-45
nicely recolored

AU-55 net EF-45
microscopic verdigris

Net grading of Extremely Fine sharpness coins

EF coins are lightly circulated, but still show nearly all of the detail they had when struck. By the time coins have circulated enough that they have lost their mint luster and have light wear, it is more likely that they have suffered some kind of damage or other impairment, but an average EF coin can have only minimal marks. The amount deducted for a particular defect varies in proportion to its effect on the eye appeal of the coin; impairments that minimally affect eye appeal also minimally reduce the net grade. Such coins may still net grade VF-30 or VF-35. More substantial impairments reduce the net grade to the lower reaches of VF, Fine and even VG.

EF-40 net VF-20
scratches and nicks

EF-45 net VF-30
pinpricks

EF-40 net VG-10
heavy contact marks

EF-40 net VF-25
burnished

EF-40 net VF-20
overall porosity

EF-40 net F-15
many surface marks

The three examples just above illustrate the importance of personal taste in net grading. All have EF-40 sharpness. The one net graded VF-25 has been smoothed; that net graded VF-20 has a completely but lightly rough surface, and that net graded F-15 has many pinpricks. Would you agree that their net grades should differ by two grade levels? Which do you prefer, and why?

Net grading of Very Fine sharpness coins with mild defects

We find far more problems in coins of sharpness grades in the VF and lower ranges. These coins circulated much longer than higher-grade pieces and so were subjected to more damage; because of this, we do not expect them to be as close to perfect as higher-grade coins. Nevertheless, VF coins are still generally sharp, so we expect them to be reasonably attractive. Just as there is a broad range of overall quality in VF, we also find a broad range of levels of defects, with some coins having minor defects as illustrated here. These have average surfaces for their sharpness grades and therefore still have net grades in the VF range.

VF-35 net VF-25
too many circulation marks

VF-30 net VF-25
microporous

VF-30 net VF-20
rim scrape

VF-30+ net VF-25+
hairlines

VF-35 net VF-30
nicely recolored

VF-30 net VF-20
recolored

VF-35 net VF-30 minor
marks, especially on the neck

VF-30 net VF-30
minor rim bruise

Net grading of Very Fine coins with moderate defects

Very fine coins with moderate defects net grade in the Fine range. Such average to below average coins are generally reasonably attractive and very collectible. Several examples are shown below.

VF-25 net F-12
porosity

VF-30 net F-12
moderately rough

VF-25 net F-15
microporous

VF-30 net F-12
microporosity and crud

VF-20 net F-12
uniform microscopic granularity

VF-25 net F-15
scratches

VF-30 net F-15 slightly rough
(fissures do not affect grade)

VF-30 net F-12
active corrosion

Net grading of Very Fine coins with serious defects

Now, we see some definite problem coins. VF sharpness coins that net VG or less have substantial marks, corrosion or other damage. Would you call these below average or scudzy?

VF-25 net VG-10
corroded and burnished

VF-20 net VG-8
moderate corrosion

VF-30 net VG-10 light,
even porosity and organic crud

VF-25 net VG-8
deep corrosion and scratches

VF-20 net VG-8
fine porosity

VF-20 net G-6
heavily corroded and scratched

VF-20 net VG-8
scratched and badly recolored

VF-20 net AG-3
heavy, uniform corrosion

Net grading of Fine coins with minor to moderate defects

Coins in Fine condition circulated for many years and should show some evidence of contact. Perfection is not required. Nevertheless, minor to moderate defects will reduce the net grade to the F-VG range. Such average to slightly below average coins are quite collectible, especially if a scarce variety or die state.

F-15 net VG-10
light porosity

F-12 net VG-7
hairline scratches

F-12 net VG-10
light rim bruise

F-12 net VG-8
several rim dents

F-15 net VG-10
light raised corrosion

F-12 net VG-8
burnished

F-12 net VG-8 fine
granularity and minor nicks

F-12 net VG-8
corrosion

Net grading Fine coins with significant defects

Defects more significant than those shown on the previous page reduce the net grade of Fine coins to Good and below. Those shown all net grade to Good and are definitely unattractive and at least below average. Use your imagination to figure out what a Fine coin net graded to AG or worse looks like.

F-15 net G-5
moderate corrosion

F-12 net G-4
corrosion

F-12 net G-4
heavy corrosion

F-15 net G-4
moderately corroded

F-12 net G-4
moderately porous

F-12 net G-6
scratched and dented

F-12 net G-6
finely porous and pitted

Net grading coins in Very Good condition

By the time a coin has worn down to VG, it has been around for a long time. We expect minor circulation marks, and we even tolerate some hairlines and odd color at this range. A below average VG coin net graded to Good may not be unattractive, but those net graded to AG have significant problems.

VG-7
no deductions

VG-7 net AG-3
heavy corrosion

VG-7 net G-4
corroded and scratched

VG-7 net AG-3
moderate pitting

VG-10 net VG-7
scrape at TAT

VG-10 net G-4
moderate porosity

Net grading coins of Good sharpness

Finally, we come to heavily circulated coins. We show a typical example of a Good coin that is by no means perfect but still does not have to be net graded. Coins at this level are not expected to be perfect. The other is net graded to AG with noticeable defects. Those that have more severe defects have limited desirability unless they are very rare or special in some other way.

G-6 net G-6 recolored
and minor scratches

G-5 net AG-3
scratches and porosity

Mint errors

So far, all the distractions we have discussed that affect the value of a coin result from damage received after the coin was struck. It is important to keep in mind that sharpness and post-strike impairments that result in a net grade are not the only factors in the pricing of copper coins. Mint errors, such as laminations, planchet cracks, strike-throughs, *etc.*, do not affect the grade, because they do not result from post-strike damage. However, because they affect eye appeal, they frequently affect the price of the coin—often substantially. The AU-50 coin shown at the left recently sold at auction for a price appropriate for a VF-25 coin. In general, the more severe the effect on eye appeal, the lower the value of the coin. However, some types of errors have their own dedicated collectors. This market is very small, so pricing for such coins is highly subjective. While not a condition, the quality of the strike and die state can be a factor in the value (see pp. 47-48).

VF-25
dropped lamination

AU 50
planchet crack

reverse brockage

F-15
large struck-through

50% off-center

There are a number of classes of mint errors that also affect the surfaces and visual appeal of coins. These include cracked, broken and buckled dies; impurities in the planchet resulting in cracks or laminations and errors in the press that result in multiple strikes, brockages, off-center strikes, misaligned die strikes and more. Though these may often detract from the visual appeal of a coin, they generally do not affect its grade, as Mint-made defects are considered separately. Many collectors will pay substantial premiums for coins with certain kinds of errors of striking (*e.g.,* multiple strikes, off-center strikes, brockages and various combinations of these). Coins with planchet errors, such as cracks/splits and laminations, are quite rare, but they generally command no premium, and some collectors prefer to pay less for such error coins.

roller marks
on face and neck

We also include roller marks in the mint error class. When planchet stock is rolled out to the proper thickness, the rollers leave tiny pits in the surface of the unstruck planchet. Normally, these fill in during striking, but if the striking pressure is inadequate, they can remain, especially on the portrait, which is the highest area of the design and so subject to the least pressure during striking, but they can also remain in the fields. Roller marks are part of the charm of early coppers and rarely affect the value of the coin.

Buckled or misaligned dies sometimes resulted in coins that are weakly struck in part. If the strike is made with less than optimal pressure or perhaps misaligned dies, a weak strike may occur. A weakly struck coin can appear worn when new (see particularly the Vermont coppers in chapter 4). In general, these variations add to the charm of early copper. They do not affect the coin's grade, but they may affect the price. Some varieties are always found weakly struck or weakly struck in part. In those cases, weakness has no effect on either grade or price. The chapters on grading various types of early coppers contain more detailed information on this.

Net Grading Conclusions

Net grading is a form of market grading, because the impairments cause the value of the coin to be less than that of a problem-free example. The EAC grading process incorporates all the post-strike defects into a composite net grade that reflects the true market value of a coin with its impairments. Net grading is part science and part art. The old adage, "beauty is in the eye of the beholder" certainly applies. One person is likely to deduct more for cleaning than another. The same can be said for any of the numerous problems that can afflict copper coins. For this reason, legitimate differences of opinion can exist about the net grade/market value of any particular coin. Still there is a general consensus in the field about how much to deduct for this or that impairment, and the grades for the coins shown on the previous pages are mainstream and an excellent guide to help the reader to develop his own skills at net grading.

EAC Grading of Mint-State Copper Coins

The best way to decide a coin's grade between EF-45 and MS-60 is to see the amount of remaining luster, from none to full. By EAC standards – though not commercial standards – there can be no wear or luster breaks on an uncirculated coin. The factors affecting the condition of coins in MS-60 and higher are:

- Color
- Quality of strike
- Contact marks
- Luster

The net effect of these factors is called *eye appeal*.

This section examines the factors involved in the grade of uncirculated copper coins, describes the grading process for uncirculated large cents (the process is the same for half cents and colonials), and provides some illustrations of typical uncirculated grades.

1. *Color* – the typical color of a newly minted copper is a brilliant shade of orange-red, although there are variations, depending on the level of certain impurities in the copper. Subsequent exposure to the atmosphere results in oxidation of the surface layers. Over time, the red color darkens toward shades of tan and brown. It is important to make the distinction between original mint color, and color of an artificial nature. A coin that is rendered red by chemical or mechanical means must be downgraded due to its lack of originality. In EAC grading, the amount of original mint color visible on the surface of the coin influences the assigned grade. Generally speaking, as the coin moves from Red to Red-Brown to Brown, the assigned grade decreases, all other factors being equal. This is not to say that a coin cannot be a gem with brown color. However, the coin must have outstanding characteristics in all other areas to qualify as a gem.
2. *Quality of strike* – The first US Mint in Philadelphia utilized screw presses to impart the image from the coinage dies into the coin planchet. It is not easy for us to imagine coin production in such a labor intensive and variable manner, and yet this is exactly how our beloved cents and half cents were produced. If the screw press closed properly on a properly annealed planchet, then a sharply-impressed new coin would emerge. If the press was not thrown correctly, or if the planchet was not placed perfectly, or if any other number of conditions were not just right, a weakly impressed coin

could emerge after striking. If this poorly struck coin was bad enough, it was tossed in a scrap bin, to be melted. If it was of sufficient quality (or went unnoticed), it would be kept for distribution along with the rest of that day's coinage run. Today's copper collectors have a clear preference for Mint State coins with strong definition. For some varieties, finding them is a near impossibility. For others, well-struck coins are available. The location of the striking weakness, as well as the extent can impact the assigned grade. Some coins exhibit uniform weakness of strike, indicating that inadequate pressure was applied by the screw press. Other coins exhibit weakness only in a specific area, such as the lettering near the top or bottom. This type of weak strike results from the coinage dies being mounted in a non-parallel fashion, resulting in uneven pressure across the face of the coin during striking. Die failure can also result in the loss of details at specific locations—this subject will be discussed in more detail later in this chapter (pp. 47-48). While the quality of strike does not impact the technical grade of an uncirculated copper coin, it impacts the desirability (or value) of the coin. Therefore, the EAC net grade accounts for the quality of strike.

3. *Contact marks* – Coin production was not a delicate operation. Although a great deal of precision was necessary to insure alignment of the dies, and proper execution of the striking of the coins, the post-strike handling of the coins was not performed with any special care. In the early days of the Mint, coins were shuffled through a coin counting board before being tossed into wooden kegs. If new coins did not suffer from being jostled by adjacent coins, it was a minor miracle. The presence of these so-called keg marks impacts the grade of a coin. As we have discussed, the number and the severity of marks, as well as the location of each mark all matter when it comes to the coin's grade.
4. *Luster* – When a coin is struck, the pressure forces the metal of the planchet to flow outward from the center of each die face, to fill up any available voids. The voids are provided by the engraved designs, which produce the raised devices on the finished coin. The strike also imparts minute radial flow lines onto the fields of the coin. These reflect incident light in a unique manner to produce mint luster. Mint luster is the result (as seen by the human eye) when the surface of the coin reflects the incident light off the near microscopic radial flow lines produced during the minting process. Some observers refer to this as the "flash" produced by the coin when it is rotated under a light, while other observers describe it as a "cartwheel effect," which refers to the spoke-like shape that the reflections can take. Mint luster is highly variable in its character and its intensity. Some coins exhibit a soft luster, which emanates from the surface like a warm glow. Other coins can exhibit mirror-like surfaces (prooflike). Really worn dies produce radial flow lines that are so pronounced that they are plainly visible, even on somewhat worn coins. It is important, from the grading standpoint, to distinguish genuine luster from a mere shiny appearance, which could be caused by post-strike mechanical polishing. The knowledgeable collector must be able to judge the quality of the luster and incorporate this into the overall grade of the coin.
5. *Eye Appeal* – this is the most difficult grading factor to define as it includes all of the preceding issues. While beauty may be in the eye of the beholder, there is general consensus within EAC about what constitutes good eye appeal. For example, uniform color is considered more desirable than large variations across the surface, a coin with minimal distractions in prime focal areas has more eye appeal than one with marks in these areas, *etc*.

Where to look for evidence of circulation wear

The high spots for the obverse of most half and large cents are the hair strands behind the ear and above the eye. The high spots for the reverse are the leaves in the wreath. Indications of wear could be subtle changes in color or texture (*e.g.*, a spot with wear may be dull while an adjacent area retains luster). Under magnification, circulation wear displays myriad tiny ticks and lines.

Uncirculated coins usually fall into the grading scale between MS-60 and MS-70. However, as we have seen, uncirculated coins with problems can have net grades lower than 60.

The guidelines given below are general in nature, and they need to be that way, to accommodate the many variations in color, luster, sharpness, and eye appeal that are encountered in the copper market.

MS-60 – Uncirculated. Luster may be original, or it may be impaired. Strike may be sharp, or may exhibit some weakness. Color should be an original shade of brown and may be uniform or non-uniform in nature. Eye appeal is average or below average for a Mint State coin.

MS-63 – Choice Uncirculated. Luster is original and attractive. Strike should be sharp, but may exhibit minor weakness. Contact marks must be few. Color is brown or red-brown and should be uniform or attractively blended. Eye appeal is above average.

MS-65 – Gem Uncirculated. Luster is flashy and original. Strike is sharp. Contact marks should be virtually absent. Color can be brown, red-brown, or red. Original mint red is the preferred color, but brown and red-brown coins can qualify for this grade if all other characteristics are outstanding. Eye appeal is excellent.

MS-67 – Superb Gem Uncirculated. The strike is full, luster flashy and color original and substantial. The coin must be spot-free and as close to perfect as can be imagined.

MS-70 – Perfect Gem uncirculated. A flawless coin, exactly as it left the coinage press, but possibly with slight natural toning acquired from extended exposure to the atmosphere. No early US coppers that grade MS-70 by current standards (an earlier generation graded any full red coin MS-70) are known to exist.

Some Grading Examples for Uncirculated Large cents

MS-60 - This coin exhibits typical characteristics for an Uncirculated coin. There is no trace of wear. The mint luster is original, but not strong. The color is an original olive brown with some bluish overtones and a few splotches, mostly on the reverse. The eye appeal is generally good.

MS-63 - This coin exhibits typical characteristics for a Choice Uncirculated coin. The mint luster is attractive. The color is original red-brown. There are a few scattered ticks, and some carbon freckles in Ms. Liberty's hair. The overall eye appeal is above average.

MS-65 – This coin exhibits typical characteristics of a Gem Uncirculated coin. The color is nearly completely Mint red (with just a blush of brown color on the reverse). The strike is razor sharp. Marks and carbon spots are almost non-existent. The eye appeal is outstanding.

EAC Grading and Commercial Grading Compared

Early copper condition census and price information are based on EAC grading, yet dealers often tout a coin as CC-level based on its commercial or slab grade. Commercial grading standards are described in the ANA Grading Standards, various other grading guides, and by websites of grading services such as PCGS and NGC as described in Chapter 1. There is a belief among some in the EAC community that commercial grading standards relate consistently to EAC standards. Information from price guides suggests that EAC standards are, in fact, more conservative than commercial standards, as price guides for commercially-graded coins tend to list lower prices than guides for EAC-graded coins. The relevant questions are: to what extent do the standards differ, and is there a consistent relationship that can be used by the collector to compare the two? The reader can and should get a sense of the difference for him/herself by comparing grade images in this volume with those found in the commercial grading guides that have been described in Chapter 1. We provide a few examples of similarities and differences between commercial and EAC standards by comparing images from the *PCGS Photograde* online grading guide (used with permission of PCGS) with those for the same grades as shown in this book. Side-by-side comparison shows that EAC standards are frequently, though not always, more conservative than commercial standards.

We wish to make clear that neither grading standard is "right" or "wrong;" both are products of the human mind. They are just different. We urge collectors to become familiar with commercial grading standards as well as EAC standards, as it is important for the early copper collector to know both to have a clear understanding of the value of coins he is offered.

The first pair of images compares Wreath Cents called Mint State. The EAC-graded example shows no trace of wear anywhere, whereas the PCGS-graded example, though graded a single point *higher*, shows wear at the cheek and hair. Slabbed coins in the lower commercial Mint State grades almost always show wear. The PCGS-graded coin shown here would grade about AU-50 by EAC standards.

EAC MS-60

PCGS MS-61

EAC EF-40

PCGS EF-40

The next two examples are Draped Bust large cents graded EF-40. There is substantially more hair and drapery detail on the EAC-graded coin. By EAC standards, the PCGS-graded coin would grade about VF-25.

The next examples are Classic Head half cents graded AU-50. The PCGS-graded coin shows substantial wear on the hair at the neck and behind the eye. The EAC-graded coin shows only very slight friction in these areas. The PCGS-graded coin has a sharpness grade of about VF-35 by EAC standards.

EAC AU-50

PCGS AU-50

EAC VF-20

PCGS VF-20

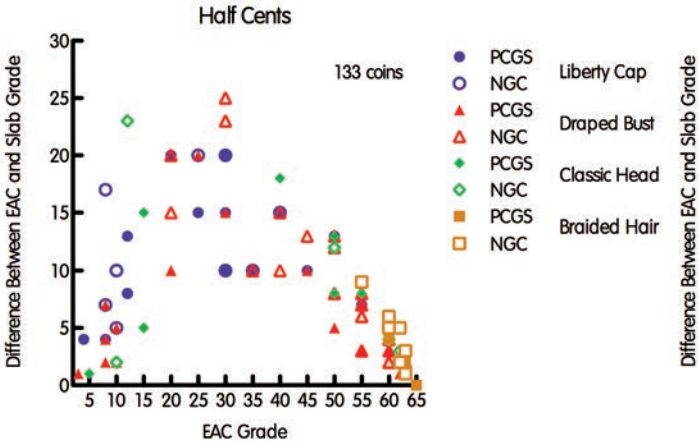
The next pair of examples are Matron Head large cents graded VF-20. Careful comparison shows that the amount of wear on the two examples is very nearly the same. Commercial grading standards for Middle Dates are generally very similar to EAC standards.

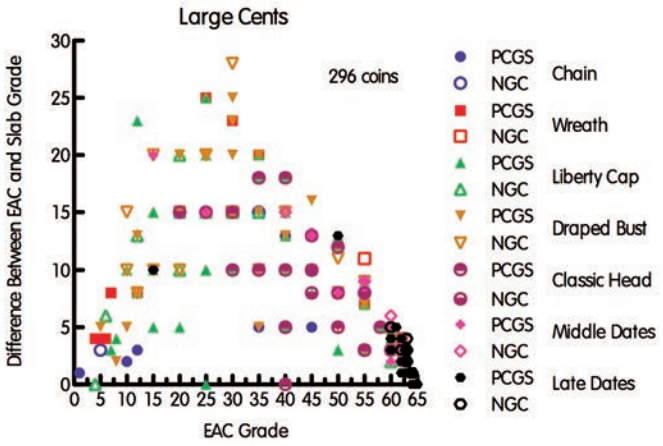
EAC EF-40

PCGS EF-40

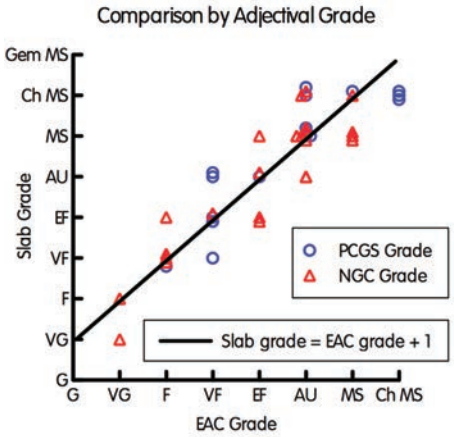
Finally, we show a pair of Braided Hair half cents graded EF-40. As with most other types, the EAC-graded coin is sharper. The PCGS-graded example would barely make VF-20 by EAC standards.

These results show that commercial grade standards do not have a clear or consistent relationship to EAC standards. To assess any possible relationship between EAC and commercial grade more directly, we studied half cents and large cents in major US auctions over approximately ten months (early Fall 2012 to late Spring 2013). Only coins that were given both EAC grades and slab grades were examined. No coins that were graded "GENUINE" or "DETAILS" were included, so all coins should have had EAC net grades that are close to their sharpness grades. Coins graded by the two most prominent





commercial grading services (PCGS and NGC) are included in the survey. The database that was developed contained more than 400 early copper coins, 133 half cents and 296 large cents. The difference between EAC grade and slab grade was plotted as a function of EAC grade. For example, if the EAC grade was VF-20 and the slab grade was VF-25, the difference would be +5 points. If the EAC grade was VF-30 and the slab grade was AU-58, the difference would be +28 points. If the EAC and slab grades were the same, the difference would be zero (a very uncommon occurrence); there were no examples where the slab grade was lower than the EAC grade, though we have seen such coins in the past. The results are shown in the two figures above. *In*



grades from F-EF, slab grades were nearly always at least 10 points higher than EAC grades and often 20 or more points higher.

We also looked at half cents offered in auctions with both EAC and slab grades from an adjectival, rather than numeric, standpoint. As shown by the figure at the bottom of the previous page, the adjectival equivalents confirm that most of the slab grades were *at least* one full grade higher than EAC grades for the same coin, consistent with what we report on the previous pages.

Several interesting conclusions can be drawn from these three plots:

1. The data do not support the notion that the two grading services (PCGS and NGC) have different standards, or that they apply their standards differently to different types in coins graded AU-50 and below by EAC standards. However, at higher grades, PCGS was slightly more conservative.
2. The data also refute the idea that either PCGS or NGC grades early copper more consistently than the other service, except that PCGS graded Mint State coins slightly more consistently.
3. From an adjectival standpoint, it appears that *the major commercial grading services tend to grade most early copper types at least a full grade higher than EAC standards*, albeit subject to substantial variation. If a mathematically-minded collector wishes to try to estimate an average numerical difference between EAC and commercial grade across the scale, he is welcome to try. However, it would be a futile exercise for the following reason.
4. The most striking conclusion from these data is that, especially *between EAC VG and AU, the difference between slab and EAC grade is highly variable*, and the largest variations occur in the VF range. For example, large cents EAC graded VF-25 were commercially graded anywhere from VF-25 to AU-50; by contrast, EAC graded EF-40 coins were commercially graded anywhere from EF-40 to AU-58. Therefore, an astute collector can find some EAC EF coins slabbed as much as a full grade lower than some mid-range VF coins (EF *vs*. AU). To reiterate, irrespective of numerical or adjectival grades, it is critical for the collector who seeks to find value in his purchases to understand EAC grading as well as commercial grading and to make up his or her own mind about the value of coins offered based on this knowledge. In plain language, buy the coin, not the slab.

Varieties

During the 18th century, the steel used to make dies was not very durable. Metallurgy was not well understood and dies would often fail quickly. The failure could be minor—a crack could develop or an edge fall off, leading to a raised portion on the coin, *i.e.,* a cud. Sometimes, the Mint would keep using the die until the crack or cud was so large as to make the die unusable. Major failures required the production of a new die. Another reason to replace a die might be the discovery of an error in the die (*e.g.*, the missing pole in the first variety of 1796 half cents or the $^{1}/_{000}$ error fraction on some 1801 and 1802 cents). Clashed dies (caused by the dies striking each other without an intervening planchet), spalled/rusted dies and even significant die wear were other reasons to replace a die. Since the dies were essentially hand engraved, there would be differences between the first die and the newer one, creating a second distinct variety.

Varieties are often named after their cataloger. Half cent varieties are usually referred to as Cohen (C) varieties (Cohen, 1971), although there were earlier and later naming conventions from Gilbert (G, 1916), Breen (B, 1983), *etc*. Large cent varieties are either Sheldon (S) numbers for early dates (1793–1814) or Newcomb (N) (1944) numbers for middle and late dates (1816–1857).

Die varieties are a major reason behind the fascination associated with early copper. They can tell us much about the history of early minting processes and have become a field of study on their own. Some varieties are quite distinct; others have subtle differences that require substantial study to determine the correct variety. Some varieties are extremely rare and command significant premiums, sometimes independent of

their grade. Knowledgeable collectors often search unattributed coins in the hope of cherrypicking a rare variety or even finding a new variety (*e.g.*, the 2011 rediscovery of 1825 N-5 or the 2013 discovery of a 13th example of S-15). Varieties can have different wear characteristics; the characteristics of some large cent varieties as they might affect grading are listed in Appendix 1. Half cent characteristics that affect grading are listed in the heading of each type description.

Die States

The collecting of early coppers by die state (in addition to type, date and variety collecting) has been popular within EAC for a long time. The goal of die state collecting is to obtain examples of a particular variety (obverse-reverse die pair) in each of the various stages of the life of the dies. Two trends appear to be driving the emphasis on die state collecting. First is the inexorable rise in prices for early copper coins. Faced with the steep cost of assembling a full Sheldon set of early-date large cents, or a complete set of all 99 "official" half cent varieties, many budget-conscious collectors have opted instead to focus on specialized collections. A number of early copper varieties (for example, 1804 C6 half cents or 1855 N9 large cents) are not rare, but exhibit many stages of die disintegration, thereby providing many fascinating variations to collect. Another trend is that EAC has matured as a collector club, and much new information about the existence and rarity of various die states has been published for members (Wright, 1991; Manley, 1998; Grellman, 2001).

Just as some die varieties are scarce, and therefore worth a premium price, the same is true for some die states. A rare die state may command a premium of 20% to 100% over the price of a coin of the same variety in similar condition, but in a common die state. Among large cents, the 1831 N-12 has a die crack that forms a cud that enlarges into the famous "harpooned whale" die break (never mind that the "whale" looks much more like a blimp than any known species of whale!). The left image shows a die crack that extends through the date and all stars, ending at a dentil to the right of the date. The middle images show a cud breaking out from the 13th star to the rim at the end of the crack. The image on the right shows that the cud has enlarged to include much of the 12th star, the inner point of the 13th star making up the "harpoon."

Perhaps the most familiar and extensive die deterioration is shown in the 1804 C6 half cent reverse. Several authorities have examined the coins produced by this die and identified various numbers of states of deterioration. Ron Manley's (1998) is the most definitive. He illustrates 20 different die states, and additional states intermediate between some of those have been identified. It has even been suggested that to have a complete set of die states of this variety, one would have to own all known examples!

We have chosen a few examples from the life of the die to illustrate. The first example, M 1.0 (Manley die state 1.0), is the earliest seen with light cracks around most of the peripheral letters and the denominator. In M 3.0, a retained cud is forming above U, and the die crack above MERIC is now very heavy. In M 4.5 the crack above MERIC is forming a cud at ME. It has enlarged to cover MERIC in M 6.0. By M 8.0 heavy cuds have formed above UN and from the right upright of M through ERIC. In M 9.0 the cud at UN has extended to cover the bases of 20 in the denominator and a new cud has formed over the first A in AMERICA. In M

10.2 the cud over UN has grown to cover the I, and that over ERIC now covers M. M 12.0 is the last known die state; cuds now cover all of AMERICA, and heavy parallel cracks cover OF. Interestingly, most of these die states are not particularly rare. Best estimates are that this die struck at least 70,000 coins and that about 1,000 survive today. One wonders why the Mint's quality control allowed such a large number of defective coins to enter commerce, but collectors today are delighted that it did.

While grading standards do not change for a coin in different die states, there are times when die deterioration can make grading more challenging. For example, worn dies sometimes result in mushy hair detail even in high grades. Also, when a cud falls out of a die, the resulting coins are weakly struck, or not at all, on the other side of the coin. This 1811 C-1 with the 4-Star break nicely illustrates this phenomenon in that ED S and the dentils above are largely missing due to the cud on the obverse. Even though that part of the reverse looks AG, the rest of the coin has AU sharpness.

This 1797 S-140 is a real grading challenge. The obverse die has sunken, resulting in a very weakly struck area on the lower right of the obverse. The coin noticeably bulges in this area; the bust is nearly gone, and the last digit of the date is barely readable. The reverse opposite this bulged area is blank, with the word OF and adjacent parts of the wreath very weak or missing. Nevertheless, the hair detail is EF-40 or better, and there is minimal post-strike damage. However, there are also some pre-striking pits and lamination cracks. How would you net grade this coin, and why?

Chapter 3 - Authentication

Authentication should precede grading, both literally and figuratively. If the coin is not authentic, then its grade is unimportant. The importance of rare coin authenticity can not be overstated: counterfeits and altered coins represent a serious threat to the rare coin market. Any market requires confidence to function properly, and counterfeit coins undermine that confidence.

Most counterfeit coins and alterations are produced in an attempt to deceive a potential buyer. There are a few instances where unauthorized copies of very rare coin types or varieties were made simply to satisfy collector demand for coins that are prohibitively scarce. 1793 strawberry leaf cents are one example; 1796 no-pole half cents are another. The problem comes when such coins are represented as authentic pieces. Counterfeiters typically aim for coins that offer a high rate of return on their investment of time and skill. For this reason, key date coins and high-grade coins are most often the targets of the counterfeiter. Rare dates and varieties, such as 1796 and 1802 half cents or 1799 and 1804 large cents, should always be approached with a healthy bit of skepticism on the buyer's part.

The early copper collector should learn some of the basic techniques for detecting counterfeit and altered coins and utilize these as part of the grading process. The best defense against counterfeit and altered coins is the knowledge of what a genuine coin looks like. Many types of counterfeits exhibit telltale signs that provide strong clues about their method of manufacture—this chapter discusses some of the signs that are encountered most often in the marketplace.

The principal third-party grading services (*i.e.*, PCGS, NGC, ANACS, ICG) offer guaranteed authentication as an inherent part of their services, and this has been a boon to the collecting hobby. The collector can purchase third-party graded (slabbed) coins today with confidence in the authenticity of the coin inside. However, now that even slabs are counterfeited, purchase of a coin in a slab is no longer an *absolute* guarantee of authenticity.

Authentication Techniques:

Look critically at the coin

What does the surface of the coin look like? Is it fairly smooth, or rough and pebbly? Surface roughness does not by itself prove lack of authenticity, but one type of imitation (cast counterfeit) tends to exhibit a pebbly surface.

What does the color look like? Is it typical for the type of coin you collect (chocolate brown, for a circulated copper)? If the color is not right, this does not by itself prove lack of authenticity, but improper color should raise a red flag—the coin has probably been cleaned, even if it is real, and it might be a counterfeit that has been colored to look genuine. Electrotype counterfeit coins are filled with non-copper metal (lead, zinc, *etc.*). The surface of the electrotype is only a thin shell of copper. If there is any wear on the high points, the underlying metal will show as a dull gray color.

Look at the rims (both obverse and reverse) and look at the edge of the coin. A regular-issue US Mint copper coin was processed through a planchet upsetting mill, which created a slightly raised rim for protection of the coin design and to facilitate coin stacking, and also may have imparted a device (*e.g.*, vine and bars, milling, or lettering) around the edge. Coppers struck before 1836 were not struck in a close collar, and so have slightly rounded edges (see illustration on p. 53). If the edges of the coin are razor sharp on a plain edge pre-1836 copper coin, it is almost certainly a counterfeit that was produced on modern machinery. If there is a seam (narrow crack) along the edge of the coin being examined, that is another warning sign; electrotypes are produced by joining together two halves (an obverse half and a reverse half), which typically leaves a seam around the edge.

Examine the devices of the coin. Does the shape of Liberty's head look right compared with all the authentic coins of this type you have examined? Does the wreath on the reverse look right? Also, is this style of reverse found paired with this style of obverse? Some crude counterfeits mistakenly pair up inappropriate reverse styles with the obverse.

How do the letters and numerals on the coin look? Advanced copper collectors develop a "feel" for the size and shape of the lettering and numerals on these coins. Mint-made anomalies are possible, but they are extremely rare. The discovery of a new variety is a remote possibility. However, coins with lettering and/or numerals that do not have the right appearance (*i.e.*, wrong size or style) are almost certainly counterfeit.

Weigh the coin

The US Mint was very meticulous about the weight of early coins. Silver and gold planchets were weighed individually, and often adjusted with the use of a file to shave metal from the surface or a plug to bring the weight up. This was not done for copper coins. However, fairly tight control of the thickness and diameter of federal copper coinage was maintained to ensure these coins complied with the legislated weight standards. Counterfeit coins can often be discovered by weighing them. If the coin's weight does not fall within the specified range (see below), then there could be a problem! Note that wear may reduce weight as much as 10% in a well-worn G-4 half cent. This should be taken into account when considering authenticity.

Measure the diameter and thickness of the coin

In the same way that weight is controlled, the diameter of copper coins was strictly controlled at the Mint. The weight and diameter ranges for various federal and pre-federal issue copper coins are given on pp. 51-52. Any genuine coin should fall within the specified range for its coin type. Specific gravity is another test that is often used for authenticating coins. This test involves comparing the weight in different media (*e.g.*, air and water) against a known standard. This test checks the density and therefore the metal composition of the coin.

The "Ring Test"

The ring test is a simple, but effective way to differentiate die-struck coins from such commonly-made counterfeits as cast coins and electrotypes. The ring test involves suspending the coin from the middle of one side (for example, balancing the coin on the tip of a single finger) and striking it gently on the edge, usually with a light metallic object, like the handle of a spoon or the edge of another coin. A genuine, die-struck coin will emit a resonant "ping" like a bell. A counterfeit will usually make a dull "clunk." The ring test works because the planchet of the die-struck coin consists of a single piece of annealed metal, and the entire coin responds to the physical tap. The metal in the counterfeit has a disordered structure, and so the physical tap will not propagate throughout the piece.

The ring test is not an infallible counterfeit detection method. Die-struck counterfeits should ring. Many genuine coins (particularly the thick large cent issues of 1793–1795) fail the ring test. The ring test must be performed with care, to avoid any damage to the coin. It should always be performed over a cushioned surface, as the coin is prone to falling after it is tapped. Obviously, coins that are encapsulated in third-party holders (slabs) can not be tested, but their authenticity should already be guaranteed.

Advanced Authentication – specific die attributes

Sophisticated counterfeits such as die-struck copies may pass all the tests mentioned thus far. They look right, are the appropriate weight, diameter and thickness, and ring. More advanced techniques are needed to detect these counterfeits, The counterfeiter produced the working die for the copies in some manner and then worked it to prepare it for use. This process leaves tooling marks on the die. Authenticators armed with a powerful lens (30x) or stereomicroscope and knowledge of what to look for can spot these die characteristics and identify the counterfeit. Unfortunately, until a specific type of counterfeit die is identified and published, the authenticators do not know what to look for. An advanced counterfeiter

succeeded in selling a number of high-grade Draped Bust large cents in the 1960s. These have come to be known as the "Bay Area Counterfeits." These die-struck counterfeits were only identified after a number of coins appeared, and all of the coins shared specific die diagnostics which were previously unknown.

Advanced Authentication – X-ray spectroscopy analysis

X-ray spectroscopy was once too expensive to be applicable for rare coin authentication. The x-ray source was so expensive that the instruments were too costly for numismatists to use for this purpose. However, the development and improvement of x-ray tube technology has enabled the production of relatively low-cost hand-held spectrometers with excellent (ppm range) accuracy for many common metallic elements. The x-ray penetrates the entire coin in most cases, and the spectrometer integrates the overall metallic composition of the coin. If a counterfeit contains a detectable impurity not found in genuine coins, the spectrometer reports it.

Advanced Authentication – surface analysis

Surface analytical techniques are advanced chemical detection methods that are not easy for the average hobbyist to access. However, some grading services (PCGS in particular) have been experimenting with surface chemical analysis as a way to detect alteration, and such techniques can also be applied for authentication. Some of the most common surface analytical techniques available in industry include: Energy Dispersive X-ray Spectroscopy (EDS), Auger Electron Spectroscopy (AES), X-ray Photoelectron Spectroscopy (XPS) and Fourier Transform Infrared Spectroscopy (FTIR). As the cost of these techniques falls, they should begin to find more use in the rare coin industry for advanced authentication and detection of surface alteration. Description of them is beyond the scope of this book.

Specifications for Early US Copper Coins

Confederation Era Coins

New Jersey Coppers
Diameter: 27-33 mm
Weight: 150 gr (9.75 g = 0.3439 oz)

Connecticut Coppers
Diameter: 28.6mm (approx.)
Weight: 144 gr (9.33 g = 0.3 oz)

Vermont Coppers
Diameter: 27mm (25–28mm)
Weight: 111 gr (7.19 g = 0.2537 oz.)

Massachusetts Coppers
Massachusetts Cents:
Diameter: 29mm (28–30mm)
Weight: 157.5 gr (10.2 g = 0.36 oz)

Massachusetts Half Cents:
Diameter: 24mm
Weight: 78.75 grains (5.1 g = 0.18 oz)

Fugio Cents
Diameter: 28.6mm
Weight: 157.5 gr (10.2 g = 0.36 oz)

US Half Cents

Liberty Cap *– Head Left (1793)*
Diameter: 21.4–24.6mm
Weight: 104 gr (6.74 g = 0.2377 oz)

Liberty Cap *– Head Right (1794, and 1795 lettered edge)*
Diameter: 23.8mm (approx.)
Weight: 104 gr (6.74 g = 0.2377 oz)

Liberty Cap *– Head Right (1795, plain edge through 1797)*
Diameter: 23.8–25.4mm
Weight: 84 gr (5.44 g = 0.1919 oz)

Draped Bust *(1800–1808)*
Diameter: 23.8mm
Weight: 84 gr (5.44 g = 0.1919 oz)

Classic Head *(1809–1836)*
Diameter: 23.8mm
Weight: 84 gr (5.44 g = 0.1919 oz)

Braided Hair *(1849–1857)*
Diameter: 23mm
Weight: 84 gr (5.44 g = 0.1919 oz)

US Large Cents

Chain *(1793)*
Diameter: 27mm (25–28mm)
Weight: 208 gr (13.48 g = 0.4755 oz)

Wreath *(1793)*
Diameter: 27mm (26–29mm)
Weight: 208 gr (13.48 g = 0.4755 oz)

Liberty Cap *(1793)*
Diameter: 28.6mm (27–30mm)
Weight: 208 gr (13.48 g = 0.4755 oz)

Liberty Cap (1794 and 1795 Lettered Edge)
Diameter: 28mm (27–29mm)
Weight: 208 gr (13.48 g = 0.4755 oz)

Liberty Cap (1795 Plain edge and 1796)
Diameter: 28mm (27–29mm)
Weight: 168 gr (10.89 g = 0.3841 oz)

Draped Bust *(1796–1807)*
Diameter: 28mm (27–29mm)
Weight: 168 gr (10.89 g = 0.3841 oz)

Classic Head *(1808–1814)*
Diameter: 28mm (27–29mm)
Weight: 168 gr (10.89 g = 0.3841 oz)

Coronet *(1816–1835)*
Diameter: 28mm (27–29mm)
Weight: 168 gr (10.89 g = 0.3841 oz)

Coronet – Transitional Head Styles (1835–1839)
Diameter: 27.5mm
Weight: 168 gr (10.89 g = 0.3841 oz)

Braided Hair *(1839–1857)*
Diameter: 27.5mm
Weight: 168 gr (10.89 g = 0.3841 oz)

Table of Equivalents:

1 grain = 0.06478 grams (g)
= 0.0022857 ounce (oz)

1 oz = 437.50 grains (gr)
1 g = 15.432 gr

Counterfeits and Alterations

Electrotypes

A very deceptive electrotype

The electrotype process involves impressing the image of a genuine coin into a soft material, and electroplating metal (copper, usually) on the surface of this negative impression to create a metallic shell that is a near perfect replica of one side of the original coin. After replicas have been made of both sides of the coin, the hollow interior of the two replicas can be filled with metal, and the two halves joined (glued or soldered) to form the electrotype. The process leaves a telltale seam around the edge. This seam creates additional work for the counterfeiter, especially if the coin being copied has an edge device (such as edge lettering, or vine and bars edge). For plain edge coins, it may be possible to tool the edge to remove the evidence of the seam. However, the tooling itself leaves behind some evidence of tampering. Electrotypes can pass the tests for weight, diameter, and thickness if the metal used to fill the shells is copper, or something with the same density. Furthermore, the surface quality and appearance (color) of an electrotype copy can be very convincing. The edge is usually the best clue about these counterfeits. Electrotype counterfeits usually (but not always) fail the ring test. Many individuals and institutions have created electrotype copies of important coins. They are often sold in copper auctions. This is fine, as long as the piece in question is not purported to be an authentic coin.

Cast Counterfeits

Cast copies are the easiest and crudest type of copies to make. The process typically involves making a mold out of material like sand, that can hold molten metal. A genuine coin is often used as the model to build the mold. Once the mold has been created, the cast copy is formed by melting some metal, and pouring this into the mold. If the mold is designed to form a solid coin (just one pour of metal to produce the finished


Pebbled surface of a cast

coin), the mold must have a small opening on the edge of the coin, where the metal is poured into the mold. After the metal cools, the counterfeit is removed from the mold, and the extra metal from the opening on the edge is filed down to smooth the edge. This process leaves file marks or other evidence of tampering on the edge. If the mold is designed to produce two halves of the coin (obverse and reverse), the finished halves must be removed from the mold, and either glued or soldered together to form the counterfeit. This process leaves a telltale seam around the edge or, there may be extensive tooling marks on the edge, in an attempt to hide the evidence of the seam. Cast counterfeits that are well-made can exhibit fairly smooth surface quality, although we have never seen one with anything like the mint-made flow lines that are produced by the striking process when a real coin is made. More typically, cast counterfeits exhibit granular or dull surfaces. The design details of a cast counterfeit are often mushy because the mold did not reproduce the sharp edges of the devices, letters, and numerals of the host coin. Cast counterfeits usually do not meet the appropriate weight, diameter, and thickness specifications. They usually fail the ring test.

Die-struck Counterfeits

Die-struck counterfeits are more complicated products than cast counterfeits or electrotype copies, and generally they are more difficult to detect as fakes. The dies can be made in one of the following ways:

- Original engraving – the design is transferred to the die steel by the same method used by Mint engravers. Engraving tools are used to create the design in steel, and the die is then processed (annealed and hardened) to prepare it to strike coins. This technique requires a high degree of skill, and the degree of difficulty needed to produce a realistic counterfeit of an early American coin is extremely high. However, many really nice creations were engraved by people like those who founded the Gallery Mint Museum, and their products, sold as reproductions, were quite popular. Some counterfeits are collectible. These include the Dr. Edwards copies of 1796 Liberty Cap half cents.
- Transfer die process – a real coin is used as the tool to create new dies for the production of copies. The faces (obverse and reverse) of the real coin are pressed into soft (unhardened) steel under high pressure. This creates working dies, with the mirror image of the coin surfaces impressed into their faces. These steel dies are subsequently tooled to perfect the image and hardened. The dies are then mounted in a coinage press, and used to produce counterfeits. Planchets of appropriate size, with suitable alloy content are also required for production of convincing counterfeits. Some copies are struck over worn genuine coins to produce high-quality counterfeits.
- Spark erosion die process – similar to the transfer die process, except that the process of producing the counterfeit dies involves copying the authentic coin *via* spark erosion. The host coin is immersed in an electrolyte, with the blank die in close proximity. A spark jumps the gap between coin and die to erode the die wherever the coin has raised elements. This process creates the working dies, and then steps very similar to those outlined above for the transfer die process are followed to make the counterfeits. The spark erosion process usually leaves the face of the die rough, so some polishing is necessary to remove the evidence of pitting. Invariably, a few stray pits are left in the die, and this results in occasional metal lumps on the surface of the coins struck from spark erosion dies. A practiced authenticator can spot these readily, but a novice can be easily fooled by these attractive (and attractively priced) counterfeits.

The convex edge of a genuine, pre-1836 plain edge early copper looks like this. If your coin has a flat edge like that of a modern cent or nickel, it is a modern counterfeit.

Direct Copies

As this is written (summer, 2013), 3-D printing is becoming an important technology. It is presently used to fabricate numerous items from jewelry to toys to functional prosthetic hands. It is now possible to fabricate items out of very fine metal dust using this process. The Mint already makes 3-D digital copies of models for making hubs. It is inevitable that similar technology will soon be adapted for the production of 3-D digital images of real coins and that these will be used to "print" counterfeits. It is unclear how such fakes might be detected, although it is not unreasonable that they could fail the ring test.

Altered Coins

Alteration involves modifying a genuine coin to make it appear to be something else. Among all US coins, the most frequent forms of alteration involve re-engraving the date or adding a desirable mint mark. For half cents and large cents, there are no branch mint issues to worry about, so altered dates are the only such type of modification encountered.

Altered date

The most popular dates involved in alterations are predictable: they are those that command the highest price premium. Among half cents these include the 1802 Draped Bust, 1811 and 1831, the last a proof-only date among Classic Heads. For large cents, the most frequently encountered altered dates include 1793 Liberty Caps, 1799 and 1804 Draped Busts, and 1823 Coronet cents. Such coins are best detected by having a good understanding of the die characteristics of the real coins of these dates. They have been studied for over 150 years, so it is very unlikely that *you* will discover a new die variety of an otherwise rare date!

For that hard-to-fill hole...

No discussion of altered date cents would be complete without mentioning the "1815 cents." All large cent aficionados realize that an 1815 large cent is a fantasy piece, as no 1815-dated cents were struck in Philadelphia. Still, the desire to fill that hard-to-fill-hole has long been irresistible, and this demand has fueled a tremendous number of ill-fated and whimsical alterations. The most popular host coins for 1815 alterations appear to be 1813 cents, although 1825, 1835, and 1845 cents have also been pressed into service for production of ersatz 1815s.

A "Smith counterfeit"

The so-called "Smith Counterfeits" are another famous series of large cent alterations. These are not counterfeits, but rather altered examples of genuine large cents. With the original design as a guide, "Mr. Smith" (probably William D. Smith of Ann Street, NYC, but others probably altered cents to 1793 as well) strengthened and skillfully modified the designs on worn 1793 and 1794 large cents to create these fantasy pieces for collectors trying to fill the elusive "1793 hole" in their collections. He apparently did this in the 1860s, when low grade examples of 1793 and 1794 cents were easy and cheap to obtain. Most Smith Counterfeits seen today utilize 1794 cents as the host, but some 1793 host cents are known. That illustrated was made from a heavily worn, genuine Wreath cent. Smith Counterfeits are very collectible in their own right today.

Chapter 4 - Grading Confederation Era Coppers

The State Coppers of our Confederation Period are the forefathers of our Federal large cents and half cents. To understand the difficulties in placing grades on these coins, it is necessary to have some knowledge about the minting process used in their manufacture. The earliest of the state coppers were struck in 1785 and production ceased "officially" in 1788.

The economy of post Revolutionary War America and the proliferation of counterfeit British halfpence circulating here prompted New Jersey, Connecticut, Massachusetts and Vermont to pass legislation to introduce their own coinage. The Articles of Confederation loosely bound the thirteen rebellious colonies together and recognized their right to produce their own coinages. Upon the ratification of the Constitution, the states' right to strike coins was rescinded, and only the Federal Government could legally produce coinage.

Detailed in-depth information for all of the copper coins of the Confederation era can be found in specialty reference books, auction catalogs and specialty publications such as the *Colonial Newsletter* (*CNL*), the *Colonial Coin Collectors Club Newsletter* (*C4N*) and of course, *Penny-Wise* (*P-W*), the official publication of EAC. (See the *recommended references* listed with each type.)

The Planchets

The planchets were from copper that was recycled from any source available at the time. The copper was refined in a furnace and poured into molds. The quality of the copper after refining varied greatly. Impurities, bubbles, and other problems were often encountered. These bars of copper were then formed into sheets, which were the thickness of the desired planchet. A trip hammer was sometimes used in the process, but all locations used rollers to obtain the eventual desired thickness. The copper sheets were rolled to the appropriate thickness for the diameter of the planchet to be cut. As an example, New Jersey had a mint in Rahway, and a second mint operating in Morristown. The Rahway Mint screw press used dies that were about 28-29 millimeters in diameter. The Morristown Mint used dies that were at least 30 millimeters in diameter. Because the legislation authorizing the coinage required each coin to weigh 150 grains, the larger planchet Morristown coins required a thinner planchet than the smaller diameter Rahway products.

Uniformity of planchet thickness was important, but the planchet surfaces were not always perfectly parallel. With a planchet of irregular thickness, the dies striking such a planchet would produce a coin with good detail on the thicker side and less (or no) detail on the thinner side. So an uncirculated coin could theoretically have a significant part of the design missing.

Air bubbles in the copper could cause striations (parallel lines in the planchet where there is a void) when rolled to the proper thickness. These could sometimes obscure features of the coin.

The planchets were cut out of the copper sheets using a "cookie-cutter" type device, possibly operated by the same screw press that was used to strike the coins. These planchet cutters would fail after a time and cause variations in the rim. When cutting planchets from the strip, the person at the helm could try to get too many blanks out of the strip and overlap the strip edge (or a hole from an already-punched planchet), causing some planchets with edge clips and circular clips. There are also misplaced planchet cutter marks where the planchet had started to be cut out, then the press operator decided to reposition the cutter and make the final cut. This would result in arc lines across both surfaces of the planchet, generally still visible after being struck.

All this being said, there was another source of planchets – copper coins already in circulation! This was very profitable for the coiners. As an example, NJ Coppers were valued by legislation (and being accepted in NJ tax payments) at 15 to a shilling. CT Coppers were valued at 18 to the shilling. Striking a CT Copper

coin with NJ Copper dies immediately increased its value by ⅕ without going through the labor-intensive planchet manufacturing process. For this method to work, the coin being used as a planchet would need to be annealed, or softened, so that the strike of the new dies would completely obliterate the original designs. Sometimes this worked (so that there is no evidence of an undertype); sometimes the undertype is partially visible, and on rare occasion, more of the host coin is visible than the new device. These fascinating coins can cause difficulties with grading.

The Screw Press

All of the state coppers were struck using screw presses. These were rather large machines, hand operated by (sometimes) three people – two to turn the screw and one to insert the planchets. A second hand eyewitness account has been saved for the ages in Sylvester Crosby's book *Early Coins of America* (1875) on page 287:

> We are indebted to John H. Hickcox, Esq., of Albany, N.Y., for a copy of a letter from F. B. Chetwood of Elizabeth, N. J., dated March 19, 1858, who gives the following particulars:
>
> *"My Mother, the daughter of Col. Francis Barber, is now seventy-six years old, and says that all of her recollection on the subject of your enquiry is that when she was a child of ten or twelve years old, she used to go into the house on the adjoining premises to her father's residence in this place to see them make coppers – The business was carried on in a room behind the kitchen, by Gilbert Rindle and a person whose name she thinks is Cox – The modus operandi was as follows – In the middle of the room was a wooden box or pit sunk into the floor several feet deep, in the middle of which pit was placed an iron Die, the top of which was about level with the floor of the room – A workman sat on the floor, with his legs inside the pit – He placed the smooth coppers on the Die and when stamped, brushed them off the Die into the pit – The impression of the copper was made by a screw-press which was worked by two men, one at each end of an iron bar or horizontal lever, attached to the screw at the center of its length, which was about nine or ten feet long.*
>
> *"My mother thinks it was in operation only a year or two, but her recollection on this point is not very reliable.*
>
> *"The copper was brought to that house, all finished, as she thinks, except the stamping – She has no recollection of any other branch of the business being carried on there – She recollects that the copper when coined was put into kegs and sent off somewhere, and that her mother used to purchase a bureau drawer nearly full at a time, and pay them out in daily use for household expenses."*

This recollection of an elderly eyewitness gives us a mental image of what the screw press looked like. We are fortunate to have it. It is also significant that this described screw press was owned at the time by Mathias Ogden (1754-1791). In Frank H. Stewart's (1924) book, *The History of the First United States Mint*, on June 3rd, 1794, Hannah Ogden (widow of Matthias) sold a "coining press" to the United States Mint for $47.44. That was about two months' pay for the average workman at the Mint at the time. So it appears that the same screw press that made many of the NJ Coppers also probably struck many of our early large cents and half cents.

The manual operation of the screw press can play a big part in the coin's appearance. Each swing of the operating bar can produce different amounts of force. Some days the operators could be more vigorous than others. Also, the screw turns more easily right after being serviced and greased than after being operated a few thousand times. So variations in striking pressure can play a significant role in the appearance of the finished product.

The Dies

The state copper dies were each hand made. There are indications that a central device punch was used in some instances, but the majority of the work (strengthening, adding numerals and letters) was done by

hand. The legends and date were either made using punches, or hand engraved into the die. Sometimes the legends could be punched, but the date was hand engraved. Some legends used punches to start a letter, and then the remainder of the letter was engraved by hand. An example would be using a "P" punch and then engraving the tail to make it into an "R."

How deep the designs were punched/engraved into the die could determine how well they appeared on a coin. As an example, if a shield on the reverse of a NJ Copper was engraved too deeply into the die, an average striking pressure may show no shield lines in the coin, while the very rare coin that was heavily struck will show shield lines. Knowing the die characteristics for what you collect is very important. An UNC coin could have no shield lines while a VF coin could show the lines prominently.

The hardening of the dies was very critical, and often based as much on luck as skill. When the dies were made, the steel was softened to allow the devices to be easily punched/engraved. After the die was finished and the engraver was satisfied, it needed to be hardened before being put to work. Steel is hardened by heating it in a furnace, and then quickly cooling it. The cooling process was usually accomplished by dunking the red-hot die in a mixture of cold water and oil.

The tricky part here is that if the die was too hard, it became brittle and would crack early and be taken out of service. If it was not hard enough, the die would wear out too soon. If it was hardened too quickly, the outer region of the die could be hard while the central portion of it remained soft. This would result in bulging dies – where the legends are strong and the central device is weak or non existent.

Dies were expensive and time consuming to make. Therefore, the mints often used the dies until they were no longer serviceable. The late state of the dies could produce coins which appeared to be worn. Being familiar with the die states of the variety you are studying can be of great help when determining the grade of a coin.

To the best of our knowledge, no dies for the state coppers still exist. Finding one would tell us a lot about the minting process. We still have hope that some elderly person in Rahway has a "paper weight," passed down through the family, that will one day be discovered to be what it truly is. We really don't know what the dies looked like. Were they cylindrical bars with the design at the end? Or could they have been on the end of square bars? Or might they have been smaller blocks attached to the end of a bar? How were they attached to the screw? All these questions await further numismatic research.

Post Strike Considerations

In the 225 years since these coins were placed into circulation, they have been subjected to innumerable humiliations. After striking, the coins were not placed in cotton envelopes and then into 2x2 envelopes! Mrs. Chetwood described a process of loading the coins into kegs and shipping them somewhere. So right off the bat, we have the possibility of contact marks resulting from abrasions in the keg. Imagine what abuses that keg went through in shipping!

We collectors often fail to realize that the colonial minters did not strike these coins for our personal amusement – these were utilitarian objects made to facilitate commerce and hopefully make the minters rich. No special care was taken after minting. We do have the rare examples today that have not seen circulation, for whatever reason. They could have been forgotten for decades in a desk drawer and then valued as a family heirloom. Or the small handful of collectors at the time (mostly in England) could have sought and acquired nice examples. But for whatever reason, the rare flaw-free uncirculated state copper is something beautiful for us to behold – it can take your breath away!

Most of the state coppers saw at least some circulation. This circulation is evidenced by: wear of the details on the coin; edge dings from being dropped; scratches from contact with other metal objects such as other coins in a coin pouch; and, corrosion from being stored in a humid atmosphere or from burial in the ground. Many of these pieces have problems more severe than those caused by circulation or environmental forces.

Some were holed when nailed to a beam or door frame of a building for good luck. Some have two holes indicating use as a button or humdinger. Some were engraved or counterstamped for use as mementos or advertising. Some collectors appreciate and actively seek out state coinage whose service exceeded that as a medium of exchange.

Grading State and Fugio Coppers

Collectors of colonial and Confederation era coinage don't seem to be as obsessed with grade as others are in the hobby. There is an appreciation for the coins regardless of grade, for their historical significance and what the characteristics of the coin can tell us. Sure, we attempt to obtain the nicest coins we can. A number of researchers have constructed Condition Census reports listing the six finest coins of each variety. We've never seen these reports agree completely with each other—they are just the opinions of those compiling the information (not unlike certain large cent condition censuses, come to think of it!). On the other hand, we have never seen any of the collectors that own these high-grade coins have an argument over ranking. Collectors of the high-grade coins seem to enjoy studying our "affordable" coins as much as we enjoy their coins. There is a camaraderie among collectors of pre-Federal coinage that we find difficult to put into words. But we hope that through what we leave behind, future generations of collectors will view us as all being friends who both competed for coins and shared information in a friendly manner.

Grading has always been a controversial area in numismatics. Nowhere is it more so than with our early coppers. We have seen two large cent collectors argue until red in the face about the grades of their coins. In reality, grading is largely a personal opinion. There are some collectors who rely on the grading opinions of others, such as dealers they respect, auction catalog appearances, labels on grading service holders. Others consider it part of their personal enjoyment of the hobby to form their own opinions of grade, and educate themselves by viewing as many coins as possible and learning the characteristics of the different die varieties.

Grading the Federal coins requires a learning curve that takes time and experience. Grading the state coppers requires *even more* of a learning curve due to all the variables we have discussed. On the other hand, it can be a bit simpler too. In general, collectors of colonial and Confederation period coinage do not use numerical grades. We use the hobby standard adjectival descriptions of:

About Good (AG)
Good (G)
Very Good (VG)
Fine (F)
Very Fine (VF)
Extremely (Extra) Fine (EF)
About (Almost) Uncirculated (AU)
Uncirculated (UNC)

But verbal notations are also required. For instance, as we all know, all VF coins are not of equal quality (or value). For half and large cents, *CQR* (*Copper Quotes by Robinson*) attempts to do this by classifying coins by grade and then by "Choice, Average or Scudzy." In general, after assigning a wear grade to a pre-Federal coin, more than a one word description is necessary. You can see this in the cataloging of major colonial collections and in Fixed Price Lists that dealers send out. A few words about strike, color, defects or unusual characteristics are all important. Net grading is the process of taking the sharpness grade and lowering it based on the coin's defects. It can be very different for different collectors – what bothers one collector about a coin may not bother another. For pre-Federal coins, we usually use the sharpness grade and just describe the defects, as Sheldon recommended that large cent collectors do.

In attempting to describe how to grade the state coppers here, it must be kept in mind that some of the characteristics that you should look for may just not be present on the variety that you are inspecting,

or they could be obscured for a number of reasons. So the entire coin must be looked at, allowances made for the variety, and a grade then determined. The coins chosen for representative examples of different grades are all common varieties for their respective series, and are available in conditions that range from Poor to Uncirculated.

Why is it a challenge to grade State and Fugio Coppers?

It is interesting to note the following: *The New Jersey Copper Coinage* (Siboni, *et al*., 2013) makes no reference to grading. *The Copper Coins of Vermont* (Carlotto, 1998) only stated how problematic grading is for Vermonts, but did not give any grading guidelines. *The United States Fugio Coinage of 1787* (Newman, 2007) makes no reference to grading. The *Whitman Encyclopedia of Colonial Coins* (Bowers, 2009) uses three pages to discuss grading colonials, but gives no guidelines. The only modern work that gives even a minimal reference to grading Confederation coinage is the Breen (1988) *Encyclopedia*. None of the major modern reference books gives any guidelines for grading our state coins.

Why is this the case? Is grading pre-Federal coinage *so* problematic that none of these experts understand how to grade the coins about which they write? We doubt that. Guidelines for grading these coins *do* exist, and the specialists *do* understand them. Why, then are so few willing to put grading guidelines into print? We believe it is because there are so many exceptions to the rule that many of the coins you encounter for grading may not follow these guidelines *exactly*. A perfect grading guide would contain grading parameters for each individual die variety – more than 600 for the state coinages and Fugio series. However, this is not practical, and even if such a 1200 page work were written, there would still be exceptions to the rule because of all the minting variables we've already discussed. But in spite of friends questioning our sanity in attempting this project, your authors (and fellow collectors) move on. Our purpose is not to impress the experts who already know everything, but rather to make early coppers more understandable to those who don't *yet* know everything.

How would you grade the coin below?

And how would you grade this coin?

The conditions of these two coin images seem to be vastly different. Would you rather own the first coin with sharp legends and nearly full details or the second with the date and legends about gone and the figure ill-defined? In fact, these images are of the obverse and reverse of *the same coin*. They have exactly the same amount of wear. The mint utilized a worn reverse die (for a counterfeit British halfpenny) with a new Vermont obverse. *This coin must be graded by the obverse only*. This illustrates a general rule that these coins should be graded according to the sharpness of the stronger side. For the early US Mint product**s,** if the amount of detail remaining on the obverse and reverse differ significantly, grade by the obverse.

There is nothing more important for grading Colonial and Confederation coinage than experience obtained by studying the varieties and viewing as many coins as you can. Use the information in this book to guide you in gaining that experience.

New Jersey Coppers (1786-1788)

On June 1, 1786, the New Jersey General Assembly passed "An Act for the Establishment of a Coinage of Copper in this State." This act specified that Walter Mould, Thomas Goadsby and Albion Cox (later the first Assayer at the US Mint in Philadelphia) were to produce £10,000 of coppers, valuing them at 15 to the Shilling, and weighing 150 grains each. This equates to a total of 3 million coins authorized. The state was to receive 10% of the value coined, paid quarterly to the Treasurer.

Shortly after this contract was agreed to and signed, a disagreement caused the three coiners to dissolve their partnership. On November 22, 1786, the Assembly passed a bill to allow Goadsby and Cox to mint two-thirds of the contracted coinage separately from the one million coins that Mould was required to produce. Goadsby and Cox set up their mint at Marsh's Mills in Rahway, NJ, while Mould set up his mint in Morristown on the property of Justice John Cleve Symmes called "Solitude."

With two mints, there were two different sets of minting equipment and also dies with different characteristics. Typically, the Morristown coinage is of a larger diameter, varying from 29.5 mm to 33 mm. The Rahway coins are typically 27 mm to 29mm. There are exceptions that interest the specialist.

Both mints were plagued with problems – debt, litigation and such. Both ceased operations in 1788. Whether they actually struck the full three million coins between them, we don't know. BUT, the State did receive its full 10% of the legislated £10,000.

We don't know what happened to the Morristown Mint equipment when Mould fled from creditors, but we know that the Rahway screw press was relocated to the property of Matthias Ogden in Elizabethtown. Ogden continued to strike New Jersey Coppers, possibly using other circulating copper coins for planchets. Presumably, that is the same screw press Mrs. Hannah Ogden eventually sold to the US Mint as a coinage press.

In addition to these three minting locations, we know from Crosby (1875, p. 283) that John Bailey was striking New Jersey Coppers in New York City. Although there is no contemporary proof, many of today's scholars believe that Bailey was responsible for the "Running Fox" coinage. Also, without contemporary evidence, many New Jersey Copper specialists speculate that the "Camel Head" New Jersey Coppers were struck at Thomas Machin's Mill in New York.

With all the different mints and personnel, grading NJ Coppers can be a challenge, as it is with all of the Confederation copper coinages.

Recommended references: Crosby (1875), Maris (1881), Bowers (2009), Demling (2012), Siboni *et al.* (2013); Ford I, Griffee, Taylor and EAC 1976 auction catalogs.

About Good
OBVERSE: Only parts of the legend show. The horse's head is visible but may fade into the field.
REVERSE: Only parts of the legend show. The shield lacks most details and may fade into the field.

Good
OBVERSE: The legend is complete but weak in areas. The horse's head is fully outlined, as is the plow.
REVERSE: The legend is complete but weak in areas. The shield is fully outlined, and some central details may start to appear.

Very Good
OBVERSE: The legend is defined. The horse's head starts to show some details. The plow shows some details also.
REVERSE: The legend is defined. The shield edges are still not well defined, but half of the lines within the shield can be evident.

Fine
OBVERSE: Eye, nose and hair details start to appear.
REVERSE: The shield outline is well defined and ¾ of the lines are visible within.

Very Fine
OBVERSE: Eye, nose and hair details are all evident. The lines within the plow are defined. Legend is very clear.
REVERSE: The shield shows nearly all of the lines. The vertical and horizontal lines in the very center of the shield show wear.

Extremely Fine
OBVERSE: All design elements are well defined. The high points of the horse's head and plow show wear.
REVERSE: All design elements are well defined. The central part of the shield shows a slight rub.

About Uncirculated
The coin has friction but has remaining luster between the high points of the design.

Uncirculated
There is no trace of wear. The coin has full luster and original-looking color, and marks are minimally distracting.

Connecticut Coppers (1785-1788)

On October 18, 1785, Samuel Bishop, James Hillhouse, Joseph Hopkins and John Goodrich petitioned the "Honorable General Assembly of the State of Connecticutt" for permission to establish a mint for the purpose of coining coppers. They proposed to produce coins of good copper and of the same weight as British halfpence for a period of 10 years and pay the state 5% of their production for this privilege. This payment would be made twice a year.

On October 20, a bill was passed approving this petition. Several conditions were added to the original petition. The legends and central devices for the coins were given, production total was not to exceed £10,000, a weight was specified at 144 grains, a value was given for the coin to circulate at the same rate as a British halfpenny, a maximum production term of five years was established, names of specific individuals were given to inspect the coinage before it entered circulation and this coinage was not to be considered "legal tender in payment of any debt." It was considered a convenience for "making change." Although the earliest coins are dated 1785, Connecticut coppers didn't enter circulation until February 1786. In 1787, they passed in circulation at 18 to the shilling while New Jersey coppers were valued at 15 to the shilling.

As with the New Jersey Coppers, the Connecticut Coppers were struck at several different mint locations in Connecticut and possibly New York. The Company for Coining Coppers, consisting of Bishop, Hillhouse, Hopkins and Goodrich in partnership with Pierpoint Edwards, Jonathan Ingersoll, Abel Buell and Elias Shipman, struck the Connecticut coppers. The key people in this company changed over time with the buying and selling of shares. Two others eventually became partners, including James Jarvis. Their mint was in northern New Haven.

Samuel Broome and Jeremiah Platt ran another mint near the harbor at New Haven. They employed laborers to perform the actual work. In addition, it is believed that some of the 1787 and all of the 1788 Connecticut coppers were struck at Machin's Mill in NY. Some are of the opinion that there was a mint striking Connecticut coppers in New York City as well, but there is no confirming contemporary documentation. Much of the copper used is believed to have been misappropriated from copper supplied by the US Congress for the Fugio cents, which were made at the same mints by the same personnel.

The coins themselves are a virtual supermarket of varieties. There are mailed busts and draped busts, bust left and bust right, varied legend spellings, varied legend punctuations, and many, MANY legend spelling errors. The planchets vary widely in quality. Coins are often struck unevenly, such that even high grade examples can be missing sections of the legend. Planchet voids, clips and other defects are common.

Recommended references: Crosby (1875), Miller and Ryder (1920), Bowers (2009); Ford IX, Taylor, EAC 1975, and Perkins auction catalogs.

About Good
OBVERSE: Only parts of the legend show. The bust is visible but may fade into the field.
REVERSE: Only parts of the legend show. Miss Liberty lacks most details and may fade into the field.

Good
OBVERSE: The legend is complete but weak in areas. The bust is fully outlined.
Reverse: The legend is complete but weak in areas. Miss Liberty is fully outlined and some central details may start to appear.

Very Good
OBVERSE: The legend is defined. The bust starts to show some details.
REVERSE: The legend is defined. Miss Liberty starts to show details around the feet and globe.

Fine
OBVERSE: The eye nose and mouth start to be visible. Some hair details start to appear. The legend is well defined.
REVERSE: Miss Liberty is fully outlined and about half of the dress details show.

Very Fine
OBVERSE: The eye, nose and hair details are all evident. Legend is very clear.
REVERSE: Most of the design elements of Miss Liberty are evident. The face may not have any detail yet.

Extremely Fine*
OBVERSE: All design elements are well defined. The high points of the bust show wear.
REVERSE: Miss Liberty is well defined. The high points on the dress, bust and shield show wear.

About Uncirculated
The coin has friction but has remaining luster between the high points of the design.

Uncirculated
There is no trace of wear. The coin has full luster and original-looking color, and marks are minimally distracting.

* Some old-time collectors identified the die varieties in their collections by writing the variety designation on the coin in ink, creating a "painted die variety." These coins are often catalogued with the notation of "PDV" for painted die variety. Painting does not impact the grade, but it can add substantially to the provenance and charm and therefore the desirability of the coin to collectors. This coin was painted by William Wallace Hays, coauthor with Édouard Frossard of a well-known monograph on 1794 cents. It was sold with Hays' collection to Hillyer Ryder in 1903, eventually finding its way to the John J. Ford collection. This phenomenon is also illustrated by the Massachusetts cent in Fine condition. Hays also painted his initials on the edge of some large cents. Large cent collector Homer Downing identified his coins by filling in the H and D of HUNDRED on the edge in yellow ink, leaving his initials visible on the edge of the coin. Similarly, the Dexter 1804 dollar has a D punched into one of the clouds on the reverse.

Vermont Coppers (1785-1788)

On June 10, 1785, Reuben Harmon submitted his petition to coin coppers to the Vermont Legislature. Vermont was not yet a state, but rather an independent republic. The petition was for the coinage of £8,000 of coppers under such "regulations and restrictions that the Legislature" thinks proper. Harmon received approval from the Assembly on June 15, 1785. The authorizing legislation required Harmon to enter into a bond with Vermont, strike coins at a weight of 160 grains and have this coining privilege for two years. Just twelve days later, Harmon petitioned the Assembly to change the authorized weight, because 160 grains was much heavier than the British halfpenny in circulation at the time. The Assembly agreed and passed new legislation making the official weight 111 grains.

Harmon's mint was located in Rupert, VT, on a stream named Millbrook. Another account states its location being on the Pawlet River (into which the Millbrook empties). There was to have been a furnace, rollers and a screw press at this mint, meaning that all minting operations could be performed here.

The Vermont Coppers consist of two very distinct types: Landscape obverses with an All-seeing Eye reverse, and Bust obverses with a Seated Liberty who closely resembled the familiar Britannia on the reverse. Current thinking is that the Landscape dies were engraved by someone at the Van Voorhis and Coley partnership located in New York City. There are seven known Landscape varieties, distinguished by different legend spellings and device positionings. The Landscape type is not included in this guide, because it is even more problematic to grade due to the crudeness of the planchets and dies than the Bust type. Exactly why Vermont drastically changed the designs to the bust varieties is not known, but perhaps the more familiar bust design was accepted more readily in commerce. The Landscape coins are all thought to have been products of the Rupert Mint.

The Bust design coinage is thought to have been coined at Machin's Mill in New York, and possibly in New York City. There was an official contract drawn up and signed by all parties to contract Machin's Mill to produce Vermont Coinage. There are even two Vermont Copper varieties where one side is an official Vermont design while the other side is that of a Machin's Mill-produced counterfeit British halfpenny.

Of all of the Confederation Coppers, it's been our observation that the Vermont coinage has the worst quality planchets. The source of copper and refining techniques were not up to those of the other contemporary mints. In addition, striking was very inconsistent, thus making grading even more challenging. But the crudeness and the charm of these early coppers are what makes them so endearing to those that collect and study them!

Recommended references: Crosby (1875), Miller and Ryder (1920), Bressett (1976), Carlotto (1998), Bowers (2009); Ford I and Taylor auction catalogs.

About Good
OBVERSE: Only parts of the legend show. The bust is visible but may fade into the field.
REVERSE: Only parts of the legend show. Miss Liberty lacks most details and may fade into the field.

Good
OBVERSE: The legend is complete but weak in areas. The bust is fully outlined.
REVERSE: The legend is complete but weak in areas. Miss Liberty is weak and still fades into the field.

Very Good
OBVERSE: The legend is defined. The bust starts to show some details.
REVERSE: The legend is defined. Miss Liberty starts to show details.

Fine
OBVERSE: The eye nose and mouth start to be visible. Some hair details start to appear. The legend is well defined.
REVERSE: Miss Liberty is fully outlined as struck, and more details show in shield and sprig.

Very Fine
OBVERSE: The eye, nose and hair details are all evident. The legend is very clear.
REVERSE: Most of the design elements of Miss Liberty are evident. The face may not have any detail yet, if it was there to begin with.

Extremely Fine
OBVERSE: All design elements are well defined. The high points of the bust and wreath show wear.
REVERSE: Miss Liberty is well defined. The high points on the dress, bust and shield show wear.

About Uncirculated
The coin has friction but has remaining luster between the high points of the design.

Uncirculated*
There is no trace of wear. The coin has full luster and original-looking color, and marks are minimally distracting.

* The Uncirculated coin is one of the finest known of the type, fully lustrous and with some remaining red. The bright lines that look like scratches are actually from heavy die polishing, so they do not affect the grade. It is struck over an Irish halfpenny (note the II•R from GEORGIVS III•REX at the top of the obverse and the HIB from HIBERNIA at the top of the reverse). Other traces of undertype are also visible. In addition, there is a heavy, vertical bisecting obverse die crack, all of which explains the weakness of strike in the centers. Many Confederation era coins were struck over other coins, often other Confederation era coins, and the resulting weaknesses and undertype present additional challenges in grading.

Massachusetts Cents (1787-1788)

In early March 1786, Seth Reed of Uxbridge Massachusetts petitioned the Massachusetts General Court for the exclusive right to mint copper and silver coins for the Commonwealth. A committee assigned to assess Reed's proposal asked him to provide additional evidence that sufficient ores could be provided from mines located within the Commonwealth. A separate committee was appointed to consider the "expediency and practicability" of minting a quantity of copper or silver money. The second Committee reported on June 7, 1786, and recommended that the Commonwealth establish and operate its own mint rather than grant a patent to any individual. It estimated that minting £20,000 of coppers would result in a profit to the Commonwealth of almost 50 percent.

Establishment of the Massachusetts mint was delayed, however, by the rumor that the federal government was on the verge of establishing a federal mint. Governor Bowdoin and other Massachusetts officials recognized the advantages of a uniform currency, especially gold and silver, to be used in all 13 states. The federal mint failed to materialize, and on October 17, 1786, an Act was passed authorizing the establishment of a Massachusetts mint for coining gold, silver, and copper coins. The Act specified that $70,000 in cents and half cents be struck and received for all payments within the Commonwealth.

The devices of the cent and half cent are the same – on the obverse, a Native American holding a bow and arrow with a star in front of his face surrounded by the word COMMONWEALTH, and on the reverse, a spread eagle surrounded by the word MASSACHUSETTS with the date below. The denomination CENT or HALF CENT is on a shield on the eagle's breast. The standard weight for the cent is 157.5 grains and that for the half cent, 78.75 grains, the weights established by Congress for federal cents and half cents in August 1786. The Massachusetts coppers were the first coins struck using these denominations.

In May 1787, Captain Joshua Witherle was selected as the mint master. He erected a mint building and a smelting house behind his own residence on Boston Neck. He also erected a water-powered mill in Dedham, about 10 miles south of Boston. Copper was smelted and poured into ingots at the smelting house. The ingots were carted to the mill to be drawn under a trip hammer and rolled to thickness. The copper strips were then carted back to Boston to be cut into planchets and struck into coins. The first Massachusetts coppers were struck in September 1787. Production was much slower than anticipated, and in November 1788, Witherle was instructed to strike the copper he had on hand and to cease operations. The last coppers were struck in January 1789. While authorized to strike $70,000 in cents and half cents, only $3,493.76 was delivered to the Commonwealth's Treasurer. These coins cost almost $7,500 to produce. Rather than making a profit of 50 percent on each coin struck as anticipated, the Commonwealth lost more than 50 percent. No records exist that indicate gold or silver coins were ever struck.

Joseph Callender engraved the dies for all the 1787 cents and half cents and some of the 1788 cents. His fee of $4 per die was judged excessive. Jacob Perkins, a 21 year-old silversmith from Newburyport, replaced him in mid-1788. Perkins engraved the dies for the 1788 half cents and some 1788 cents. Perkins received one percent of the coins struck from his dies. Coins struck from Perkins' dies can be easily distinguished from those struck from Callender's dies. The word MASSACHUSETTS on Perkins' coins have closed S's that look like the numeral 8 while Callender's coins have open S's that look like S's.

Recommended references: Crosby (1875), Miller and Ryder (1920), Bowers (2009); Taylor, Norweb II and Ford V auction catalogs.

About Good
OBVERSE: Only parts of the legend show. The Native American is weakly visible with no details.
REVERSE: Only parts of the legend show. The shield looks like it is part of the eagle's chest.

Good
OBVERSE: The legend is complete but weak in areas. The Native American is fully, if weakly, outlined. The bow may fade into the field.
REVERSE: The legend is complete but weak in areas. The shield is evident, but no details are within.

Very Good
OBVERSE: The legend is defined. The Native American starts to show some details in the garment and the head.
REVERSE: The legend is defined. The shield is still not well defined, but parts of the C and the T of CENT are visible.

Fine
OBVERSE: Legend is well defined with light weakness at the top of the letters. The Native American is completely outlined and more garment details appear.
REVERSE: The shield outline is defined and some of the E and N of CENT start to become visible. Details of some of the inner feathers start to show.

Very Fine
OBVERSE: Legend is now prominent. Details of the Native American on his left side are weak or missing.
REVERSE: CENT is now complete, although weak. Most of the feathers show and the arrows and olive branch are well defined.

Extremely Fine
OBVERSE: All design elements are well defined. The high points on the left side of the Native American are weak. Clothing and shoe detail are only slightly weak.
REVERSE: All design elements are well defined. The central part of the shield below the word CENT shows a slight rub.

About Uncirculated
The coin has very slight rub on fingers holding the bow, back of hand holding the arrow, and eagle's knees.

Uncirculated
There is no trace of wear. The coin has full luster and original-looking color, and marks are minimally distracting.

Massachusetts Half Cents (1787-1788)

History and Recommended references: see those for Massachusetts cents (p. 69).

Good
OBVERSE: The legend is complete but weak in areas. The Native American is fully, if weakly, outlined. The bow may fade into the field.
REVERSE: The legend is complete but weak in areas. The shield is evident, but no details are within.

Very Good
OBVERSE: The legend is defined. The Native American starts to show some details in the garment and the head.
REVERSE: The legend is defined. The shield is still not well defined.

Fine
OBVERSE: Legend is well defined with light weakness at the top of the letters. The Native American is completely outlined and more garment details appear.
REVERSE: The shield outline is defined and some of the letters of HALF CENT start to become visible. Details of some of the inner feathers start to show.

Very Fine
OBVERSE: Legend is now prominent but details of the Native American's left side are weak or missing.
REVERSE: HALF CENT is now mostly there, although weak. Most of the feathers show and the arrows and olive branch are well defined.

Extremely Fine
OBVERSE: All design elements are well defined. The high points on the left side of the Native American are weak. Clothing and shoe detail are only slightly weak.
REVERSE: All design elements are well defined. The central part of the shield below the words HALF CENT shows a slight rub.

About Uncirculated
The coin has very slight rub on fingers holding the bow, back of hand holding the arrow, and eagle's knees.

Uncirculated
There is no trace of wear. The coin has full luster and original-looking color, and marks are minimally distracting.

Fugio Coppers (1787)

Some numismatists debate whether to call this coinage "Fugio Coppers," "Fugio Cents" or "Franklin Cents." But by whatever name you call these coins, they are our first Federally-authorized copper coinage. Benjamin Franklin is credited with the design and the legend which imitate those of the Continental Dollars and the fractional issues of Continental Currency (paper money) issued in 1776.

James Jarvis was awarded a contract on April 21, 1787 to produce the Fugio coinage, using 345 tons of copper supplied by the US Government. These were to have been produced at a weight of 157.5 gr (44 4/9 per pound of copper). Further legislation on July 6 specified the design and legends.

One would think that with all the scandals, litigation and controversies that the state mints endured, the Federal Government would do better, but that was not to be the case. Jarvis was awarded the coinage contract over Matthias Ogden because of a $10,000 bribe to a William Duer, whose influence on Congress gave Jarvis the contract. The contract seems to have been arranged before Congressional approval, because Jarvis received shipments of government copper before he was approved.

Jarvis supplied fewer than 400,000 Fugio Coppers to the government, and when called to task, he was unable to account for the remainder of the government copper, which was probably struck into Connecticut Coppers (at considerably greater profit to Jarvis) in New Haven.

Jarvis records shipments of 12,000 lbs of Fugio coppers to New York between February and April 1788, of which 8,968 lbs were recorded as received by the US Treasury. In May 1788, the Board of Treasury revalued the cent at 210 grains due to falling rates on copper, leaving Fugios at a value of 3/4 cent. The Fugio coins were thence held in storage pending a decision what to do with them. In August 1788, Jarvis, who was in default on deliveries to his Fugio contract, petitioned Congress for more time, which was denied. On September 16, 1788, Congress officially voided the Jarvis copper contract and began an inquiry of Jarvis' conduct.

In July 1789 the Treasury decided to divest its Fugio coin holdings to a New York merchant/speculator, Royal Flint. Flint made the first of three payments to the government, however, the copper panic further devalued the coins and he was not able to find a market to accept them. Being unable to make the second payment, his residence changed to debtor's prison, to which Duer shortly followed.

In 1856, the Bank of New York discovered a keg of uncirculated Fugios, probably numbering in excess of 2,000 coins, in their basement. Many were distributed to employees and favored customers over the decades. Over 1,600 remained in 1948, and as of this writing, they reportedly still have over 800. This is the reason that it is not difficult to locate uncirculated examples today.

Damon Douglas had done extensive research on the Fugios and his manuscripts reside in the library of the American Numismatic Society. Although never published, much of his work has filtered into modern publications.

Recommended references: Crosby (1875), Newman (1952), Kessler (1976), Newman (2007), Bowers (2009); Kessler-Spangenberger, Ford I and Stacks-Bowers 2012 auction catalogs.

About Good
Parts of the legend are readable.

Good
OBVERSE: Legend and date are mostly complete but weak in areas. Sundial details are weak and no Roman Numerals are visible.
REVERSE: Rings are weak toward the periphery. Legends in the center may be weakly visible.

Very Good
OBVERSE: Legend and date are complete and have areas of weakness. Sundial and rays start exhibiting details and a Roman numeral or two may start to be visible.
REVERSE: Rings are complete but may still be weak at the periphery. Central legends are visible and weak.

Fine
OBVERSE: Legend and date are now complete and outlined. Sundial and rays have more than half the details visible.
REVERSE: Rings are strong and complete. All the letters in the legend are complete.

Very Fine
OBVERSE: Legend and date are complete and strong. Sundial and rays have good detail. All Roman Numerals are present. Face on the sun is visible.
REVERSE: Legend letters are very prominent. Cinquefoils punctuating United States are evident.

Extremely Fine
OBVERSE: Legend, date, sundial, rays and Roman Numerals are all sharp. Mild wear is easily visible.
REVERSE: As with the obverse, legend and devices are sharp with mild wear visible.

About Uncirculated
The coin has friction but has remaining luster between the high points of the design.

Uncirculated
There is no trace of wear. The coin has full luster and original-looking color, and marks are minimally distracting.

Chapter 5 - Sharpness Grading of Half Cents

For all of the grade descriptions in Chapters 4-6, we have attempted to be succinct by calling the readers' attention to the characteristics that define the grade, the so-called pick-up points for the grade. Keep in mind that all details that are required for a particular grade are also required for all higher grades. For example, if Ms. Liberty's eye must be clear for VG, it must be clear for Fine and all higher grades as well.

Most half cent varieties are reasonably well struck. Half cents are smaller than large cents so the force of the press was better able to strike up the coin detail, and the coins produced less die wear per strike. Also, far fewer half cent than large cent dies were used, so there are fewer "problem" dies with which to deal. The comments in the following sections are limited to varieties that have striking variations or die breaks that actually affect the grading process. Thus, if a crack or bulge forms that doesn't affect grading, it is not mentioned. Likewise, clash marks are irrelevant to grade. All images are obverse and reverse of the same coin, so what we show are real world coins.

Recommended references: Gilbert (1916), Bowers & Ruddy (1962), Cohen (1971, 1982), Breen (1983), Manley (1988); Rouse, Davy, Whister, Goodridge, and Missouri Cabinet auctions, Spurlock and Eckberg Fixed Price Lists.

Liberty Cap Facing Right (1793)

Estimates are that about 1,200-1,500 1793 Liberty Cap half cents survive from four varieties and a mintage of 35,334. They were struck to the weight specification of 104 gr (6.74 g, 4.33 dwt). 1793 planchets are usually 7/8″ in diameter, slightly narrower than those of the later half cents. The designer and engraver are unknown but likely to be the same person who engraved the 1792 disme pattern, because of similarities in style and technique.

Four varieties were struck, and they are of about equal rarity. They were struck on four days – July 19, 23, 24 and 25 (Friday and the next Tuesday-Thursday) – probably one variety per day. We know from die state evidence that the order of striking was C-1 > C-2 > C-3 > C-4. The C-1/2 obverse has been reported to develop considerable rust, but since it was in use for only two days separated by a weekend and a Monday, and the "rust" began to develop on the day the C1 variety was being struck, the disintegration most likely results from mechanical spalling due to the heavy pressures of the screw press acting against poorly-hardened die steel. The C-3/4 obverse suffered similar deterioration during the two days it was in use. Numismatists should be careful taking "die rust" as evidence that a die was in long use.

The 1793 half cents represent a one-year type, so there is heavy collecting pressure on them, no matter what their condition. These coins were in circulation for 64 years before the government redeemed the large and half cents, so the vast majority are heavily worn, and most are corroded or otherwise damaged. Furthermore, the 1793s are the only half cent type struck without a raised rim; rather, the coins had a circle of beads near the rim as is also found in the 1793 Wreath and Liberty Cap cents. This means that the devices wore down quickly. The reverse die of C-1 buckled quickly, so most examples of this variety do not show HALF CENT completely, even in Very Fine grades. Fully stuck specimens are rare. Higher grade C-2s and C-4s often show much evidence of spalled (corroded-appearing) dies.

The 1793s and other Lettered Edge varieties survive in a substantially higher percentage than the plain edge Liberty Caps and Draped Busts; evidently, many were saved by Mint personnel when the old copper coins were redeemed for the Flying Eagle "nickels."

Fair (Fr-2)
Large portions of the design merge with the fields. Enough detail is present to identify the variety. The obverse of this coin is better than Fr-2, but the reverse is almost slick.

About Good (AG-3)
The rim is worn down into the lettering on the obverse and/or the reverse. At least half of the legends are readable.

Good (G-4)
The major devices on the obverse and reverse are fully outlined. All devices are readable except where poorly struck.
OBVERSE: Ms. Liberty's eye is partly visible.
REVERSE: The wreath is complete.

Very Good (VG-8)
All legends are clear except where poorly struck. Traces of the beading at the rim may show.
OBVERSE: Ms. Liberty's eye is clear. Some hair detail is visible at the back of the neck.
REVERSE: The wreath is bold.

Fine (F-12)
OBVERSE: About half the hair detail is visible; the hair is clearly separated from the cheek.
REVERSE: Some leaves may show their veins.

Very Fine (VF-20)
OBVERSE: Two-thirds of the hair detail is present.
REVERSE: Many leaves show veins.

VF-30
OBVERSE: The hair is slightly flattened above the ear, but the hair band is almost complete.
REVERSE: Most leaves show their veins.

Extremely Fine (EF-40).
All of Ms. Liberty's hair locks are separated, and her hair band is complete.

EF-45
Traces of wear are seen on the highest points of the hair and cheek.

About Uncirculated (AU-50)
The coin appears to the naked eye to be Mint State. Some Mint luster remains, but traces of friction can be seen on the highest points of the hair, hair band and cheek.

AU-55
The coin must have Mint luster over at least half of the obverse and reverse fields.

Uncirculated (MS-60)
The coin is unworn, and there are no breaks in the luster. The color should be a light or medium brown, but may be uneven.

Choice Uncirculated (MS-63)
The coin is unworn, and the luster is full and attractive. The coin should show some original color, or it may be faded to tan or light olive. Color is more even than on a MS-60 coin.

Liberty Cap Facing Left Half Cents (1794)

Estimates are that about 3,000 1794 Liberty Cap half cents survive from nine varieties with a mintage of 86,000. They were struck to the weight specifications used in 1793, though the planchets are slightly wider at 15/16″. Robert Scot was the designer and engraver.

These coins were in circulation for 63 years before the half cents were redeemed by the government, so most are heavily worn, and many are corroded or otherwise damaged. 1794s and other Lettered Edge varieties survive in a substantially higher percentage than the plain edge Liberty Caps and Draped Busts; evidently, many were saved by Mint personnel when the old coppers were redeemed for the Flying Eagle "nickels."

The C-1 variety obverse, nicknamed the "Gynandroid Head" by Walter Breen, was struck from a fully hand-engraved obverse; the C-2 – 9 obverses were produced from dies made using the same portrait device punch, but all required substantial reworking. Nevertheless, the grading standards for C 1-6 are essentially the same.

The high relief heads, C-7, 8 and 9, were struck from a substantially modified obverse die in which the portrait was heavily re-engraved. Because the hair is very different for these, the grading standards differ as shown. The additional obverse images in F-12, VF-20, EF-40 and MS-63, as well as the images for MS-67, are the high relief heads.

Three of the reverses, the so-called "Heavy Wreaths," are thought to have been produced from a complete hub with all design details, but they required so much hand finishing that all are easily distinguished. The wreaths that look like those on the cents of the same vintage (*i.e.,* "cent type wreaths") were hand-engraved. Grading standards for all of the reverses are the same.

There are also two different edge lettering devices. They do not affect the grading, but one of the two is very rare for each variety, so they materially affect the value of the coin. Both are illustrated on p. 88 of Breen (1983).

About Good (AG-3)
The rim is worn down into the lettering on the obverse and/or the reverse. At least half of the legends must be readable.

Good (G-4)

The major devices on the obverse and reverse are fully outlined. All devices are readable except where poorly struck.
OBVERSE: Part of Ms. Liberty's eye shows.
REVERSE: The wreath is complete but shows no detail.

Very Good (VG-8)
All major devices are complete. The rim is complete except where poorly struck.
OBVERSE: Some hair detail is visible at the back of the neck.
REVERSE: The wreath is bold, but the leaves need not be separated.

Fine (F-12)
OBVERSE: Some of Ms. Liberty's hair locks are separated.
REVERSE: Some leaves are separated and may show their veins.

Obverse of the Cohen 7 – 9 varieties. The hair behind the ear is partly separated from that at the neck.

Very Fine (VF-20)
OBVERSE: At least half of the hair detail is present.
REVERSE: Some leaves begin to show their veins.

Cohen 7 – 9 varieties. The hair behind the ear is clearly separated from that at the neck.

VF-30
OBVERSE: The hair is slightly flattened above the ear and behind the neck.
REVERSE: Leaves show nearly complete detail.

Extremely Fine (EF-40)
OBVERSE: Hair detail is nearly complete.
REVERSE: Leaf detail is complete.

Cohen 7 – 9: Small spots of wear appear on the hair in front of the cap and at the shoulder.

EF-45
Hair detail is complete with tiny, isolated spots of friction.

About Uncirculated (AU-50)
The coin appears to the naked eye to be Mint State. Traces of friction are visible on the hair and cheek. Traces of luster remain.

AU-55
The coin must have Mint luster over at least half of the obverse and reverse fields.

Uncirculated (MS-60)
The coin is unworn, and there are no breaks in the luster. The color should be a light or medium brown, but may be uneven, spotted or stained.

Choice Uncirculated (MS-63)
The coin is unworn, and the luster is full and attractive. The coin should show some original color, or it may be faded to tan or light olive. The color is more even than on a MS-60 coin.

Cohen 7 – 9.

Gem Uncirculated (MS-65)
The coin must be unworn, and there must be original, flashy luster and excellent, even color with minimal to no surface distractions.
(No images of examples graded MS-65 by EAC Standards were available to us.)

Superb Gem Uncirculated (MS-67)*
The coin is unworn and has flashy, original luster and color. It should be spot-free and as close to perfect as can be imagined. The coin illustrated is the only 18th century US half cent that has been graded MS-67 by EAC standards.

* Many collectors fear to purchase early coppers with Mint red. Nevertheless, such color can persist for very long periods of time. The MS-67 coin illustrated above and another of the same rare variety in the British Museum were both full, original Mint red at the time of publication of the Breen half cent book (1983). A recent photo of the British Museum coin showed that it has since turned completely brown. The Missouri Cabinet coin illustrated here has toned somewhat, but still has substantial original color 219 years after it was struck. Original red need not be thought as fugitive as many collectors believe it to be. Many British conder tokens from this era survive with substantial original color. Nevertheless, many of the Mint red hoard coins discovered in the 20th century have now toned to brown. This, undoubtedly, is because they have not been properly stored; safe storage of early coppers has become increasingly difficult in our increasingly polluted environment. Since toning results from oxidation, the best way to store coppers with original color is to keep them in holders that keep any air and moisture out.

Liberty Cap Facing Left Half Cents (1795-1797)

Assistant Engraver John Smith Gardner created a new portrait punch for 1795 that was also used for 1796 and 1797 half cents. Estimates are that about 4,500-6,000 Liberty Cap half cents survive from a mintage of 281,276. The first two varieties from 1795 (C-1 and C-2a) were struck on Lettered Edge planchets to the weight specifications used in previous years. Those struck from 1796 on (this includes most of those dated 1795) were struck on 15/16″ Plain Edge planchets at the 84 gr (5.44 g, 3.50 dwt) standard used for all half cents thereafter. Generally, the Lettered Edge coins are well struck on planchets made by the Mint from rolled copper. However, all or nearly all of the Plain Edge coins were struck on planchets made from cut down large cents or Talbot, Allum and Lee tokens from England. Many of these show undertype and/or abnormalities of planchet preparation, but these abnormalities generally do not affect the grade or the desirability of the coin. These coins were in circulation for about 60 years before the government redeemed the half cents and large cents, so most are heavily worn. Like the earlier types, the Lettered Edge varieties survive in relatively higher percentages than the later plain edge varieties; apparently, these were selectively saved by Mint personnel when the coins were redeemed beginning in 1857.

Most examples of the punctuated date varieties (1795 C-2, 3 and 4) are weakly struck at the central obverse and had incomplete hair detail when struck. Thus allowances must be made for these varieties in higher VF grades and above. The reverse die used for the 1795 C-4 and C-5 always shows a crack that partially obliterates HALF CENT (see the F-12 and VF-20 examples below); this does not affect the coins' grades. 1795 C-5 and C-6 are often found with laminations, cracks or porosity.

The 1797 C-1 (1 above 1 variety) obverse die failed dramatically, shattering and buckling and thereby rendering part of LIBERTY unreadable and causing the obverse fields to have raised areas, with resulting weakness on the reverse and producing a fascinating die state progression that is sometimes collected. All 1797 Low Heads (C-3a, -3b and -3c) are believed to have been struck in 1800 on planchets cut from spoiled cents, so many of these show undertype as well.

About Good (AG-3)
The rim is worn down into the lettering on the obverse and/or the reverse. At least half of the legends should be readable.

Good (G-4)
The major devices on the obverse and reverse are fully outlined. All devices are readable except where poorly struck.
OBVERSE: Part of Ms. Liberty's eye shows.
REVERSE: The wreath is complete but shows no detail.

Very Good (VG-8)
All major devices are complete. The rim is complete except where poorly struck.
OBVERSE: Some hair detail is visible at the back of the neck.
REVERSE: The wreath is bold, but the leaves need not be separated.

Fine (F-12)
OBVERSE: Some of Ms. Liberty's hair locks are separated.
REVERSE: Some leaves are separated and may show their veins.

Very Fine (VF-20)
OBVERSE: At least half of the hair detail is present. The hair above and behind the ear is separated from that at the neck.
REVERSE: Some leaves begin to show their veins.

VF-30
OBVERSE: Hair is slightly flattened behind the ear and neck.
REVERSE: Leaves show nearly complete detail.

Extremely Fine (EF-40)
OBVERSE: Hair detail is nearly complete.
REVERSE: Leaf detail is complete.

EF-45
Hair detail is complete with tiny, isolated spots of friction.

About Uncirculated (AU-50)
The coin appears to the naked eye to be Mint State. Traces of friction are visible on the hair and cheek. Traces of luster remain.

AU-55
The coin must have Mint luster over at least half of the obverse and reverse fields.

Uncirculated (MS-60)
The coin is unworn, and there are no breaks in the luster. The color should be a light or medium brown, but may be uneven, spotted or stained.

Choice Uncirculated (MS-63)
The coin is unworn, and the luster is full and attractive. The coin should show some original color, or it may be faded to tan or light olive color. Color is generally more even than on a MS-60 coin.

Draped Bust Half Cents (1800-1808)

Robert Scot's Draped Bust design finally appeared on the last and smallest denomination in 1800, five years after it first appeared on dollars and four years after it appeared on all other minor denominations.

Estimates are that about 40,000-50,000 Draped Bust half cents survive from a mintage of 3,419,822, more than a third of which are dated 1804. Generally, these coins are well struck on planchets purchased by the Mint from other suppliers, primarily Boulton & Watt in England, though the 1802s and some 1800s were struck on spoiled cents. However, the survivors were in circulation for more than 50 years before the half cents were redeemed by the government, so the vast majority are well worn. Very few Draped Bust half cents have substantial amounts of original color, and nearly all of those are spotted, so pristine examples are of the highest rarity.

Only two varieties survive in any number from Mint State hoards: 1800 and 1806 C-4 (Large 6, Stems), though 1804 C-13 (Plain 4, Stemless) and 1806 C-1 (Small 6, Stemless) are the most common in Mint State; indeed, the 1804 C-13 is easily the most common of all half cents. The Stemless Reverse was also used to strike the 1804 C-12 (Crosselet 4, Stemless), 1805 C-1 (Medium 5, Stemless), and 1806 C-1 (Small 6, Stemless), all of which are also common varieties. Based on the size of its surviving population, the Stemless Reverse die must have struck far more coins than any other from the entire half cent series.

Draped Bust half cents exist in two reverse types: 1800-1802 used a wreath with single leaves at the top, like that used for the Liberty Caps; 1802-1808 saw the use of a modified wreath with two leaves at the top right. In fact, only a single die, presumably left over from the Liberty Cap series, was used to strike both varieties with the old reverse. The 1802 C-1 with the first type of wreath is very rare, and the reverse die is in a very late state, so the reverses of these are not well-defined.

Several varieties, particularly two Spiked Chin varieties from 1804, C-6 and C-7, show extensive and progressive cud formations along the reverse rim. These varieties are often collected by die state. Progressive die disintegration does not affect grade.

The 1803 C-3 obverse failed at the date and shoulder, developing large bulges which result in very weak corresponding areas on the reverse. 1804 C-13 is often weak at the borders. 1805 C-3 is always weak on the reverse opposite the large right obverse field bulge. The 1806 C-4 dies were not parallel; the reverse is almost always weak at the top with obverse correspondingly weak at the drapery; it is very rare with the hair and lower reverse weak (as on the AU-55 example illustrated). It is never fully struck. The 1807 hair is always weak. Nearly all 1807 specimens are weak at the borders; it is very rare with full obverse and reverse dentils. The 1808 C-1 dies were out of alignment with the result that the left side is strongly struck (and the left side of the reverse die quickly broke) and the right side very weak. The 1804 C2 dies were out of alignment the opposite way, so the left side is always weak and the right side of the obverse die quickly broke.

About Good (AG-3)
The rim is worn down into the lettering on the obverse and/or the reverse. At least half of the legends are readable.

Good (G-4)
The major devices on the obverse and reverse are fully outlined. All devices are readable except where poorly struck.

Very Good (VG-8)
The rim is complete except where poorly struck.
OBVERSE: Some hair detail is visible, particularly at the back of the bust. Ms. Liberty's eye and ear are clear. Part of the drapery is visible.
REVERSE: Some leaves may be separated.

Fine (F-12)
OBVERSE: About half of the hair detail is visible. The drapery is completely separated from the neck and bust lines.
REVERSE: Some leaves are separated and may show their veins.

Very Fine (VF-20)
OBVERSE: Two-thirds of the hair detail is present. All of the drapery folds show, though they are not fully struck on several varieties as shown.
REVERSE: Most leaves show their veins.

VF-30
OBVERSE: The hair is slightly flattened above the ear. The two curls at the shoulder are partially separated.
REVERSE: The leaves show nearly complete detail.

Extremely Fine (EF-40)
OBVERSE: The hair detail is complete. The strands at the shoulder are fully separated but still show wear.
REVERSE: The leaves should show full detail.

EF-45
Traces of wear are seen on the highest points of the hair at the shoulder.

About Uncirculated (AU-50)
The coin appears to the naked eye to be Mint State. Some Mint luster remains, but traces of friction can be seen on the highest points of the hair, cheek and leaves.

AU-55
Mint luster covers at least half of the surfaces.

Uncirculated (MS-60)
The coin is unworn, and there are no breaks in the luster. The color should be a relatively even light or medium brown, but it may be spotted or stained.

Choice Uncirculated (MS-63)
The coin is unworn, and the luster is original and attractive. The coin should show some original color, or it may be faded to tan or light olive. Color is more even than on a MS-60 coin.

Gem Uncirculated (MS-65)
The coin is unworn, and the luster is flashy and original. The coin should show more original color, and it must be nearly free of distracting spots and stains.

Classic Head Half Cents (1809-1836)

Current estimates are that 65,000-75,000 Classic Head half cents survive from a mintage of 3,365,712. Those dated 1825-1836 were in circulation for a far shorter time than those dated 1809-1811, so the later dates are generally found in higher grades than the earlier ones. Hundreds of 1828s, 1833s, 1834s and 1835s survive in Mint State from hoards.

1809 is the second most common date of half cents, after 1804; over a million were struck in each of those years, accounting for about a quarter of the entire production from 1793-1857. It is of interest that large cents of both dates are scarce; evidently, the Mint put its efforts into one or the other series, but not both.

The Classic Head was designed and engraved by John Reich. His device punch for Ms. Liberty's head had a substantial flaw at the neck, most clearly visible in the AU-50 and MS-60 images below. For many varieties, this flaw was minimized through work on the individual dies, but it is visible to one extent or another in all of the earlier varieties. A different device punch without the flaw was created for the obverse in 1831; grading standards are the same for both types. For unknown reasons, the head was reworked in 1826 and 1829 and more extensively in 1833-35, giving Ms. Liberty a far more prominent profile, especially at her chin.

About Good (AG-3)
The rim is worn down into the lettering on the obverse and/or the reverse. At least half of the legends are readable.

Good (G-4)
The major devices on the obverse and reverse are fully outlined. All lettering including LIBERTY is readable, except where poorly struck.

Very Good (VG-8)
The rim is complete except where poorly struck.
OBVERSE: Ms. Liberty's eye is complete, and the ear is almost complete. Some hair detail is visible at the neck and back of the bust.
REVERSE: Some leaves may be separated.

Fine (F-12)
OBVERSE: About half of the hair detail is visible.
REVERSE: The leaves are separated and some may show their veins.

Very Fine (VF-20)
OBVERSE: Two-thirds of the hair detail is present. Liberty's hair band is completely distinct from her hair. There is flatness above the eye and on the curls at and behind the neck and bust.
REVERSE: Most leaves show their veins.

VF-30
OBVERSE: The hair detail is close to complete, though the curl at the neck is somewhat flattened.
REVERSE: The leaves show nearly complete detail.

Extremely Fine (EF-40)
OBVERSE: The hair detail is complete, though slight wear may show on the highest points above the eye and at the back of the neck.
REVERSE: The leaves should show complete detail.

EF-45
Traces of wear are seen on the highest points of the hair at the shoulder.

About Uncirculated (AU-50)
The coin appears to the naked eye to be Mint State. Some Mint luster remains, but traces of friction can be seen on the highest points of the hair, cheek and leaves.

AU-55
Mint luster covers at least half of the surfaces.

Uncirculated (MS-60)
The coin is unworn, and there are no breaks in the luster. The color should be a light or medium brown, though there may be spots or stains.

Choice Uncirculated (MS-63)
The coin is unworn, and the luster is original and attractive. The coin should show some original color, or it may be faded to tan or light olive.

Gem Uncirculated (MS-65)
The coin is unworn, and there is original, flashy luster and excellent, even color with minimal to no surface distractions.

Braided Hair Half Cents (1840-1857)

Current estimates are that 25,000-35,000 Braided Hair (also called Coronet) Head half cents survive from a mintage of 544,510. These circulated briefly, if at all, so all dates can be found in high grades; it is relatively easy and not particularly costly to collect uncirculated examples. 1853 and 1855 are especially common in Mint State. As of this writing (summer, 2013) more 1855s have been certified as MS-RED than all other half cent dates *combined*. Many hundreds can still be found with at least some original Mint color.

Coins of this type were struck with a wide and high rim, which protected the coins, further limiting wear. Though 1855 is common in Mint State, it is almost always weak at the lower right obverse rim; it is extremely rare with full border beads between 3:00 and 6:00. For some reason, even proofs are often weak in that area.

Braided Hair half cents were designed and engraved by Christian Gobrecht. They were struck in PROOF only from 1840-1848 and again in 1852. Because examples of this series are difficult to find in grades below Very Fine, and such coins are not photographed in auction catalogs, the photos of the VG-8 – VF-20 coins are of circulated proofs. The grading standards for circulated proofs are the same as for circulated business strikes.

Very Good (VG-8)
OBVERSE: Some hair detail is visible at the neck and back of the bust.
REVERSE: The rim and all devices are complete.

Fine (F-12)
OBVERSE: About half of the hair detail and all of the beads at Ms. Liberty's bun are visible.
REVERSE: Most leaves are separated and some show their veins.

Very Fine (VF-20)
OBVERSE: Two-thirds of the hair detail is present. There is flatness above the eye and on the curls at and behind the neck and bust. The locks in front of the ear are separated from the cheek.
REVERSE: Most leaves show their veins.

VF-30
OBVERSE: The hair detail is close to complete, though the curls at the neck are somewhat flattened.
REVERSE: The leaves show nearly complete detail.

Extremely Fine (EF-40)
OBVERSE: The hair detail is complete, though slight wear may show on the highest points.
REVERSE: The leaves show full detail.

EF-45
Traces of wear are seen on the highest points of the hair at the neck and above the eye.

About Uncirculated (AU-50)
The coin appears to the naked eye to be Mint State. Some Mint luster remains, but traces of friction can be seen on the highest points of the hair, cheek and leaves.

AU-55
Mint luster covers at least half of the surfaces.

Mint State MS-60
The coin is unworn, and there are no breaks in the luster. The color should be a relatively even light or medium brown, though there may be a few spots or stains.

Choice Mint State MS-63
The coin is unworn, and the luster is original and attractive. The coin should show some original color, or it may be faded to tan or light olive.

Gem Mint State MS-65
The coin is unworn, and there is original, flashy luster and excellent, even color with minimal to no surface distractions.

Chapter 6 - Sharpness Grading of Large Cents

Some have suggested over the years that a large cent grading guide would have to include every variety, at least for the early dates. We disagree, as there definitely are standards that fit the various types, as we discussed in the context of pre-Federal coinage in Chapter 4. However, there are a number of what can be called *subtypes* that differ sufficiently in design or wear characteristics that they should be discussed individually. We include two Chain, four Liberty Cap, two Draped Bust, four middle date and two late date obverse subtypes. We believe that to go farther would produce a massively longer and more costly, but minutely more useful book. We sincerely hope that the content we present will be helpful to the great majority of collectors and dealers.

The numerical grades described and illustrated make an attempt to partition the population of cents into well-defined grade boxes. However, in reality, the loss of detail due to circulation is an analog process, and therefore it is continuous (rather than discrete) in nature. The sharpness grading scale can be thought of as a continuum running from BS-1 to MS-60 (with a value of MS-60 defining zero wear, and a value of BS-1 denoting complete wear for the design details). There are selected markers on the wear scale, such as F-12 or VF-30. The images shown to illustrate each of these grade levels should be considered a good approximation to the appearance of that grade. However, legitimate differences of opinion about some of the grades (±5 points, perhaps, at some levels) always exist; such differences of opinion are generally largest in the middle of the scale (*i.e.*, from VF-20 to EF-40), and diminish at either end of the sharpness scale.

There is variation in the amount of detail impressed into each die that was used to manufacture early cents. Although Mint personnel aimed for uniformity in coin production, at times variations were introduced. The coinage dies could be mounted in the screw press at non-ideal angles, resulting in non-uniform pressure during striking, and weakness in some areas of the struck coins. Furthermore, different amounts of force were applied to each strike by the hand-operated screw presses used to produce these coins. For these reasons, *not every coin at a particular sharpness grade level will exhibit ALL of the wear characteristics described* in the sharpness grading guide. We have attempted to minimize the number of non-wear-related anomalies shown in the photos.

Another note involves the use of obverse and reverse images from the same coin in all cases. It is technically possible to mix and match images from various coins better to illustrate the sharpness of either obverse or reverse at almost every grade level. However, we have chosen not to follow this course, and instead to use only illustrations where obverse and reverse images belong to the same coin. The reasons are:

1. All images represent reality as it exists in the copper market, where occasional weakness of strike and/or small imperfections (as appropriate for the grade), plus variations in planchet quality can be expected.
2. When buying or selling, you get to look at one coin and assign a sharpness grade for that coin. Therefore, learning how to evaluate the grade from each side, and integrate them into an overall grade that you believe (or can live with) is an important skill to master.
3. The sharpness of the obverse generally carries more weight in determining the overall sharpness grade assigned to the coin. This situation is not very satisfying for purists or for fans of the reverse designs, but it is a fact of life in the copper market.

Recommended references: Newcomb (1944), Sheldon (1958), Noyes (1991a, b, 2006, 2007), Wright (1992), Breen (2000), Grellman (2001); Naftzger, Holmes and Gerrie auctions.

Chain Cents (1793)

The Chain cents were the first coins struck for circulation at the Mint in Philadelphia. The coins were designed to conform to the Congressional Act of January 14, 1793, which specified a weight of 208 grains (13.48 g, 8.67 dwt). The copper planchets were cut to a diameter of approximately 27 mm ($^{17}/_{16}$″), although there is some variation.

Henry Voigt is generally credited with engraving the dies for the Chain cents. Voigt was the 1st Chief Coiner of the Mint, and a mint engraver had not been hired when cent coinage commenced. The designs for the Chain cents are quite simple, which seems consistent with Voigt's skills. Voigt was a very capable mechanic, but he was not trained as an engraver.

The obverse features the profile view of a woman's head (Miss Liberty) at the center, with the date (1793) below and LIBERTY above. The hair locks flow freely back from the ear to the shoulder, a possible allusion to freedom. The reverse design features a circular chain of 15 interlocked links (one link for each of the 15 states at the time) surrounded by the words UNITED STATES OF AMERICA around the periphery; AMERICA is abbreviated as AMERI. on one variety. The words ONE CENT and the fraction $1/100$ to indicate the cent's value as one hundredth of a dollar are enclosed by the chain. The rims are rather simple rolled raised borders. They seem designed to provide some protection against wear for the design elements, but in practice did not work very well. The high points wore quickly. It is interesting to note that the chain device itself apparently provided more protection from wear for the design elements inside the chain. Many low-grade Chain cents seen today have no lettering and only a ghost of the portrait visible on the obverse, while the full chain and the words ONE CENT remain relatively bold on the reverse.

The edge device is known as "vine and bars" among numismatists; a twisting vine with a few tiny leaves runs partially around the edge, while the remainder of the edge consists of a linear arrangement of tightly-spaced rails or bars. These resemble edge reeding, but are not as deep or broad.

Three different obverse dies and two different reverse dies were utilized to produce five different varieties (S-1 through S-4 and 1793 NC-1). All Chain cents are scarce: the best estimates are that a little more than 1,000, or a bit less than 3% of the original mintage, are known to survive from all varieties combined; the most common variety (S-3) is R3 (population estimated at less than 600) and the rarest variety (NC-1) is almost unique, with 2 known. Despite their rarity, Chain cents seem to be offered in almost every major auction.

The first delivery of the new cents took place on March 1, 1793. These are believed to be the variety with AMERI. on the reverse (known as Sheldon-1, S-1) All of the other varieties share a common reverse die, but their emission sequence cannot be determined. Subsequent deliveries, every day the next week and Monday March 12, brought the total mintage of Chain cents to 36,103. The entire mintage comprised 8 deliveries over only 12 days.

The S-4 obverse is engraved very differently from the other three (S-1– S-3 and NC-1); it is so different that we doubt that it is the work of Voigt, as was also suggested by Breen (2000). The difference in engraving is significant for grading purposes. The wear pattern on S-4 is very different from that of the others, and consequently an image of one subtype in VF - EF looks quite different from an image of the other. These differences are even greater than those between the Liberty Cap subtypes. Because of this, we illustrate both head types in several grades (VF-20, VF-30, EF-40 and EF-45) where the difference is significant.

Fair (Fr-2)
Sufficient detail for identification. Large portions of the design merge with the fields. There is enough detail to identify the variety.

About Good (AG-3)
OBVERSE: The date and lettering are weak and merge into the rim. The orientation of the head can be seen, and part of the eye is visible.
REVERSE: All of the chain links are visible

Good (G-4)
The entire design is outlined, and all lettering and numerals are visible, but no fine detail is seen.

Very Good (VG-8)
OBVERSE: The date and LIBERTY are clear, and some of the hair detail is visible.
REVERSE: The chain is bold.

Fine (F-12)
OBVERSE: At least ⅓ of the hair detail remains. The eye is plain. The date is full.
REVERSE: The chain shows some detail.

Very Fine (VF-20)
OBVERSE: Roughly ½ of the hair detail is visible. The ear is visible.
REVERSE: The entire legend is clear. Individual chain links show wear, but stand out.

S-4 Head

VF-30
At least ⅔ of the hair detail is visible.

S-4 Head (VF-30)

Extremely Fine (EF-40)
Spots of circulation wear are evident on the hair strands at top of the head and behind ear, and on the jaw and bust truncation.

S-4 Head

EF-45
OBVERSE: Small spots of circulation wear are visible on the hair strands at the top of head and behind the ear, and the bust truncation (where it meets the hairline).

S-4 Head

About Uncirculated (AU-50)
Light friction is visible on the highest points of the design. Mint luster remains in protected areas of the design.
OBVERSE: The high points are the hair curls behind the ear, the hair at the top of the forehead, and the bust truncation.
REVERSE: The high points are the tops of the links in the chain.

AU-55
Slight friction is visible on the highest points of the design. All design details are sharp. Mint luster is seen the fields.

Uncirculated (MS-60)
There is no trace of wear anywhere on the coin. The mint luster is complete, and contact marks are minimal in number and not distracting. The color is original, and is usually some variation on brown. The streaks on the reverse are pre-striking planchet striations from impurities in the copper; these do not affect the grade.

Wreath Cents (1793)

The Wreath cent design represented an attempt to improve the aesthetic quality of the new US cents. Chain cents were thought considerably less artistic than contemporary copper coinage from other nations (such as England or France). There had even been complaints in at least one newspaper that the chain design on the reverse was a none-too-subtle reminder that slavery was still practiced in the United States!

It is not known for certain who designed the Wreath cents, but it was almost surely a different engraver from the person(s) responsible for the Chain cents, because of the large stylistic differences in the main devices. On the obverse, the new head of Miss Liberty, much higher in relief, portrays a more pleasing visage, with more delicate features, and a nicely groomed head of flowing hair. LIBERTY is located above the bust, and the date is below, as on the Chain cents. A decorative sprig is located between the date and the bust truncation. On most Wreath cent varieties, the sprig consists of narrow (laurel?) leaves. There are two varieties known with sprigs made of tiny three-lobed (strawberry or cotton?) leaves, the so-called Strawberry Leaf varieties, and these are extremely rare.

The reverse design replaces the simple chain with a rather elaborate composite wreath, which consists of narrow (laurel?) leaves and small tri-lobed leaves made from a punch otherwise used for the "strawberry" leaves, plus numerous berry strands all connected with a pair of wreath stems. These wreath stems are held together at the bottom by a single bow (with ribbon ends that extend below the bow) and curve around the words ONE CENT in the center, to come back together at the top. The words UNITED STATES OF AMERICA surround the wreath, and a fraction (1/100) is located between the two ribbon ends, at the bottom of the reverse.

Border beading was added to both the obverse and reverse to protect the design from circulation wear. This appears to have been effective; Wreath cents generally preserve more of their design details than Chain cents at any particular circulated grade level. The initial edge device for the Wreath cents was the vine and bars, but that was later replaced by a lettered edge. The lettered edge reads "ONE HUNDRED FOR A DOLLAR" followed by a either a single leaf (S-11c) or two leaves (S-11b). Two different vine and bars edge dies were used on the Wreaths (illustrated in *Penny-Wise* vol. **XXXIX**, p. 48), but collectors do not seem interested in collecting Wreath cents by edge subvariety.

The weight standard and planchet diameter remained the same as those for the Chain cents. The first coins with the new design were struck on April 1 and delivered on April 9, 1793; the last were struck on July 1 and delivered on July 17. The total recorded mintage for the wreath cents is 63,353. Altogether, 6 distinct obverse dies and 5 distinct reverses were used in various combinations to produce 11 different varieties (S-5 – S-11, plus 1793 NC2 – NC5). The Wreath cents are the most readily available of all the 1793 large cent types, and also the most affordable. The most common variety (S-9) is R2, with about 700-800 known. The emission sequence of the Wreaths cannot be determined with any certainty.

Fair (FR-2)
Sufficient detail for Identification. Large portions of the design merge with the fields. There is enough critical detail to identify the variety.

About Good (AG-3)
OBVERSE: The date and lettering are weak and merge into the rim.
REVERSE: At least ½ of the wreath on the reverse is visible. The lettering is weak.

Good (G-4)
The entire design is outlined, and all peripheral lettering is readable.

Very Good (VG-8)
OBVERSE: About ¼ of the hair detail remains. The eye is clear.
REVERSE: The legend is full, and the fraction and all leaves in the wreath are visible.

Fine (F-12)
OBVERSE: About ½ of the hair detail remains. The ear is visible.
REVERSE: The legend is full, the wreath shows all leaves, and the fraction is clear.

Very Fine (VF-20)
OBVERSE: More than ⅔ of the hair detail is visible. The ear is clear.
REVERSE: Some details in the sprigs and berries can be seen.

VF-30
OBVERSE: At least ¾ of the hair detail is visible.
REVERSE: Leaves show some veins.

Extremely Fine (EF-40)
OBVERSE: Spots of circulation wear are evident at the locks from the top of the head to below the ear, and on the cheek and forehead. Nearly all of the hair detail shows.
REVERSE: The knot, bow, leaves and stems show all details.

EF-45
OBVERSE: Tiny spots from circulation wear are evident at the curls from the top of the head to below the ear.

About Uncirculated (AU-50)
Light friction is visible on the highest points of the design. Mint luster is seen in the protected areas of the design.

AU-55
A trace of friction is visible on the highest points of the design. At least half of the mint luster remains.

Uncirculated (MS-60)
There is no trace of wear anywhere on the coin. The mint luster is complete, and contact marks are minimal in number, and not distracting. The color is original and is usually some variation on brown.

Liberty Cap Cents (1793-1796)

The Liberty Cap motif was the third attempt at the fledgling US Mint to produce a design for the one cent coin that was satisfactory from both an aesthetic and a functional perspective.

Mint engraver Joseph Wright's Liberty Cap design was based upon the obverse of the famous French LIBERTAS AMERICANA medal by Augustin Dupré. The design features the date at the bottom, LIBERTY at the top, and a delicately executed bust of Miss Liberty in the center. A pole with a *pileus*, or liberty cap on top (an ancient Roman symbol for freedom) is placed behind the bust. The reverse design is a wreath of two olive branches, with the denomination ONE CENT in the center, and legend UNITED STATES OF AMERICA outside the wreath. A fraction (1/100) at the bottom, and border of beads around the perimeter completed this side of the coin. The initial 11,056 coins were dated 1793. These were struck on thick planchets weighing 13.48 g (208 gr, 8.67 dwt) with lettered edges. There are 6 distinct 1793 Liberty Cap die varieties known (S-12 – S-16 plus 1793 NC-6). They were coined on July 18 and 22 but not delivered until September 18, just before the Mint closed due to a yellow fever epidemic.

Wright's Liberty Cap design was continued into early 1794, but the beaded borders were replaced with dentils. Four distinct 1794 Head of '93 die varieties are known (S-17 – S-20). Two different edge devices are seen on each variety. It is estimated that about 11,000 1794 cents with head of '93 were struck.

Robert Scot produced a modified design for the Liberty Cap cents in 1794 with the same design elements, but with a bust that featured higher relief in Miss Liberty's hair. This basic design, known as head of '94, was utilized for most of 1794, and roughly 800,000 coins were minted from 54 distinct die marriages (S-21 – S-66 plus 8 NC varieties). Three different punches were used to produce the heads, and all required substantial touching-up and strengthening, making many of the varieties distinctive, but the grading standards are the same for all. An early monograph by Edward Maris (1869) on the cents of 1794 introduced some fanciful names to describe many of these. Thus, such names as "Apple Cheek," "Pyramidal Head," and "Patagonian" still survive in some auction lot descriptions for these cents. All the Liberty Cap cents of 1794 were struck with lettered edges to the same weight standard used in 1793.

In November 1794, John Smith Gardner was hired as Assistant Engraver at the Mint. Gardner updated the basic Liberty Cap design once again; this updated design has come to be called the Head of 1795. It is estimated that the seven die combinations of 1794 with Head of '95 (S-67 – S-72 plus NC-3) were used to produce roughly 80,000 lettered edge coins near the close of 1794. The Head of '95 design continued in 1795, with approximately 37,000 coins struck on thick planchets with lettered edges, before the weight standard was reduced to 10.89 g (168 gr, 7.00 dwt) at which it remaineduntil the end of the series in 1857. 500,000 coins were struck in 1795 from the same design on plain-edge planchets conforming to the new weight standard.

Robert Scot replaced Gardner's Liberty Cap device punch with a very similar one for the cents of 1796. The overall relief is slightly higher than the one it replaced, so coins struck from the subsequent dies frequently exhibit strike weakness. There are 11 distinct Liberty Cap varieties known for the year 1796 (S-81 – S-91), including a few notable scarcities (R5). It is believed that 109,825 1796 Liberty Cap cents were created.

From a grading perspective, it is important to examine each of the four distinct Liberty Cap cent subtypes, since each has unique characteristics. While the points of wear generally coincide for each sub-series, each subtype of Liberty Cap cent has a slightly different appearance at some sharpness grade levels.

Fair (Fr-2)
Sufficient detail for identification. Large portions of the design merge with the fields. There is enough detail to identify the variety.

About Good (AG-3)
OBVERSE: The date and lettering are weak, merging into the rim.
REVERSE: Some portion of the wreath is visible. A few letters in the legend are visible.

Good (G-4)
The entire design is outlined and all lettering is readable. ONE CENT is often weakly struck, and may be difficult to see at this grade level

Very Good (VG-8)
OBVERSE: About ¼ of the hair detail remains. The eye is clear. The date and LIBERTY are clear.
REVERSE: The legend is full, and all leaves are visible.

Fine (F-12)
All lettering and numerals are clear.
OBVERSE: About ½ of the hair detail remains (about ⅓ on the head of ’93 coins). The features of Miss Liberty’s face (eye, ear, mouth) are clear.
REVERSE: Some leaves show details, and the fraction (1/100) is clear.

Note: the images at right illustrate this grade for the four different Liberty Cap head styles.

The Head of ’93 (at the top) has the weakest hair and weakness at ONE CENT on the reverse.

The Head of ’94 (next) has the strongest hair definition.

The Heads of ’95 (third) and ’96 (bottom) have very similar features, but for ’96, the obverse portrait has higher relief, which often results in weakness in the central reverse.

Very Fine (VF-20)
All the major design details (eye, ear, mouth, and leaves, stems, berries in the wreath) are clear. At least ⅔ of the hair detail is visible (about ½ for Head of ’93). The hairline from the forehead down past the ear is fully outlined.

Head of ’94.

Head of ’95.

Head of ’96.

VF-30
The major design details (eye, ear, mouth, and leaves, stems, berries in the wreath) are sharp. At least ¾ of the hair detail is visible (at least ⅔ for the Head of ’93).

Head of ’94.

Head of ’95.

Head of’ 96.

Extremely Fine (EF-40)
OBVERSE: Spots of circulation wear are evident on the hair locks at the top of the head and behind the ear, and on the cheek and the forehead. All other details are clear.
REVERSE: The knot, stems, and bow show all details.

Head of ’94.

Head of ’95.

Head of ’96.

EF-45
Small spots of wear are visible on the hair locks just behind the ear and the top hair lock.

About Uncirculated (AU-50)
Light friction is visible on the highest points of the design. All design details are present. Mint luster remains in protected areas of the design.

Head of ’96.

AU-55
A trace of friction is visible on the highest points of the design. All design details are sharp. Most of the mint luster remains.

Uncirculated (MS-60)
There is no trace of wear anywhere on the coin. The mint luster is complete, and contact marks are minimal in number, and not distracting. The color is original, and is usually some variation on brown.

Head of ’94.

Choice Uncirculated (MS-63)
The mint luster is full and attractive. The color is original, and is light brown to red-brown (mellowing from the original mint red). The eye appeal is above average.

Head of ’96.

Draped Bust Cents (1796-1807)

Henry William de Saussure succeeded David Rittenhouse to become the second director of the Mint in 1795. It has been suggested that De Saussure had a desire to elevate the artistic quality of the portraiture on US coinage, and he commissioned the famous portraitist Gilbert Stuart to develop a new representation for Miss Liberty. Scot translated the resultant drawing into steel for the head punch that would define the Draped Bust coins. The Draped Bust made its debut on silver dollars in 1795, but did not appear on minor coins until 1796. The mintage of Draped Bust cents in 1796 is not known with certainty, but is thought to be 363,375, based upon records of the amount and timing of Mint deliveries. The weight and diameter standards for the Draped Bust coins remained the same, and the edges were plain.

The Draped Bust design features a finely executed bust of Miss Liberty, which crowds the date to the bottom and LIBERTY to the top, while leaving ample open space in the field in front of the portrait and behind it. The hair flows neatly and attractively down the back of Miss Liberty's neck to end in curls below the shoulder. A narrow hair ribbon emerges from the back of Liberty's tresses to make a flowing bow behind her head. The top folds of her drapery run from just above the shoulder where it meets the hair curls to encompass her bosom in front. The reverse design continues to look like that of the Liberty Cap cents. It consists of a wreath with vines, leaves, and berries, which encompasses the words ONE CENT, and is in-turn surrounded by UNITED STATES OF AMERICA. The fraction (1⁄100) at the bottom, below the ribbon bow, completes the reverse assemblage.

The Draped Bust design proved to be a commercial and artistic success. It was used for 12 years (1796-1807) with only minor modifications. More than 15,000,000 Draped Bust cents were produced. The Mint gained much valuable production knowledge while producing these coins. One important development was learning how to anneal the steel dies properly to prevent premature cracking and breaking. This improved large cent die life 10-fold, from an average of 10-30,000 strikes in 1793 to 1796 to 100-300,000 strikes by 1805. One result of this technological improvement (besides lower costs to the Mint) is that there are fewer die varieties from the later years of the Draped Busts than from the early years. Table 1 summarizes the annual mintage and number of Sheldon varieties for the Draped Bust cents.

Table 1: Summary of estimated mintage and Sheldon varieties for Draped Bust cents (Breen, 2001).

Date	Mintage	#Varieties*	Estimated strikes/variety
1796	363,375	28	12,978
1797	897,510	24	37,396
1798	1,841,745	44	41,858
1799	42,540	2	21,270
1800	2,822,175	23	122,703
1801	1,362,837	12	113,570
1802	3,435,100	18	190,839
1803	3,131,691	23	136,160
1804	96,500	1	96,500
1805	941,116	3	313,705
1806	348,000	1	348,000
1807	829,221	6	138,204

* NC varieties are excluded in this variety count as few were struck

The Draped Bust cents can be classified into two general categories, based upon the head punch used for their obverse dies.

1. The first punch, known as Style-1 hair, was utilized from 1796 – 1798. This head of Liberty is slightly more squared at the top and has a single large curl above the lowest curl behind the shoulder.
2. The punch known as Style-2 hair appeared first in 1798, and continued through 1807. This head is more rounded at the top, and has two prominent curls just above the lowest curl behind the shoulder.

Further classification of Draped Bust cents is possible by observing differences in the reverses. Reverse styles include the Type of 1794 (with prominent, triangular dentils), the Type of 1795 (with single leaves at the top of both branches of the wreath), and the Type of 1797 (with smaller dentils and a single leaf at top left and a double leaf at top right of the wreath). Both large fraction and small fraction reverses are known. There are a large number of intriguing error reverse variations, including stemless reverses (missing the wreath stems at the bottom), error fractions (1/000), corrected fractions ($^{1}/_{100/000}$), and even the well-known 3-errors reverse of 1801 (on this reverse, the fraction is 1/000, the "U" in UNITED was first punched upside down, rendering a letter that looks like "II", and the stem on the left is missing!).

The first overdate in the large cent series occurs on a Draped Bust cent as 1798/7. The obverse dies of this date also include variations in the size of the date numerals. Reverse dies for 1798 are classified generally into four types: 1) the so-called type of '96 (with a single at the top of the right wreath branch), 2) the type of '97 with Style-1 lettering (with a straight tail to the letter "R"), 3) the type of '97 with Style-2 lettering (with a curled tail to the letter "R"), and 4) the so-called type of '99. This reverse type was an attempt to hub complete working dies (including the wreath and all lettering). The relative letter positions are the same for all these reverse dies, but each required strengthening by hand, so details like berry positions and leaf stems vary across the 16 dies of this type. The large number of combinations of obverse and reverse dies provide enough challenge to make collecting 1798 cents exclusively a sub-specialty within EAC.

Edge variation on Draped Bust cents is found only for coins dated 1797. There was an apparent attempt to utilize "gripped" edges with widely spaced edge notches, as well as beaded edges with widely spaced edge beads, but this was quickly abandoned in favor of the plain edge.

1799 is the rarest date in the entire large cent series. Although a mintage over 900,000 is recorded for the date, it is widely believed that the vast majority of the coins struck during the year were dated 1798. Current estimates for the actual 1799-dated mintage suggest 42,540 based upon deliveries, the number of surviving coins and the number of dies used. One interesting anecdote concerning the 1799 variety most frequently seen (S-189) is that one or both of the dies did not seem firmly affixed in its chuck in the press, which led to non-parallel surface contact with each planchet during striking. Consequently, the majority of these coins are found with either a weak date or a weak LIBERTY. It is quite rare to find a 1799 with both a strong date and LIBERTY.

About Good (AG-3)
OBVERSE: The date and/or lettering is weak and merges into the rim.
REVERSE: At least ⅔ of the leaves in the wreath are visible.

Good (G-4)
The entire design is clearly outlined, and the date and all the lettering are readable.

Very Good (VG-8)
OBVERSE: About ⅓ of the hair and drapery detail remains. Part of the eye is visible.
REVERSE: The legend and fraction are full.

Fine (F-12)
OBVERSE: At least ½ of the hair and drapery detail is visible.
REVERSE: A few leaves show their veins.

Note: Style-2 hair, at right, has a more prominent curl below the ear, and a 2nd curl at the shoulder, not found on the Style-1 hair just above.

Very Fine (VF-20)
The major design details (eye, ear, mouth, leaves, and berries) are clear.
OBVERSE: The hair line at the top of the forehead and the drapery line at the shoulder are complete.
REVERSE: The individual leaves are defined.

Style-2.

VF-30
OBVERSE: At least ¾ of the hair detail is visible. The drapery line at the shoulder shows separation from the neck.
REVERSE: Some detail is visible in the bow and the knot.

Style-2.

Extremely Fine (EF-40)
OBVERSE: Spots of circulation wear are evident at the curls at the top of the forehead, at the back of Liberty's head, the hair around the ear, and on the folds of the drapery. All other details are clear.
REVERSE: Almost all details in the wreath, bow and the knot are visible.

Style-2.

EF-45
Tiny spots of wear are visible at the curls at the top of the forehead, at the back of Liberty's head, the hair around the ear, and on the folds of the drapery.

Style-2.

About Uncirculated (AU-50)
Light friction is visible on the highest points of the design. All design details are present. Mint luster remains in the protected areas of the design.

Style-2.

AU-55
A trace of friction is visible on the highest points of the design. All design details are sharp. Most of the mint luster remains.

Style-2.

Uncirculated MS-60)
There is no trace of wear anywhere on the coin. The mint luster is complete, and contact marks are minimal in number, and not distracting. The color is original, and is usually some variation on brown.

Style-2.

Choice Uncirculated (MS-63)
The mint luster is attractive. The color is original, and is light brown to red-brown (mellowing from the original mint red). Any marks are trivial. The eye appeal is above average.

Gem Uncirculated (MS-65)
The mint luster is full and flashy. The color is original, and is red or red-brown (mellowing from the original mint red). The eye appeal is excellent.

Classic Head Cents (1808-1814)

John M. Reich was hired as an assistant engraver by the Mint in 1807. Mint Director Patterson immediately put him to work redesigning the coinage, starting with half dollars and half eagles. In 1808, Reich produced a new design for the cents. Both obverse and reverse got a new look. The portrait on the obverse faces left. Miss Liberty features flowing and curling tresses from behind her ear to the shoulder, and a single curl in front of her ear. The top of her head is separated from the lower curls by a diadem or headband with LIBERTY inscribed within it. The date is placed comfortably below the bust. The fields in front and behind the head contain 13 stars near the rim. Edge dentils around the periphery complete the picture.

The reverse wreath has been reworked into a single continuous branch that flows around ONE CENT, and is tied by a neat bow at the bottom. A single stem runs out to the right from the bow. The legend UNITED STATES OF AMERICA surrounds the wreath, and the edge dentils complete the design.

This obverse type was called "Turban Head" in the late 19th century, because some thought the headband plus hair tresses on top bore a resemblance to the Arabian or Indian headdress. However, the more appropriate name, Classic Head, has been utilized for the more than 50 years.

The Classic Head cents were produced from 1808 through 1814 and probably also in late 1815. Mintages were never large (not more than 1.5 million per year), and a total of 4.86 million were produced according to Mint records. Amazingly, only 19 different die parings (varieties) were needed for all of this production, for an average life of more than 200,000 strikes per die pair. This is strong testimony to the durability of Reich's design and the advanced state of the art in steel die preparation at the mint.

The scarcest date in the Classic Head series is 1809, with only a single variety (S-280), 1811 is close behind in terms of scarcity, while 1812 and 1814 compete for the title of most available date of this type. There is an interesting die state of one variety from 1808 (S-277), which arises when the first star on the obverse is weakened by a significant reverse die break, to the point where the first star disappears, thus creating the "12-star" obverse die-state.

About Good (AG-3)
OBVERSE: The date and stars are weak and merge into the rim.
REVERSE: At least ¾ of the wreath is visible.

Good (G-4)
The entire design is clearly outlined, but no fine detail is visible. The date and all letters including LIBERTY are readable.

Very Good (VG-8)
OBVERSE: About ⅓ of the hair detail remains. The eye and ear are visible.
REVERSE: The leaves in the wreath show some separation.

Fine (F-12)
OBVERSE: At least ½ of the hair detail remains. The eye and ear are clear.
REVERSE: Leaves show some inner details.

Very Fine (VF-20)
At least ⅔ of the hair detail is visible.

VF-30
At least ¾ of the hair detail is visible.

Extremely Fine (EF-40)
Spots of circulation wear are present on the hair locks at the top of the head, the curl before the ear, and the lowest curls. All other details are bold.

EF-45
OBVERSE: A small spot of wear is evident on the curl in front of the ear.
REVERSE: Small spots of wear are on the highest points of the leaves in the wreath.

About Uncirculated (AU-50)
Light friction is visible on the highest points of the design. Mint luster remains in protected areas of the design.

AU-55
A trace of friction is visible on the highest points of the design. All design details are sharp. Mint luster is seen over half of the design.

Uncirculated (MS-60)
There is no trace of wear anywhere on the coin. The mint luster is complete, and contact marks are minimal in number, and not distracting. The color is original, and is usually some variation on brown.

Choice Uncirculated (MS-63)
The mint luster is full and unbroken. The color is original, and is light brown to red-brown (mellowing from the original mint red). Any marks are trivial. The eye appeal is above average.

Coronet Head Cents (1816-1839)

The coinage of large cents was suspended following the last issue of 1814 and was not resumed until December of 1815, creating the single missing date in the entire cent series from 1793 to the present day. The most likely reason for the suspension was a lack of available copper planchets. The War of 1812 had suspended shipments from the usual source, the private firm of Boulton and Watt, in England. Although a peace treaty was signed in February 1815, the lead time for receipt of new copper supplies and preparation of new cent dies was long enough to prevent coinage of 1815-dated coins.

The cents of 1816 featured a new portrait for the obverse, crafted yet again by Robert Scot. This rather portly depiction earned the nickname "Matron Head," and it is the first design in the series known as Coronet cents, which lasted from 1816 until 1839. The new head of Liberty looks like a middle-aged woman with a rather thick neck. She faces left like the Classic Head design and wears a headband with LIBERTY inscribed thereon. Her hair falls in curls around her shoulders, in a manner similar to the Classic Head. However, there is a prominent hair bun at the back of the Matron Head, which is bound up with cords. The date remains at the bottom, and the portrait is surrounded by 13 stars. One rather famous die blunder during 1817 produced an obverse die with 15 stars instead of the expected 13. This variety (1817 N-16, see EF-40 example below) is not rare but is exceptionally popular with today's collectors. The reverse wreath on the Coronet cents is virtually the same as that from the Classic Head cents.

Although the design is not considered an artistic triumph, (to say the least) it proved to be durable. This portrait was utilized for 20 years (1816-1835), and more than 45 million cents were issued with this style of obverse. While die life for Coronet cents was generally long, there were a few exceptions, producing noted rarities within the series, such as 1822 N-14 (R7, with 9 known), 1830 N-9 (R6+, with 19 known), and 1834 N-7 (proof-only, R7, with 7 known). The recent discovery of a "lost" variety from 1825 (N-5, now 3 or 4 known) gives Coronet cent mavens and cherrypickers a new goal for which to aim.

Luckily for numismatists, the discovery of the Randall Hoard right after the Civil War provided enough Mint State Coronet large cents to satisfy collector demand for this coin type for over a century. According to reports, a full keg of uncirculated large cents (dated 1816-1820, with possibly a few coins from other dates in the 1820s) was found under a Georgia rail platform after the Civil War. The person who came to possess these coins used them to pay a debt to the New York merchants Wm. H. Chapman & Co. The Chapman company utilized the coins as change for transactions until the rumor spread that they were counterfeit (it must have seemed suspicious to find 50-year old coins in Mint red condition). The remaining coins were sold to a New York collector known as John Swan Randall, who sold them at a small premium to collectors for many years. Randall Hoard coins remain quite popular with collectors today, and they have been dispersed sufficiently that it is unusual to encounter more than a few in a dealers' stock.

Beginning in 1835, a slightly modified obverse portrait was utilized. This new portrait has been called the Head of 1836 and also the Young Head, because the profile of Miss Liberty seems to depict a younger woman than the Matron Head. The neck is slightly slimmer, and the facial profile seems more amiable. This Head of '36 design presages a large number of transitional head designs. First, in 1837 and continuing through 1838, a head style very similar but with beaded hair cords appeared. This portrait continued for part of 1839, but it was joined by other head styles, which have been given such names as Booby Head and Silly Head to distinguish them from the Head of '38. It has not been recorded why so many different head styles made their appearance in 1839 – it may have been an artistic odyssey, or it may have been a search for improved striking characteristics. Whatever the reason, there are fully five different portrait styles available for the year 1839 alone, including the revival of the old Head of '36 on the famous 1839/6 overdate variety (N-1). We illustrate each of these types in F-VF, where differences may be significant for grading.

About Good (AG-3)
The entire design is heavily worn, with only remnants of detail visible. The date and lettering are weak and merge with the rim. The head and the wreath are outlined.

Good (G-4)
OBVERSE: The date and nearly all of LIBERTY are readable, but almost no hair detail remains. Some ear and eye detail is visible.
REVERSE: All lettering is readable.

Very Good (VG-8)
OBVERSE: The eye and ear are clear. At least ⅓ of the hair detail remains.
REVERSE: Nearly all leaves are separated.

Fine (F-12)
OBVERSE: At least ½ of the hair detail remains.
REVERSE: All major wreath features (leaves, bow, stems, berries) can be seen. Some leaves show internal detail.

Note: the images at right and on subsequent pages illustrate this grade for four different Coronet head styles.

From top to bottom they are: Matron Head, Head of 1836, Booby Head, and Silly Head.

Very Fine (VF-20)
OBVERSE: At least ⅔ of the hair detail is visible.
REVERSE: Most of the leaves show internal details.

Head of ’36.

Booby Head.

Silly Head.

VF-30
OBVERSE: At least ¾ of the hair detail is visible.
REVERSE: Most leaves show internal details. Most of the detail is visible in the bow.

Head of ’36.

Booby Head.

Silly Head.

Extremely Fine (EF-40)
OBVERSE: Spots of circulation wear are evident on the curls at the top of the forehead, the hair above the "R" in LIBERTY, and the hair bun at the back of the head, but all hair detail is visible.
REVERSE: Light wear visible on all of the leaves in the wreath.

EF-45
OBVERSE: Small spots of circulation wear are evident at the curls at the top of the forehead, the hair above the "R" in LIBERTY, and the hair bun at the back of the head.
REVERSE: There is light wear on the highest points of the leaves in the wreath. The details in the bow are clear.

About Uncirculated (AU-50)
Light friction is visible on the hair curls at the top of the head, the curl to the left of the ear, and the hair curls to the right of the neck, as well as the highest points of the wreath. Mint luster remains in the protected areas of the design.

AU-55
A trace of friction is visible on the highest points of the hair and the leaves. Mint luster covers at least half the fields.

Uncirculated (MS-60)
There is no trace of wear anywhere on the coin. The mint luster is complete, and contact marks are minimal in number, and not distracting. The color is original, and normally some variation on brown.

Choice Uncirculated (MS-63)
The mint luster is full and attractive. The color is original, and is light brown to red-brown (mellowing from the original mint red). Any marks are small and not distracting. The eye appeal is above average.

Gem Uncirculated (MS-65)
The mint luster is bright and intense. The color is original, and is full mint red or red-brown mellowing from the original mint red. Any marks are trivial. The eye appeal is excellent.

Braided Hair Cents (1839-1857)

Christian Gobrecht is given credit for the design of the Braided Hair cents. The apparent inspiration for Gobrecht's obverse portrait was the face of a maiden portrayed by the artist Benjamin West in his painting *Omnia Vincit Amor* ("Love Conquers All"), which was on exhibit in Philadelphia in 1839. The rather dynamic depiction of a young girl on the Braided Hair cents illustrates an attractive and healthy young woman with fashionably coiffed hair and the now-familiar headband with LIBERTY inscribed on it. A row of hair braids arcs from the forehead to behind the eye, just below the headband. A few neat curls flow from the back of the head down to the shoulder, and the tightly organized hair bun is constrained by beaded hair cords. The early rendition of this head style places the portrait tilted slightly forward, and this style obverse is referred to as the Petite Head. The reverse design on the Braided Hair Cents is quite similar to that of the Coronet cents.

The Petite Head obverse was utilized from 1839 until sometime in 1843, with only minor tinkering with the design (various numeral sizes were tried in 1840 and again in 1842). 1843 ushered in more significant changes. On the obverse, the bust was enlarged, and the forward tilt of the portrait was corrected to a more vertical posture. Now, the lower bust and the lowest hair curls appeared to be at about the same vertical position, where the lowest hair curls had been quite elevated in the Petite Heads. This new, more vertical orientation is referred to as the Mature Head. On the reverse, slightly larger letters appeared in UNITED STATES OF AMERICA (this is called the Reverse of '44). The new reverse style was paired with a single Petite Head obverse to produce a transitional variety (1843 N-4). From 1844 through the final year of the series (1857), the Mature Head style was used.

The most significant Braided Hair varieties from the collectors' standpoint include the 1844/81 blundered date variety (1844 N-2), the 1847/7 overdate varieties (1847 N-2, N-18, and N-31), and the 1851/81 blundered date variety (1851 N-3). Another extremely popular variety is the 1855 "knob on ear" variety (N-9). This die develops a small break just above Liberty's ear, which eventually grows into a very prominent "knob." The rarest variety (at the present time) of the Braided Hair cents is the 1851 N-42, which is currently unique (just one example known).

Large cent mintages were modest during the early 1840s, generally in the 1 or 2 million coin range. However, mintage increased significantly in the late 1840s and into the 1850s. More than 70 million Braided Hair large cents were minted from 1839-1857. A large number of the coins struck in the 1850s were still available in high grades when large cent production was halted and became objects for hoarding. For this reason, high-grade Braided Hair cents from most dates in the 1850s can be readily located, while high-grade specimens from the early 1840s are more elusive.

About Good (AG-3)
The entire design is heavily worn, with only remnants of detail visible. The head and the wreath are outlined.

Good (G-4)
The entire design is clearly outlined, but no fine detail is visible.
OBVERSE: The date is clear, but only portions of the letters in LIBERTY are visible.
REVERSE: All lettering is readable, but may be weak in spots.

Very Good (VG-8)
OBVERSE: About ⅓ of the hair detail remains. LIBERTY is readable. The eye and lower ear are visible.
REVERSE: All lettering is bold.

Fine (F-12)
The major design details (eye, ear, mouth, individual leaves) are visible.
OBVERSE: About ½ of the hair detail remains. The eye is clear. The beads in the hair bun remain distinct.
REVERSE: All leaves are separated.

The images at right illustrate this grade for the two different Braided Hair head styles. Here and in the following grade images, the top image is the Petite Head style and lower image is the Mature Head style.

Very Fine (VF-20)
OBVERSE: At least ⅔ of the hair detail is visible. The line that defines the top of the ear is indistinct.
REVERSE: Moderate wear on the leaves in the wreath. About ½ of the leaves will show some veins.

At this grade level, the Mature Head shows slightly more detail at the ear and in the lowest hair curls.

VF-30
OBVERSE: At least ¾ of hair detail is seen. The ear is fully outlined.
REVERSE: The ribbon and bow are clearly defined.

Mature Head.

Extremely Fine (EF-40)
Small spots of circulation wear are evident on the curls over the ear, the hair below the word LIBERTY, the lowest curl on the neck, and the hair bun at the back of the head. Nearly all of the hair detail is visible.

Mature Head.

EF-45
All design details (date, LIBERTY, hair locks, eye, ear, legend, wreath, and ONE CENT) are bold. Small spots of circulation wear are evident at the curls over the ear, the hair below the word LIBERTY, and the hair bun at the back of the head.

Mature Head.

About Uncirculated (AU-50)
Light friction is visible on the highest points of the design. All design details are present. A trace of mint luster remains in protected areas of the design.

AU-55
A trace of friction is visible on the highest points of the design. All design details are sharp. Mint luster covers about half the fields.

Uncirculated (MS-60):
There is no trace of wear anywhere on the coin. The mint luster is complete, and contact marks are minimal in number, and not distracting. The color is original, and is usually some variation on brown.

Mature Head.

Choice Uncirculated (MS-63):
The mint luster is full, and attractive. The color is original, and is light brown to red-brown (mellowing from the original mint red). Any marks are small and barely noticeable. The eye appeal is above average.

Gem Uncirculated (MS-65):
The mint luster is intense, the color is original and even, and there are no noticeable surface distractions.

Chapter 7 - Pricing

"Grade: an attempt to justify price"

"A coin (or anything else) is 'worth' whatever somebody will willingly give for it that the owner will willingly accept. "

– John Wright

This book is expressly ***NOT*** a price guide; you will find no price listings herein. However, since there is an inherent relationship between a coin's preservation and its value to collectors, some comment on pricing is warranted. This is especially true for early copper, as there are two distinct systems for grading (commercial and EAC) as we have described. Since the EAC and commercial grades of a coin generally differ, and may differ significantly, the prices of coins graded by EAC standards differ from those of coins graded by commercial standards. We will discuss sources of pricing information for both commercially- and EAC-graded early coppers.

Commercial Pricing

Many non-specialist dealers have early copper in their inventory, and many early coppers are now offered in slabs. Such coins should be priced commercially. There are many guides to commercial prices. *A Guide Book of United States Coins* (the *Red Book*), *Coin World* and *Numismatic News* magazines and the *Official Blackbook Price Guide to US Coins*, among others, all purport to give retail pricing. The *Red Book* uses 20 pages to cover half and large cent pricing; this includes photos of half and large cent types along with a few images of varieties. Colonial and Confederation era coins occupy 53 pages in the *Red Book*.

Wholesale pricing can be found in *The Handbook of United States Coins* (*aka* the *Blue Book*), published annually and the weekly *Coin Dealer Newsletter* (*Gray Sheet*). The *Certified Coin Dealer Newsletter* (*Blue Sheet*) reports pricing for slabbed coins. Although the *Gray Sheet* is considered wholesale pricing, many dealers at larger coin shows will sell coins to collectors at *Gray Sheet* prices.

A number of third party grading firms also give price guides on their websites. These include the PCGS Price Guide (www.pcgs.com/prices) and the NGC US Coin Price Guide (www.ngccoin.com/poplookup/us-coin-price-guide.aspx). These firms specify that their price guides apply only to coins their service has graded and encapsulated, though as we have shown in chapter 2, there is currently little difference between NGC and PCGS grading for early copper at all but the highest grade levels.

The prices in these publications are developed from a variety of sources, primarily auction sales and private treaty sales, but also including dealer fixed-price lists and educated guesses by professional numismatists acting as consultants. Some of these consultants are copper specialists, but the extent to which they influence the copper prices is unknown, and using price guides developed by dealers is a lot like asking the fox to guard the hen house.

Most non-copper specialist dealers use the *Gray Sheet*, the *Red Book*, the PCGS online Price Guide, *Coin Values* (from *Coin World*) or *Numismatic News* in setting prices for commercial sale. As there can be significant differences between any two commercial price guides, the collector is urged to consult more than one before buying commercially-graded coppers. The wise coin buyer must be aware of the price differences between those publications and use that knowledge to negotiate the best possible purchase price. In any case, the reader must keep in mind that these price guides all base their pricing on commercially graded coins, not EAC-graded coins.

EAC Pricing

The copper specialist generally uses EAC (rather than commercial) grading to determine pricing. Examination of certified coins that have also been graded by EAC grading experts shows that while the differences between third party grades and EAC grades can vary, commercial grades tend to be at least a full adjectival grade higher than EAC grades as we have discussed in Chapter 2. *Coin Values* explicitly acknowledges this discrepancy and states "[*g*]*rades, and hence values, often vary significantly between these divergent standards.*" While the collector could take an EAC grade, bump it up one full grade and then use the *Red Book* or *CDN* to determine that coin's value, he is far better off using EAC pricing practices because of the great variability in slab grades relative to EAC grades.

While there are many sources for prices of commercially graded coppers, the same is not true for coins graded by EAC standards. The best source for unbiased values of EAC-graded coins would be the auction archives of recent Goldbergs and Heritage sales, but compiling them would be a major challenge.

For many years, early copper specialists have used prices listed in *Copper Quotes by Robinson* (*CQR*) as the basis for price negotiations. Published roughly every two years until 2011, *CQR* was based primarily on auction records, but also dealer and private treaty sales, and included every known variety of both half and large cents, with pricing based on EAC grading. For a given grade, it listed pricing for coins in Choice, Average and Scudzy condition, and for most large cents Average+, as well as the average quality coin. With over 100 pages devoted to prices, *CQR* provided the copper specialist with pricing for virtually every half and large cent in any variety and condition. Its downside was what some consider an over-reliance on prices realized in "name" auctions. Coins sold in such auctions frequently sell later for significantly lower prices than the coins realized in the auction. Thus, *CQR* prices frequently were higher than the market typically would show. Additionally, rare varieties sell infrequently, so their values are speculative, yet were listed as if they were not. With those caveats, *CQR* was, and (as this is written in the autumn of 2013) still is, the best source for early copper pricing based on EAC grading standards.

One thing that made *CQR* so useful was the market analyses that were included in the more recent editions. The collector who read these sections found a wealth of information about the early copper market as well as information useful for understanding grading (though without photos). It also included condition census information for both series. In the later years, the large cent census included up to 15 coins for a variety. The half cent census was that of Roger Cohen, not updated since his death in 1990.

Most price guides assume average coins for the grade. Experience has shown that few coins are choice for their grade; these are always in greater demand and therefore priced higher than the average coin of the same grade. As a general rule of thumb for the more common varieties, a choice coin prices as if it was an average coin of the next higher grade.

The pricing of scudzy coins is far more problematic and generally subject to negotiation, but scudzy coins always price substantially lower than their sharpness grades would indicate. On p. 22, we discussed how a coin of EF sharpness that was heavily damaged could net grade VG. Such an ugly coin is very undesirable (though we may tolerate it if it is very rare); its market value might be even lower than that of an average VG (wouldn't *you* rather have an average VG of the variety than that coin?). This explains the reasoning behind the very low prices indicated in CQR for scudzy coins. However, it has been our practical experience that most dealers offering a heavily net-graded coin offer it near the average market price for the net grade; the collector rarely sees even very ugly coins offered at scudzy prices.

Unfortunately, many dealers who do not grade according to EAC standards nevertheless think they can use *CQR* as a pricing guide. Thus, their coins are often significantly overpriced. The collector is urged to understand both EAC and commercial grading and stay away from dealers who grade commercially and price by EAC standards.

Penny Prices by Bill Noyes was an alternative to *CQR* published in the early-mid-2000s. Two editions were produced, one in 2003 and the other in 2005. Like *CQR*, it gave pricing information for half cents and large cents of all varieties. It provided a summary of Noyes' condition census for large cents. There was also a condition census for half cents, but its accuracy was always questionable, as was that of *CQR*, because after the death of Roger Cohen in 1990, nobody reported half cent condition census information. *Penny Prices* only listed prices for average coins, but it included a chapter discussing Bill's philosophy on buying large cents, which offered a number of useful insights.

Condition Census

We all like to have the nicest coins we can afford, and a few of us can afford to own the nicest coins that exist. Some EAC'ers keep records of the quality of all of the coins of a particular type that they have seen. Such a list is called a condition census (CC). While EAC once established a committee to develop and update a large cent condition census, the committee never functioned. Therefore, there is no "official EAC condition census" for any early copper series. When reporting such information, usually the census is limited to the best six or ten examples the individual has seen. No two people have exactly the same standards for quality, and the keepers of condition censuses have not seen all of the coins that exist. Also they have not seen all of the coins in their records side-by-side at the same time. Therefore, different keepers report different condition censuses. As a result, these censuses should be taken with at least a small grain of salt. We have seen coins in dealers' stock listed as "CC #15" and the like. We are highly skeptical that anyone can reliably differentiate the 15th finest of any variety that is R4 or more common from the 14th and 16th.

Since by definition, CC-level coins are among the finest known of the variety and therefore among the most desirable for most collectors, many collectors are willing to pay a premium for one of the higher CC-level coins. As a result, their prices are often substantially higher than those of slightly lesser quality coins of the same variety. Therefore, good value (and much less frustration) can often be found in collecting coins of slightly lower than CC quality. If collecting condition census coins sounds suspiciously like collecting what the grading services call a Registry Set, it is. Many copper collectors consider the current mania for Registry Set dominance in otherwise common 20th century coins to be the logical absurdity directly descended from some copper collectors' obsession with having high CC-level coins. We cannot disagree.

However, if you can afford to collect CC-level coins, by all means enjoy doing so. CC-level cents and half cents of some later dates are not prohibitively expensive, and if it gives you pleasure to own a few such coins, chances are you can. To us, condition censuses are of their greatest value in letting the collector know what level of quality he should expect to find in the marketplace.

Provenance

In chapter 2 we discussed how a coin's die state can affect its price. A coin's prior history or provenance can also be a factor in pricing. While a coin's previous ownership should have no impact on its grade, it can (and often does) affect its price. To some collectors, prior ownership makes no difference. However, if one views coins as pieces of history, then a coin with a desirable history/provenance may be worth a premium. Of course, provenance can be overhyped. Several recent auctions have made a big deal of 1794 dollars pedigreed to David Rittenhouse, the first Director of the Mint. As a matter of historical record, *ALL* examples of these were once the property of Dr. Rittenhouse.

Some collectors like to "collect collectors," meaning that they specialize in collecting coins with pedigrees. The John W. Adams collection of 1794 Large Cents, which was sold in 1982 by Bowers and Ruddy is a prominent example of collecting with provenance as a theme. Other collectors prefer to own coins that have been previously owned by friends. Some will choose a coin with a particular pedigree over another without the pedigree but will not pay extra for it. However, it is not unusual for someone to pay a premium

of 25% or more for a coin with a particularly good pedigree (*e.g.*, a large cent once owned by Homer Downing or William Sheldon or a half cent once owned by F.R. Alvord or Joseph Brobston).

A coin can also be more desirable as a result of having been plated in a major book or sale catalog; that is another aspect of provenance. Coins are frequently hyped as having been plated in the major books about a particular series. Ownership of a plated coin or one with an important previous owner not only serves as a contact point with history, but knowing that he owns a coin with a prominent history also can give the owner a feeling of importance. Yes, ego is a factor in provenance. To most collectors, provenance remains a secondary consideration, and many collectors will not pay any premium for a provenance. To others, pedigree is all-important. The decision on how much extra to pay—if any—is very personal; the only consideration is how much that coin's provenance is worth to YOU.

Provenance is not just past ownership, ego and value, but it may become an essential tool in authentication. As counterfeit coins become more and more deceptive, a time will likely come when the only way to be sure a coin is genuine will be that it has a known provenance before the time when "perfect" counterfeits began to appear in the marketplace.

Finally, even though most of us do not have famous collections, when any of us owns a coin, he/she becomes a part of its provenance and thus connected in the great brotherhood making up the history of numismatics.

And that should be worth something to *each* of us!

Appendices

Appendix I – Comments on Large Cent Sheldon and Newcomb Varieties

This section provides some details pertaining to die clash, die breaks, and die state in the context of grading, for specific large cent varieties. This information is relevant to our discussion of grading because, in many cases, the advancing die state can result in weakness in one or more of the coin's diagnostic features that are utilized to determine the sharpness grade. When this situation occurs, it should be noted, and other diagnostic features should be used for a more accurate determination of the sharpness grade.

This listing of die states and die cracks, *etc*. is not comprehensive. For more detailed information on this subject, the reader is urged to consult a reference such as Noyes' Large cent books (1991a, b, 2006, 2007).

Early Date Series (1793–1814, Sheldon)

1793

S-1 Frequently seen with weakness in the date numerals. The reverse die develops a die break from the rim to the top of TAT in STATES. This later grows into a prominent die cud break.

S-7 Often seen with swelling below the date, and weakness in the digits of the date.

S-9 The reverse die develops a break that runs from the rim over I, through CA to the right ribbon. There is some die swelling in the area associated with this break.

S-11b (lettered edge, 2 leaves after DOLLAR) Frequently seen with prominent die clash. Portions of the leaf detail from the wreath is visible before the neck on the obverse, and remnants of ICA are incused near the forehead.

S-14 Always seen with vertical die crack bisecting the obverse, from the middle of E in LIBERTY to right of the 3 in the date.

1794

S-18a Often seen with a small obverse die bulge between the back of the head and the letter L. A short die crack is also seen sometimes, from the end of the pole to the rim.

S-22 Reverse found both with and without mounds in the field above ONE.

S-23 Obverse found both with and without an arc crack from the bottom of the pole across the bottom of the jaw line, through the ear and hair to the top of the cap.

S-24 Typically found with die rust above the date and on bottom of the bust. The obverse die develops a light bisecting crack from the L down across the bust to the rim right of the 4.

S-26 Reverse found both with and without a crack from the rim through first S to the C in CENT. A second crack runs from the rim through the E in STATES to the top of the wreath.

S-32 A large linear die crack develops from the reverse rim through the first S to the wreath.

S-33 Often called the wheel-spoke reverse variety, because there are up to six radial die cracks on the reverse which cause the die to buckle, leaving the details inside the wreath quite weak. The obverse shows a small cud die break above the L.

S-34 The obverse die develops a large die cud break that engulfs the end of the cap and extends to the rim on either side of the cap.

S-35 Seen both with and without a large bisecting obverse die break which runs vertically from the right side of E down to the ear, then down slightly to the right to the rim in front of the 4 in the date.

S-45 There is a series of linear die flaws on the reverse that run to the southeast from just below the ST to the right side of the fraction.

S-46 This obverse is typically seen with a linear die crack that runs to the northwest from the rim below the pole through the neckline to the hair behind the cap. Later stages of this die show cracks connecting to this first crack: one through the 4 in the date, and another across the bottom of the bust to the rim at 8:00. The reverse die shows a linear flaw through the E in CENT and touching the bottom right of the N in ONE.

S-48 The starred reverse, with tiny stars touching the inner points of the denticles. These stars are usually strongest at the bottom (beneath the fraction).

S-57 Often seen with two shallow horizontal depressions (cracks) in front of the face: one from the chin to the rim and the other from the nose to the rim.

S-58 The reverse die develops an arc crack from the rim through UNIT and back to the rim. This crack eventually leads to a die cud break in the same area.

S-59 The reverse die develops an arc crack from the border below the left ribbon end through the crossbar of the fraction and the final A in AMERICA and back to the rim. Later, this piece falls out of the die, creating a large cud break in the same shape.

S-60 Always seen with die clash marks in the shape of leaves behind the head, just above the cap.

S-61 Light die clash marks leave an impression of the edge denticles among the letters UNIT on the reverse.

S-62 The obverse die develops a fairly sizable rim cud break on the left rim that extends from near the second hair lock to behind the cap (about the 9:00 position).

S-63 Always seen with a horizontal spur from the denticles to the right of the date.

S-65 The so-called Shielded Hair variety. The obverse die is offset in a way that makes the lowest curls stronger than normal. Reverse comes perfect, but develops a prominent crack from the rim through the left side of the final S to below the top leaves, then turning slightly right to the right to of N in ONE.

S-66 Often seen with a heavy die break from the rim just below the end of the pole, which runs parallel to the pole up to the middle of the neck. The variety is often called the split-pole variety for this reason.

S-68 Often seen with a die break that bisects the obverse from the rim at 8:00 through the middle hair locks, grazing the bottom of the ear and through the nose to the rim at 2:30.

S-71 Typically seen with some evidence of die clash on the obverse, in front of the neck and chin (hints of leaf details in the field).

1795

S-80 is not a Mint product and is graded differently from genuine US Mint products of the time.

1796

S-81–S91 Note that 1796 Liberty Cap cents are rather notorious for weak central details, on the obverse, the reverse, or both.

S-83 Often seen with a linear die flaw in the obverse field in front of the lower lip. Also develops a die crack from the rim over B through ERTY, and back to the rim right of the Y. In the latest state, this crack forms a large cud break.

S-84, S-85, S-86 Often seen with die swelling under the bust that makes the 6 in the date weak.

S-87 Often seen with die swelling under the bust that makes the 6 in the date weak. Sometimes seen with a narrow arcing die break through the upright of the 7 in the date and across the lower bust to the pole.

S-90 often seen with the reverse 180 degrees out of typical coin alignment (*i.e.*, medal alignment).

S-92 The late state of the reverse die has a large rim break below the right ribbon end.

S-93 The obverse has a hyphen-like die break between 7–9 in the date. The reverse develops a heavy break from the rim to the top of R, through the tops of RICA.

S-96 The obverse has a hyphen-like die break between 7–9 in the date. There is also a small spot of roughness in the field just below the bottom hair ribbon (looks like possible die rust). The latest state of the reverse die shows a horizontal bisecting die break that runs through CENT.

S-97 The obverse develops a strong cud die break that includes the tops of TY and continues a short distance to the right of the Y.

S-99 Frequently seen with weakness in the letters ERT. The obverse develops a jagged break from the rim through B to the back of the head, and from the bottom of the lowest hair ribbon to the rim at 8:30.

S-102 Obverse die develops a heavy linear die crack from the rim above B, through that letter and through the top of the hair to the rim at 2:30.

S-104 Often seen with evidence of spalling on both sides. On obverse it is seen around the bust and at rim behind the head. On reverse it can be seen among letters of UNITED STATES and inside the wreath. A small reverse die crack develops from the rim through O to the wreath.

S-105 The base of the 6 in the date is re-cut. A rim break develops over TY, and this eventually becomes a prominent cud die break.

S-106 The obverse develops a bisecting die break from the rim behind the L through the eye to the rim at 2:30.

S-107 A rim break at the top of Y becomes a die cud break that extends along the rim to 2:00.

S-110 The obverse die develops a strong rim break above TY which becomes a large die cud break that extends a little beyond the Y. A crack extends from the left side of Y to the hair below.

S-114 Develops a die crack from the rim above R across the tops of TY to the rim in front of the eye. This eventually grows into a prominent die cud break. Another (smaller) cud develops on the rim left of L.

S-115 The obverse develops an arc break that starts at the rim left of the lowest hair curl and arcs through the date to the rim just right of 6. A second break develops at the top of TY, and this develops into a prominent die cud break. The reverse develops a short crack from the rim to the top of the second T.

1797

S-121 The obverse die develops a complex series of breaks; one arcs down from the rim behind the hair ribbons into the notch between the lowest and second-lowest curls. Another runs from the rim to the hair ribbons, and another braches upward from the crack to the hair ribbons to the rim at 10:00.

S-122 The reverse die develops a crack that runs through the tops of MERIC. Later, the section between this crack and the rim falls out, to form a cud die break.

S-124 Typically seen with die swelling across the tip of the bust and the last 7 in the date. This swelling progresses as the die wears.

S-125 Typically seen with die swelling across the tip of the bust and the last 7 in the date. The numeral 7 is often weak as a result. This swelling progresses as the die wears, and can obliterate the last 7 in the date.

S-126 Obverse die seen perfect, but develops a heavy crack from the rim at 4:00 to the top of the neck. Later, this crack extends through the bust, across the tip of the hair ribbons to the rim at 9:30. A smaller crack arcs up from 3:30 to the bridge of Miss Liberty's nose.

S-130 The obverse develops an odd-shaped die break that hooks into the field from the rim at 10:00, near the top of the hair ribbons.

S-131 Obverse always seen with the heavy curved die break described above for S-130.

S-132 The date is often weak.

S-136 Seen with a normal reverse die and an injured state. The injured die exhibits weakness on many letters and the central details.

S-137 The reverse die develops heavy swelling at ERICA.

S-138 The reverse die develops swelling that weakens all lettering from TES through OF to AM.

S-139 The obverse develops a linear horizontal crack from the rim at 8:00 to the hair just above the lower curls. A second crack runs from the same spot on the rim through the lowest curl to the 1 in the date. This second crack becomes heavy.

S-140 The obverse develops a crack that arcs from the middle of the date across the top of the bust. This creates swelling that eventually weakens the word OF on the reverse. A second obverse crack runs along the left rim from behind the hair ribbons to near the lowest curl.

1798

S-146 Seen with and without extensive die rust on the obverse (along the left side and across the bust).

S-148 The obverse develops a die break at the rim above the tops of ERTY. This develops into a prominent cud die break. Another (smaller) cud break connects the rim to the tip of the bust.

S-151 8/7 overdate, with close date. Often seen with a pair of curving die breaks in the field behind the head, with one of these running up from the lowest curls to the lower tip of the hair ribbons. A pair of horizontal breaks appears later in the same area, from the rim to the back of the hair ribbons.

S-153 Seen with and without a cud die break between the rim and the bust tip. Another die crack arcs up from the lowest hair curls, roughly following the rim to behind the hair ribbons.

S-157 Often seen with heavy die rust on both sides, most obvious in the right obverse field and the central reverse. Also seen without die rust.

S-158 The reverse develops a prominent crack from the rim through T in UNITED to the wreath and through AT. Later, a heavy cud break develops over ITED. Two roughly parallel long vertical die cracks develop in the left obverse field.

S-161 The reverse develops a die crack across the tops of ATE. Later, a large die cud appears over the portion of this crack above ATE.

S-163 Reverse die develops light cracks at the top, through AT, and from the rim to the outer leaves on either side of ONE. The obverse die develops a rim cud break that connects to the bottom of 17 in the date.

S-164 The obverse develops roughness and scaling, and later there is swelling in the area of the lowest curls and the date.

S-166 Reverse always shows a prominent arc crack from the rim below the right side of the fraction, through the numerator and the left wreath and the E in UNITED to the rim.

S-167 The obverse develops a linear crack from the rim right of Y directly to the eye. The reverse develops a linear crack from the rim between TA to the center dot. A small rim cud die break appears at the end of this crack, at the top of first T in STATES.

S-171 Usually seen with an obverse cud die break on the rim left of L. Another die crack develops which arcs through the Y across the right field to the rim at 3:00.

S-172 The reverse die develops a cud die break at the rim above ICA.

S-173 Seen with and without a cud die break at the rim at the tops of RTY. This break grows larger, and is joined with another cud over L.

S-174 Usually seen with evidence of die clash at the bottom of the reverse wreath—an incuse image of the top of the hair.

S-175 The reverse develops a rim cud break at the top of U.

S-177 Typically seen with a vertical crack in the right field from the bust tip up to area in front of the chin.

S-178 Always seen with the same vertical die break described above for S177. Another pair of horizontal die breaks develop from bust tip across the date. This die is typically severely rusted. The reverse has single leaves at the top.

S-180 The reverse develops a cud die break from the rim to the tops of AT in STATES. A second cud die break develops at the top of UN.

S-186 The reverse is always seen with a prominent arc crack from the rim below the final cipher in the fraction, across the right ribbon and lowest leaves on the right to the rim between ME. The obverse develops a die crack that arcs from the bottom of Y to the rim in front of the mouth. Later, the reverse develops a second large crack that through the letters NITED.

1799

S-188 This is the 9/8 overdate variety. The obverse develops a strong arc crack from the rim at top of T across the right field to the rim in font of the nose.

S-189 The reverse die is often seen with a triangle-shaped defect between the E in ONE and the T in CENT.

1800

S-191 The reverse die becomes injured, resulting in swelling at the denominator of the fraction, and the central area near the C.

S-193 The reverse develops a cud die break from the rim to the bottom of the fraction.

S-195 The obverse develops a crack from the rim through the T and across bottom of the Y to the rim in front of the nose. Later, this section of the die weakens to become a substantial rim break.

S-197 Often called the Q-variety because there is a short die break on the right side of the first cipher in the date (also another inside this numeral, and another below the 2nd cipher). The die develops a V-shaped break between IB.

S-200 Often seen with die swelling at top left of reverse (including STA). This die later suffers a linear die break right across the top of OF.

S-201 Exhibits some swelling on the obverse behind the lowest hair curls.

S-202 The obverse (same as S-201 above) develops a heavy die break from the rim at 8:00 to the lower hair curls. Another die crack runs from the middle of this crack, up through the hair toward the hair curl under the ear (this is only visible on finer specimens). The reverse die exhibits massive collapse and weakness in the area opposite the obverse break (ED STATES).

S-207 The reverse die develops a triangle-shaped die break from the rim to the first 0 in the fraction, and a crack that arcs up from the top of this break through ICA. Later, this entire section of the die falls out to form a huge reverse cud.

S-208 The obverse develops a die break at the rim over TY that extends down the rim to the level of the eye.

S-209 Obverse usually seen with clash marks behind the lower hair (evidence of incuse reverse wreath detail).

S-210 Seen with and without a linear obverse die break from the top of the hair under T to the field in front of the nose. The reverse die develops a large rim cud die break at the top of AM.

1801

S-213 Always seen with four wavy die cracks in the field before the face. These run from northwest-to-southeast in direction. The dies become clashed, with the reverse showing evidence of the clash near the fraction and ribbons.

S-215 The obverse develops a series of cracks that arc down from the rim behind the lower curls to the left side of the date. This area becomes heavily swollen. The reverse shows a die crack that runs through the numerator of the fraction to the bottom left of the R. Strong evidence of die clash also appears at S OF, where the incused impression of the bust tip is seen.

S-217 Seen with and without strong evidence of die clash in front of the face (incused leaf details from the reverse die).

S-220 Reverse has an error fraction (1/000). The reverse develops a strong rim cud break at AM. A crack also arcs from the rim through the 2nd T in STATES across the top leaves in the wreath to the space between OF A. The obverse develops die chips or rim breaks below the date.

S-221 The reverse develops a strong rim cud break over STA, which touches to top of T.

S-222 The reverse develops a rim cud die break that extends to the tops of NIT.

S-223 Reverse has an error fraction (1/000). The obverse develops a large rim cud die break at the bust tip.

S-224 The reverse develops a strong rim cud die break over the tops of AME.

1802

S-225 The obverse develops a rim cud break below the date. The reverse develops a crack from the left top of E in STATES to the left top of F in OF. This later grows into a cud die break.

S-226 The obverse shows the same cud break below the date described above.

S-227 Obverse shows evidence of die clash at the throat (incuse leaf details).

S-229 The reverse develops a rim cud break over TE.

S-230 Reverse always seen with a wavy crack from ST across the top of wreath to the rim left of OF. This break fails progressively until the entire area is sunken.

S-232 Always seen with an incused row of denticles under AMERICA. The die develops a rim cud break over AT.

S-234 The obverse develops a series of heavy rim breaks at the tops of BERT. The later die state is called the dripping paint obverse.

S-235 There is a die injury or rim break above RTY. This becomes a prominent cud die break. A die crack also forms in the right field, from the rim at 4:00 to the middle of the neck.

S-236 The reverse develops a rim cud die break over ST.

S-239 Found with and without a large die crack that runs from the forelock down in front of the face to the rim just across from the chin. This die state is often called the Elephant trunk.

S-240 Evidence of incuse leaf detail (from die clash) on the obverse at the junction of the neck and bust. The obverse later develops a linear crack from near the bust tip up to the rim opposite the nose. The reverse

shows evidence of die clash at the bottom (incuse head detail). A large series of cracks develop on the reverse: One arcs down from the A in STATES across the top of ONE to the rim at the first A in AMERICA. Another runs down from the N in ONE to the left wreath ribbon end.

S-241 Stemless wreath reverse The reverse develops a rim cud die break at the F, and another cud break over TAT.

1803

S-245 The reverse develops a small triangular-shaped break on the rim above the N in UNITED. A heavier rim cud break appears at the tops RICA.

S-246 Called the Mumps obverse, because there is a die lump just under the jaw. The reverse develops a die break connecting the tops of ST. This later develops into a cud die break.

S-249 Called the Mumps obverse, because there is a die lump just under the jaw. The reverse fraction is corrected (appears as 1/100 over 1/000). Obverse is seen both with and without a prominent cud die break from the rim to the bust tip. Reverse develops a cud die break at the tops of RIC.

S-252 The obverse develops a crack at the base of 18 in the date. This later becomes a cud die break from the lowest curl to the bottom of 18.

S-255 The reverse develops a rim cud die break over STA.

S-256 The reverse develops a rim cud die break over STA (very similar to S255 above).

S-257 The reverse develops a crack that arcs from the left side of first S in STATES to the wreath, and from there across the central top of the space above ONE to the F. This break later causes extreme weakness in the word STATES.

S-259 The 3 in the date is weakly impressed. The reverse develops a prominent rim cud die break to the tops of TAT.

S-263 Always seen with a linear die break that runs down from the middle of the neck to the lowest point of the bust tip. Another (smaller) linear flaw is visible near the obverse rim opposite the nose. The obverse develops a strong rim die cud break through the bottom of all four digits in the date. The reverse die develops a break that arcs from the rim near D to the wreath, and then from the top left leaf of the wreath to the rim at the O in OF.

S-264 The only 1803 variety with large date and small fraction. The obverse develops a crack across the bust line, from the back point of the drapery to the front point of the drapery. The reverse die always exhibits the break that arcs from the rim near D to the wreath, and then from the top left leaf of the wreath to the rim at the O in OF as described above for S263.

S-265 The only 1803 variety with large date and large fraction. The reverse develops a crack that arcs through the first S in STATES over to the bottom of E in the same word. There it is joined by a crack up from the leaf left of O, and thence to the rim just right of E in STATES.

1804

Only one variety known (S-266) in three distinct die states:

S-266a Perfect obverse and reverse.

S-266b Obverse with a rim cud die break to the tops of RTY.

S-266c Obverse with the break described above. Reverse with a rim cud break to the tops of MERI.

1805

no notable anomalies

1806

S-270 The obverse develops light cracks and swelling at the lowest curl.

1807

S-271 Known as the comet variety for a prominent elongated die break that develops on the obverse from the rim at 10:00 to the junction of the hair and the top of the hair ribbons. A couple other linear flaws appear in the field in front of the face.

S-274 The reverse develops weakness in the letters STA.

S-276 Found with many different reverse rotation angles.

1808

S-277 The so-called 12-star variety. The reverse develops an arcing die break from the D to the final S. The subsequent reverse die sinking results in weakness at star 1 on the obverse, with some examples showing only 12 stars.

1809–1813

no notable anomalies

1814

S-295 The obverse is seen perfect, and with crumbling under Liberty's chin. A die break develops that arcs from the 8 in the date across the lowest hair curl to the rim at star 11.

Middle Date Series (1816–1839, Newcomb)

1816

N-1 The obverse develops rim crumbling over stars 8-10. Later, the reverse develops a large cud die break from the rim to the tops of NITE.

N-2 Always seen with rim crumbling over stars 8-10.

1817

N-2 Reverse seen perfect, but develops a radial die crack through the first S in STATES to the O. Later, a bisecting die crack crosses the reverse from between NI to between F A.

N-3 Obverse is seen perfect, but a small mouse-shaped die break develops on top of the head (so-called mouse-top).

N-7 Obverse is seen perfect, but a small mouse-top develops. This mouse eventually grows somewhat larger than the mouse on N-3, with a more rounded shape.

N-8 Obverse is seen perfect, but a small finger-shaped die break develops on top of the head (so-called peeking mouse-top).

N-12 The obverse displays an arcing die-crack that runs through the top of the date and through stars 1–5 on the left, and stars 10–13 on the right. In the later stages, a large die cud break develops from the rim to stars 1–3.

N-17 Reverse cracked through the tops of TAT in STATES. This die later develops a bisecting die-break from the rim through U in UNITED through the N in CENT to the rim left of A in AMERICA.

1818

N-2 The reverse develops a crack across the tops of UNI. This develops into a large cud die break from the rim to UNI.

N-4 Obverse is found with no cracks, but a radial crack develops from the rim through star 3 to the mouth. In a later die-state, there is swelling around this crack, and behind the head, below the outer hair bun. The swelling on the obverse causes reverse weakness at the O in ONE.

1819

N-10 Obverse shows a light crack from the right top of 9 in date to star 11. In late stages, die lapping removes the bottom loop of the C in CENT on the reverse.

1820

N-13 Obverse rarely seen perfect, but usually seen with die cracks through all the stars and across the top of the date numerals.

1821

no notable anomalies

1822

N-9 The reverse develops a crack thorough the tops of TES. Later, the section of the die from the rim to this crack falls out to form a large rim cud.

1823

N-2 Normal date. Obverse seen perfect, and with fused denticles over stars 4, 5, and 6. Later, a prominent rim break develops over stars 4–5. and a smaller one over star 6.

1824

no notable anomalies

1825

N-1 The obverse develops a crack through the bottom of the digits in the date. In later stages, the stars at the left become weak. A rim break develops over stars 8–9. In the latest stage, a large rim cud break appears from the rim to star 7.

N-10 Obverse develops a die crack from the ear down to the tip of the bust, and on down to the top of 1 in the date. Latest stage has a rim break over star 7, touching the top of the star.

1826

N-5 The obverse develops a rim break over the top of star 5. In later stages, this rim break extends almost to star 7.

N-6 The obverse develops a series of rim breaks, first appearing over stars 7–8.

1827

N-8 Obverse develops a light crack from the bottom of the 1 in the date through stars 1–3. In the latest stage, a rare internal cud die break envelops the bottom of the 1 and 8 in the date.

N-12 The obverse develops a strong crack from the rim between 1–8 in the date up to the back of the ear. In the latest state, this crack continues up to the rim right of star 8, and bisects the obverse.

1828

N-5 The reverse develops a die crack across the tops of ED, and this eventually becomes a cud die break from the rim to the tops of ED.

N-8 The reverse develops a die crack across the tops of TED, and this eventually becomes a cud die break from the rim to the tops of TED.

1829

N-4 Frequently seen bluntly struck. This results in very poor hair definition on the obverse, and weakness at ONE CENT and leaves of the wreath on the reverse.

N-5 Small letters reverse Frequently seen bluntly struck. This results in very poor hair definition on the obverse, and weakness at ONE CENT and leaves of the wreath on the reverse. The obverse develops rim crumbling in the dentils over stars 3–5.

N-7 The so-called Wheel-spoke reverse, due to a number of radial die cracks that develop. First spoke runs from the wreath through the R to the rim. Another runs just left of first S in STATES. A third runs through the first A in AMERICA. A fourth runs straight through the ribbon at the bottom of the wreath. The fifth known crack is through the second T in STATES.

1830

N-4 The obverse develops a crack from the bottom of the date up to star 12. Later, a rim cud break develops along this crack, from the rim to the bottom of the date.

N-6 Small letters reverse Sometimes seen bluntly struck. This results in very poor hair definition on the obverse, and weakness on some leaves in the wreath on the reverse.

N-10 Reverse develops a crack across the tops of ATES. This crack strengthens, and becomes a die cud break from the rim to the tops of the letters in the latest stages.

1831

N-8 Reverse is seen perfect, and with a crack through the tops of TED S. Later, a large cud break develops from the rim to the tops of these letters.

N-9 Obverse normally seen with a die crack that arcs from the top of the first 1 in the date through stars 1–5. The crack grows wider between stars 3–5, eventually forming a large internal cud break between stars 3–5.

N-11 The obverse has a light crack that connects all the stars. The reverse develops a crack through the tops of ATES OF A in the legend. Later, a cud break appears from the rim to the tops of TES.

N-12 Numerous collectible die states exist. The early obverse shows a light crack from the first 1 in the date through all the stars. The break from the left side of star 13 to the rim below grows stronger, and eventually a cud die break forms that encompasses two points of star 13. This grows into a three-point cud, and eventually grows into an enormous cud break that consumes almost all of star 13, and two points of star 12. The latest stage is referred to as the harpooned whale (see page 47).

1832

no notable anomalies

1833

N-4 The obverse die is cracked from the date through stars 1–7, and through stars 11–13. In latest stages, a large rim cud break develops to stars 1–3.

1834

N-5 Large 8, Large Stars, Small Letters. Obverse normally seen with crack through the date and all stars (heaviest at stars 1–2 on the left and 12–13 on the right). Obverse often weak at the date and stars.

N-6 Large 8, Large Stars, Large Letters. Obverse normally seen with crack through the date and all stars (heaviest at stars 1–2 on the left and 12–13 on the right). Obverse often weak at the date and stars. The reverse develops a crack from the rim at the bottom to the to top of U.

1835

N-4 Obverse is cracked from the date through stars 1–2 to the rim above star 3, and from the date through stars 13, 12, and 11. The reverse develops a crack through the tops of UNITED STATES OF. Later, a large cud die break forms from the rim to the tops of NITED.

N-7/17 This variety appears with sharp features and dentillation (N-7), and later with mushy fields, worn down dentillation, and small rust spots in the fields (the old N-17).

N-8 The obverse develops a bisecting die crack that runs through the 1 in the date, across the neck to the back of the ear, and out of the portrait from the top of the inner hair cord to the rim above.

N-9 The reverse is found perfect, and with a heavy crack through the tops of ERIC. The die later fails in this area, and a large cud break form from the rim to ERIC. In the final stages, a large cud die break also forms on the obverse, from the rim to stars 11–12.

N-10 Obverse is cracked from the date through stars 1–2 to the rim above star 3, and from the date through star 11. The reverse develops a die crack that connects the tops of UNITED S. Later, a cud die break forms from the rim to D ST.

N-11 The reverse develops a crack through the tops of ICA to the rim below the bow, and from this point through the tops of UNIT. Later, a portion of the die falls away to form a rim cud break from below the bow to the U.

N-12 The obverse is cracked from the date to stars 1–2 on the left and star 13 on the right. Later, a rather large rim break appears over star 8.

N-13 The obverse shows a light crack from the bottom of the date that runs just under stars 1–4 on the left, and under stars 13, 12 on the right. Later, a heavy crack forms from the rim over star 4 through star 5 to the rim over star 6.

1836

N-1 Found perfect, but both obverse and reverse develop long fine cracks. The obverse develops a crack from the rim near star 5 across the top of the coronet to rim right of star 8. Another crack bisects the obverse from star 2 to star 9. The reverse develops a bisecting crack from the first S in STATES through the center dot to the R.

N-2 The reverse develops a bisecting die crack that runs from the left side of first S in STATES through ONE to the middle of the M.

N-6 The obverse develops a rim cud break between stars 7 and 8.

1837

N-2 The obverse develops a large vertical linear die break at stars 3 and 4. A large cud die break develops from the rim to star 4.

N13 The reverse shows a crack arcing through the tops of TATES OF AME. This variety is seen with crisp features and dentillation, and later with the details merging into the fields and the dentillation very mushy.

N-15 Uses the same obverse as N2, with a large vertical linear die break at stars 3 and 4. The reverse develops a crack arcing through the tops of S OF AMERIC to the rim right of the final A.

N-17 The obverse develops rim crumbling over star 5. Later rim crumbling also occurs over stars 6 and 7. The reverse develops a crack from the rim near the final A to the end of the wreath stem, through the

bottom of the bow, to the bottoms of UNIT. A small internal cud die break later forms between the wreath stem and the die crack.

1838

N-4 An obverse die break appears between 3–8 of the date, which runs through the lowest hair curl, and runs up through the hair bun and up to the rim through star 9. Later a small internal cud die break appears at the lowest hair curl, and a rim cud break appears below the date.

N-10 The reverse develops a crack and some die sinking from the middle of F to the bottom of AM, to the rim between ME.

N-11/13 This variety is found crisply defined (N11) and with heavily worn dies, producing mushy details (N13). A rather heavy rim cud die break develops to the left of star 1.

N14 The obverse develops a heavy rim cud die break at stars 5 and 6 that nearly consumes all of star 6.

1839

N-1 The overdate variety 1839/6. The obverse die is the older head style of 1836, with plain hair cords. The obverse develops a horizontal bisecting die crack (actually, three separate cracks). This crack progresses from the rim between stars 3 and 4 to the bridge of the nose. Later, it also extends from the top of the ear, through the Y and through star 11 to the rim.

N-12 Booby Head. The obverse develops a crack from the rim at star 4 to the bridge of the nose. Later, this crack continues across the cheek to below the ear and across the hair to the rim between stars 11 and 12. This crack grows rather strong.

Late Date Series (1840–1857, Newcomb)

1840

N-8 Large Date. Obverse develops rim cud breaks, most notably from 2:00 to 3:00 positions.

N-9 Large Date. Obverse develops a die crack from the rim near star 4 to the nose, which later grows to bisect the obverse die, crossing from the back of the head to the rim near star 11.

N-10 Large Date. Obverse develops rim cud breaks from 2:00 to 3:00 positions.

1841

N-5 Obverse develops strong die cracks through most of the stars (except star 4) and through the date.

N-7 The obverse develops a bisecting die crack (late) from near star-1 through the bust to the rim near star-8.

1842

no notable anomalies

1843

N-9 Petite Head/Small Letters. The obverse develops rim cud die breaks above star 11 and also above stars 6 and 7.

N-11 Petite Head/Small Letters. The reverse develops a bisecting die crack running from the rim near the first S in STATES through the bottom of O in ONE, the tops of NT to the rim at the I.

1844

N-1 Found as business strike (R1) and as Proof (R8). The obverse develops a series of small rim cud breaks below the date.

N-2 1844/81 overdate. Sometimes seen with strike weakness at the coronet tip and L.

N-3 Obverse develops a strong rim cud die break over star 10. Other, lighter rim cuds over stars 8 and 9.

N-5 Obverse develops a rim cud die break between the left side of date and star 1.

N-7 Obverse develops a rim cud die break below star 1.

1845

N-4 LI in LIBERTY is often seen weakly impressed.

N-9 Reverse develops a rim cud die break below the left wreath bow. A series of die cracks runs from this cu across the tops of UNITED, and to various other letters in the legend.

N-10 The reverse develops a small cud die break at the top left of E in UNITED.

N-13 The obverse develops an extensive rim cud die break that runs from below star 3 below the date, and around to between stars 11 and 12.

1846

N-2 Small Date. The reverse develops a rim cud die break above TES in STATES.

N-3 Small Date. The reverse develops a number of rim cud breaks at the top, over TATES OF AM.

N-4 Small Date. The date is heavily re-punched (to the left). The obverse develops a small rim cud die break below the date.

N-5 Small Date. The obverse develops rim cud die breaks over stars 12 and 13. Later, the reverse develops a series of small rim cud breaks over STATES.

N-7 Small Date. The obverse develops a rim cud die break from below the 6 in the date to under star 13. The reverse develops a crack from the rim to the tops of TE.

N-10 Small Date. The obverse develops a rim cud die break over stars 2–5.

N-12 Tall Date. The obverse develops a rim cud die break over stars 1–5.

N-14 Tall Date. The obverse develops a small rim cud die break below the 18 in the date.

N-15 Small Date. The reverse develops a rather large retained cud die break from the rim to the tops of UNITE.

N-16 Tall Date. The obverse develops a prominent rim cud die break over stars 10–11. Later, another rim cud appears over star 9.

N-19 Small Date. The obverse develops a small but strong rim cud die break over star 12.

N-21 Small Date. The obverse develops a number of light cracks connecting the stars, and a small rim cud break over star 7. PCGS has certified one example as Proof (although proof status is not certain).

N-23 Tall Date. A prominent horizontal line through the center of the 1 in date. The reverse develops a rim cud die break over TES in STATES.

1847

N-3 The numeral 7 widely re-punched to the left. The reverse develops small rim cud die breaks, over R in AMERICA, over the first S in STATES, and over OF.

N-7 The obverse develops a rim cud die break from under the 1 in the date to the left under star 1, and later over star 11, and later over the space between stars 1–2.

N-8 The reverse develops small rim cud die breaks over the O and over the A.

N-11 The obverse develops a rim cud break over star 9 and another over star 11.

N-12 The obverse develops a rim cud break over the space between stars 9 and 10.

N-13 The reverse develops a die crack across the tops of MER, which terminates in a small rim cud break over R.

N-23 The reverse develops rim cud break over the final S, and a crack runs from this cud to the top of OF and back to the rim over the first A in AMERICA.

N-26 The reverse develops a strong rim cud die break over OF A. Another, smaller cud appears over the E in STATES.

N-28 The reverse develops a rim cud die break over TATE.

N-30 The numeral 1 is repunched below. The reverse develops a strong rim die cud break under the right ribbon end and the wreath stem.

N-32 The reverse develops a rim cud die break over TE.

N-35 Sometimes seen weakly struck in the center of both sides.

1848

N-6 The reverse develops a crack from the rim through the tops of MER. Later, a rim cud break appears over this crack.

N-9 The reverse develops rim cud breaks over D STATES.

N-10 The obverse develops a rim cud break over star 6.

N-11 The reverse develops small rim cud breaks over D and over TES.

N-13 The reverse develops a rim cud break over TES.

N-15 There is roughness evident in the field near the denticles left of stars 1 and 2.

N-18 The obverse develops a horizontal bisecting die crack from the rim at star 11 across the bust to the rim at star 3. A 2nd horizontal crack runs across the bottom of the bust to star 1 and the rim beyond.

N-26 The strike is blunt on the E in CENT.

N-27 The obverse develops a rim cud break over star 13. The reverse develops a number of arcing cracks to the tops of many letters in the legend.

N-29 The reverse develops a rim cud break from below the left ribbon to below UN.

N-30 The obverse develops a rim cud break over stars 7-8.

N-36 Always seen with heavy clashmarks in the obverse field below the chin. A reverse die crack runs from center of the E in ONE to the wreath.

N-40 The numeral 1 is re-punched below the base and below the peak. A small rim cud break develops below the 4 in the date.

N-44 LIBERTY is often weakly struck.

1849

N-2 The reverse die shows many stages of successive crumbling around the leaves and letters.

N-3 The reverse die shows many stages of successive crumbling around the leaves and letters.

N-4 This variety is occasionally seen on an oversized planchet (28 mm in diameter). These are known as fat boys.

N-5 The reverse die shows many stages of successive crumbling around the leaves and letters in ONE CENT.

N-11 A dash (re-punching?) is seen below the 1 in the date. The reverse develops a rim cud break from the left ribbon end to under the U.

N-24 The obverse develops a strong rim cud die break under stars 12-13.

1850

N-14 The reverse develops a number of rim cud breaks over ED STATES OF A.

N-17 The obverse develops a prominent rim cud break at the top, over stars 6–8.

N-21 The reverse develops a cud die break over the E in STATES, and another over the space between F A.

1851

N-35 There is a small lump at the top center of the neck, just below the jawline. The reverse develops a rim cud break over MER, and also two more cuds form beneath the ribbon and the stem.

N-40 The obverse die is severely blunted, making all details (except the date) rather mushy.

N-41 The reverse develops a small rim cud break over the top left of E in AMERICA.

N-44 The fields have an unusual puffy appearance. The first 1 in the date shows re-punching under the left side, while the 2nd 1 shows re-punching both below and at the center of the upright.

1852

N-5 The obverse develops a rim cud break between stars 5-6, and another between stars 4-5.

N-6 The obverse develops a rim cud break over stars 11-12.

N-11 The reverse develops a rim cud break over TES O.

N-20 The obverse develops a rim cud break over star 11. A second rim cud break forms over star 8.

N-22 The obverse develops a die crack that arcs across the tip of the coronet. At this stage, the dies are well worn, causing a mushy appearance to both obverse and reverse elements.

N-23 The reverse develops a rim cud break at the bottom, below the wreath stem. A second cud break develops above AM.

1853

N-4 The so-called 1853/3. Doubling on the 3 in the date, most visible at the top. The obverse develops a rim cud break over the space between stars 12-13.

N-14 The 1 in the date is repunched below the base. The obverse develops a long thin rim cud break over stars 12-13.

N-16 The obverse develops a rim cud break over stars 12-13, plus another over star 10.

1854

N-18 Reverse is seen both with and without clash marks, most notable to the right and left of ONE CENT.

1855

N-4 Upright 55. The reveres develops a crack connecting the bottom of the last S O. Rim cud breaks develop over STATES.

N-9 Slanting 55. This is the knob-on-ear variety, named for the die break that grows from the top of the ear. There are many die states available for this popular variety, as the knob grows in size.

N-10 Slanted 55. Found as business strike (R1) and as Proof (R6). The business strike develops a shallow spot where star 6 is located, which obscures this star. This die state is the so-called 12-star obverse.

1856

N-1 Italic 5. The reverse develops a rim cud die break over STAT in STATES. Later, more rim cuds form over D in UNITED and ES in STATES.

N-3 Italic 5. The obverse develops a rim cud break over stars 12-13. The reverse develops a crack that arcs from the bottom of the second T in STATES through ES to the rim over OF.

N-13 Italic 5. The obverse develops a rim cud break over stars 9-11.

1857

no notable anomalies

Appendix II – Photo Credits

Goldberg/M&G indicates that the images were supplied by Ira and Larry Goldberg Coins and Collectibles, Inc., Los Angeles CA or by Goldberg Coins in conjunction with McCawley and Grellman auctions. Heritage indicates Heritage Auctioneers and Galleries, Inc. Stacks-Bowers indicates that the images were supplied by Stacks-Bowers Galleries Coin and Currency Auctions. Packard indicates that the images were supplied by Mike Packard; Weinberg indicates that the images were supplied by Alan Weinberg (photos by Lyle Engleson). Photos credited to Eckberg, Fagaly or Williams are by the authors.

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Chapter 5 Photo Credits

Liberty Cap - Facing Right (1793)

All courtesy of Goldbergs/M&G except:
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Liberty Cap - Facing Left (1794)

All courtesy of Goldbergs/M&G except:
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Heritage: MS-60

Liberty Cap - Facing Left (1795–1797)

All courtesy of Goldbergs/M&G

Draped Bust

All courtesy of Goldbergs/M&G

Classic Head

All courtesy of Goldbergs/M&G

Braided Hair

All courtesy of Goldbergs/M&G

Chapter 6 Photo Credits

Chain Cents

Goldbergs/M&G: Fr-2, F-12, VF-20 S-4, EF-40, AU-55
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Coin from Alan Weinberg/photo by Lyle Engleson: MS-60

Wreath Cents

Goldbergs/M&G: Fr-2, F-12, EF-40, AU-55, MS-60
Heritage: AG-3, G-4, VG-8, VF-20, VF-30, EF-45, AU-50

Liberty Cap Cents

Head of '93

Goldbergs/M&G: G-4, VF-30, MS-60
Heritage: VG-8, F-12, VF-20, EF-40

Head of '94

Goldbergs/M&G: G-4, VF-20, EF-40, AU-50, AU-55
Heritage: AG-3, VG-8, F-12, VF-30, EF-45, MS-60, MS-63

Head of '95

Goldbergs/M&G: VG-8, VF-20, VF-30, MS-60
Heritage: AG-3, F-12, EF-40, AU-50

Head of '96

Goldbergs/M&G: F-12, VF-30, EF-40, MS-63
Heritage: AG-3, VG-8, VF-20

Draped Bust Cents

Style-1 Hair

Goldbergs/M&G: F-12, VF-30, EF-40, EF-45, AU-50
Heritage: VF-20, AU-55, MS-60

Style-2 Hair

All courtesy of Goldbergs/M&G

Classic Head Cents

Goldbergs/M&G: F-12, VF-20, VF-30, EF-40, EF-45, AU-50, AU-55, MS-60, MS-63
Heritage: AG-3, G-4, VG-8

Coronet Cents

Style-1 (Matron Head)

Goldbergs/M&G: all

Style-2 (Young Head)

Goldbergs/M&G: all

Silly Head

Goldbergs/M&G: EF-40
Heritage: F-12, VF-20, VF-30

Booby Head

Goldbergs/M&G: VF-30, EF-40
Heritage: F-12, VF-20

Braided Hair Cents

Petite Head

Goldbergs/M&G: VF-30, EF-40, EF-45, AU-50, MS-60
Heritage: F-12, VF-20,

Mature Head

Goldbergs/M&G: AG-3, F-12, VF-20, VF-30, EF-40, EF-45, AU-55, MS-60, MS-63, MS-65, MS-67
Heritage: G-4, VG-8,

Glossary

3-Errors Reverse: an 1801 cent reverse die found on S-218 and -219 with three distinct errors: 1. The fraction is expressed as $^{1}/_{000}$, 2. the U in UNITED was punched in upside down and then corrected, to form what appears to be II, and 3. The left stem on the wreath is missing.

12-star Obverse: An 1828 half cent obverse (C-2) engraved with only 12 stars. Also, any of several large cent variety die states in which a star disappears due to damage or from having been filled with debris.

15-star Obverse: an 1817 cent variety (N-16) with 15 stars engraved around the obverse die.

Abrasions: physical scrapes or damage to the surface of a coin.

Adjectival: the use of descriptive terms (*e.g.*, Good, Fine, etc.), rather than numerical values, to describe coin grades.

Alteration: a coin whose appearance has been changed; *e.g.*, a false date put on a coin to make it appear more valuable.

AMERI.: a 1793 Chain cent variety, S-1, on which the word AMERICA on the reverse is abbreviated.

ANA: American Numismatic Association, an organization chartered by the US Congress to promote the study and collection of coins.

ANACS: a commercial coin certification and grading service, formerly an acronym for the American Numismatic Association Certification Service, but now no longer associated with the ANA, and the name is no longer an acronym.

Annealing: the heating and cooling of metal in order to relieve stresses. This is done with coin blanks to make the metal less brittle before striking.

ANS: American Numismatic Society. Located in New York City, the ANS is a museum and research institute devoted to the study of coins from all periods and cultures.

Attribution: identifier of a coin such as date, mint, denomination, variety or die state. As a verb, this is the process of identifying the variety (and/or die state) of a coin.

Authentication: the process of determining if a coin is a genuine Mint product of the variety represented.

Beading: raised dot border along the rim of a coin.

Billon: an alloy composed mostly of copper, but also containing silver.

Blank: prepared disk of metal on which the coin design is stamped. Also called a planchet.

Booby Head: common name of one of the transitional middle date large cent heads minted in 1839. It is most easily identified by the fact that the hair curl at the shoulder is partially covered by the bust.

Border: generally, the device just inside the rim of a coin; usually beads or dentils.

Bowers: Q. David Bowers, prolific and entertaining author on many aspects of numismatics, including works on half cents and Colonials.

Breen: Walter Breen, EAC #3. 1930–1993. He wrote numerous articles and references on numismatics, in particular *Walter Breen's Encyclopedia of United States Half Cents, 1793–1857* and *Walter Breen's Encyclopedia of Early US Cents, 1793–1814*. His nomenclature of half cent varieties is known as Breen Numbers (B–).

Brilliant: shiny.

Brockage: a coin struck with the previous coin remaining in the press, creating a reversed incuse impression on one side of the next struck coin.

Brown: a coin that has toned to a darker color from its original red and has less than 10% of the original red remaining.

Brush: as a noun, a device with bristles used to clean the surface of a coin; as a verb, the act of doing so. As a verb, use of a soft brush to remove contaminants and leave the surface cleaner and protected from deterioration. Use of a brush with metal bristles can remove corrosion, but will also damage (abrade) the surface metal of the coin.

Burnishing: an engraving technique that uses a tool to smooth out marks such as scratches or crevices in the surface of a coin by flattening the edges of the mark.

Business strike: any coin that was minted for general circulation, as opposed to a specimen or proof strike.

Bust: an engraved (or sculpted) rendition of the head and shoulders of a human subject.

C4: Colonial Coin Collectors Club: a club devoted to collecting and researching the monies circulating in the pre-Federal US, as well as token and medals of the period.

CAC: Collectors Acceptance Corporation**:** a commercial enterprise that examines third party-graded (slabbed) coins and determines whether they are of average or better quality for the assigned grade.

Carbon spot: small, grainy, black corrosion spot on the surface of copper coins, frequently after dust or fingers contact the coin; difficult (but not impossible) to remove.

Cartwheel: the pattern produced by the reflection of light from the radial flow lines on the surface of a high grade coin.

Cent: One one-hundreDateh of a dollar. Early cents had the denomination in three places on the coin—ONE CENT, the fraction 1/100 and on the edge ONE HUNDRED FOR A DOLLAR.

Certified coin: a coin that has been graded, authenticated (and most likely encapsulated) by one of numerous independent grading services. See also **Encapsulated coin**.

Cherrypick: a coin that is purchased for far less than its fair market value because the seller failed to recognize it as rare.

Chocolate: used in the context of describing the color of a copper coin to denote a natural medium brown that resembles the surface of a milk chocolate bar.

Choice: a coin that has significantly nicer surfaces than usual for the grade and variety.

Circulated: a coin that has wear from use in commerce.

Clash: the action of two dies coming together in a coinage press without a planchet between them; partial impressions of the dies are left on each other, and coins struck subsequently from the dies can show these partial impressions, called clash marks.

Cleaned: a coin that has had dirt or other contaminants removed from its surfaces; also a coin that has had its patina removed, either physically or chemically.

Clip: a section missing from the edge of a coin, due to accidental removal of metal by a mint machine (such as a planchet cutter). Clips often (though not always) take the shape of an arc.

Cohen: Roger S. Cohen, Jr., EAC #188. 1927–1990. He wrote *American Half Cents - The Little Half Sisters*. His nomenclature of half cent varieties is known as Cohen Numbers (C–) and the commonly accepted method of identifying half cents.

Coin alignment: a method of die placement in which the obverse and reverse dies are aligned 180° from each other. If flipped vertically, both sides appeared aligned. Antonym: **Medal alignment**.

Coin doctor: an individual who modifies coins in hopes of improving or hiding defects.

Collar: the outer ring of the die chamber that holds the blank in place while the coin is being stamped.

Colonial: any coin issued by or commonly used for commerce in the colonies that became the United States.

Commercial grade: grade according to sharpness standards used by non-EAC collectors and dealers.

Condition census: a listing of the top few examples of a variety that are known to the keeper of the list; alternatively an invention of some collectors for the purpose of competition. See also: **Registry set**.

Conservation: treatment of a coin designed to remove contaminants and stabilize its surface to prevent deterioration.

Coronet: the name assigned to large cents minted between 1816 and 1839. Coronet sub-types include: Matron Head (1816–1835), Young Head (1835–1839), Silly Head (1839), and Booby Head (1839).

Corrosion: the destruction of the surface of a coin due to chemical oxidation by the environment. Moisture is most frequently associated with corrosion of copper coins.

Counterstamp: partial or complete over-stamping of a coin to display an advertisement, political slogan or symbol, etc.

***CQR**: Copper Quotes by Robinson*, a publication listing pricing of half and large cents.

Cud: a raised area on a coin caused by a chipped or broken die.

Deduction: reduction in grade due to the presence of problems such as scratches, corrosion, cleaning, *etc*.

Denomination: monetary unit (*e.g*., cent or half cent).

Dentils: small tooth-like projecting points on the inside edge of a coin; sometimes also called denticles.

Device: pattern or emblem used in the design of a coin.

Die clash: caused when a coin planchet fails to be placed between two dies during the minting process, causing the dies to smash together. The design of one or both may impress into the opposite die, causing a shadow of the design to appear on subsequent coins minted with the damaged dies.

Die crack: a crack in the face of the steel die, usually caused by repeated use under pressure. Also, a fine raised line on a coin that was caused by a crack in the die.

Die state: a variation in appearance of a coin struck by a single die, resulting from wear or alteration of the die. The presence or absence of die cracks may signal a specific die state.

Die variety: a unique combination of obverse and reverse die pairing; minor variations from die to die result from different positions of date numerals and/or legend letters, and include repunched mint marks, doubling, or deliberate minor changes to the die design.

Die: metal piece (usually steel) engraved with the design used for stamping the coin.

Die-struck: any item made by the same method as a coin; usually describing a counterfeit that is produced by a coinage press.

Dipped: a coin that has been cleaned with a dilute acid or some other harsh chemical that can remove surface oxidation. In the 19th century, cyanide compounds were often used.

Dollar: the standard monetary unit of the United States; also the Spanish Milled Dollar before 1794.

EAC: Early American Coppers, Inc., the club dedicated to the study and collection of copper coins used in the United States during the colonial period and especially between 1793–1857.

Early date: common name given to all of the large cents of 1793–1814, which were written about by W.H. Sheldon in *Early American Cents* and *Penny Whimsy*.

Edge: surface between the obverse and reverse rims of a coin; often containing a series of lettering or other decoration. Most middle and late date copper coins had plain edges.

EDS: early die state, a coin struck from a die early in its life.

Electrotype: reproduction made by electrodeposition, often filled with a base metal such as lead.

Encapsulated coin: a coin that has been authenticated, graded and enclosed in plastic by an independent grading service. A slabbed coin.

Engraving: use of metal-cutting tools to produce a die or to alter the surface of a struck coin.

Error: usually an improperly made coin not intended for circulation, but can also refer to an engraving or die-cutting mistake.

Eye appeal: the *je ne sais quoi* of coin grading, it is the general reaction, positive, negative or neutral that the coin evokes when examined; all attempts to define the quality of a coin attempt to capture eye appeal.

Field: background area of a coin not used for a design or inscription.

Flowlines: radial striations in the surface of a coin, particularly evident in the fields, that is produced by the movement of metal from the center of the coin to the periphery during striking; as dies are used, the flow lines become more intense.

Fugio: literally, Latin for I Fly; motto on a series of colonial coins and paper bills, generally thought to mean time flies and to have come about in coinage at the suggestion of Benjamin Franklin. The Fugio cent of 1787 was the first congressionally authorized copper coin, struck under the Articles of Confederation. Its design is also found on the Continental Dollar and fractional Continental Currency of 1776.

Full details: a coin that has been strongly impressed and shows everything engraved into the dies.

Gilbert: Ebenezer Gilbert, 1835–1922, wrote *The United States Half Cents* and assigned Gilbert numbers (G–). No longer commonly used, Gilbert numbers have been supplanted by Cohen numbers.

Grade: the condition of a coin or amount of wear that a coin has received. Grading criteria may also include color, strength of strike, luster and eye appeal, as well as market factors involving imperfections.

Granularity: a form of corrosion that results in a pebbly appearance on the surface of a coin.

Greenie: a copper coin that has toned down from original red to a definite green color. Green is considered a natural color, as copper sulfides are green.

Gripped edge: an edge device that was tried briefly at the US Mint on some coins dated 1797. A series of vertical serrations were impressed into the edge of the coin; these have more space between them than a reeded edge.

Gynandroid: the name given by Walter Breen to the first head used for half cents in 1794.

Hairline: a thin scratch.

Happening: a party or meeting at which specialists share particular coins and information about them; from the first Half Cent Happening, which took place in 1976 in Ann Arbor, MI. Such events are now held at every EAC Convention and are dedicated to colonials, half cents, large cents and bust silver coins.

High relief: a coin with the raised design high above the field; if the design is higher than the rim, the coin may not stack, and the highest points of the design wear away very quickly.

Holder: anything in which a coin is stored for protection, especially a slab.

Impression: the raised detail of the coin that results from the action of the dies on the planchet.

Impurity: an element that is not intended; for copper coins, such elements as arsenic, antimony, or lead are impurities.

Inclusion: a foreign substance other than an impurity that is present in the planchet.

Incuse: where the devices or lettering are sunken below the field of the coin. Clash marks are incuse.

Inscription: lettering and wording on a coin.

Keg mark: nick on the surface of a coin that results from contact with other coins in a keg that was used to store the coins before they went into circulation.

Knob-on-ear: a cent variety from 1855 (N-9) that develops a die break that grows into a large knob that rests on top of Miss Liberty's ear.

Lamination: a crack or fissure in a planchet due to inclusions in the metal.

Late date: common name given to large cents of the 1840–1857 period.

LDS: late die state. A coin struck from a die that has become damaged or worn.

Legend: principal inscription on a coin.

Lettered Edge: the third side of a coin containing an inscription, often including the value of the coin (*e.g.*, TWO HUNDRED FOR A DOLLAR).

LIHERTY: a 1796 Draped Bust cent obverse die used for S-103 and -104. The letter B in LIBERTY was punched in upside down, and then corrected, to form a letter than looks like H.

Low relief: a coin with the raised design not very high above the field.

Lubricant: oil used to protect the surface of a coin from oxidation.

Luster: appearance of a coin's ability to reflect light, usually seen as a cartwheel effect as the coin is rotated in a bright light, it may also be satiny or prooflike.

Mahogany: a dark reddish-brown color that is natural for a toned copper coin.

Maris: Edward Maris, MD was a 19th century collector and author who wrote significant books on New Jersey and 1794 half and large cents.

Market grade: a grade that is dictated primarily by the perceived value of the coin.

MDS: middle die state. A coin struck from a die during the middle of its life.

Medal alignment: a die arrangement in which the obverse and reverse dies are aligned 0° from each other. If turned horizontally, both sides are aligned head-to-head; it is the opposite of the way US coins are struck, which is called coin alignment. See also: Upset.

Middle date: common name given to large cents of the period 1816–1839.

Miller: Henry Clay Miller wrote, with Hillyer Ryder, a series of articles on State coinages.

Mint red: the color of a copper coin as made.

Mint State (MS): a coin that has no evidence of circulation; a synonym for uncirculated.

Mirrorlike: luster from a coin struck from newly-polished dies; also called prooflike.

Mule: coin struck from two dies never intended to be used together.

Mouse: a die break that was prevalent during 1817, and resulted in a small projection from the top of Miss Liberty's head. The varieties that are known with mouse top breaks include N-3, -7, -8, and -9.

NC-: Non-Collectable die varieties of early date (1793–1814) large cents that Sheldon knew of three or fewer in collectors' hands were given NC numbers that started with NC-1 for each date. New discoveries of some NC coins have reduced their rarities substantially, but Sheldon's NC numbers are still used to identify them.

Net grade: market grade given to a copper coin of higher sharpness after accounting for problems.

Newcomb: Howard Rounds Newcomb, 1877–1945, was a prominent collector of half and large cents; he wrote monographs on the large cents of 1801–03 and 1816–57, the latter carrying Newcomb (N–) numbers.

Newman: Eric P. Newman, a collector and prolific author on many aspects of early US numismatics.

NGC: Numismatic Guaranty Corporation, one of the most successful third party grading services.

Nichols Find: a small hoard of large cents (perhaps as many as 100) dated 1796 and 1797 that were preserved by Senator Benjamin Goodhue and his daughters. The coins were dispersed in the late 19th century.

No-Pole: a pair of 1795 half cent varieties, plus one 1796 variety on which the pole to the liberty cap that extends in front of Ms. Liberty's neck and bust is missing. The 1795 C-5 and -6 result from the pole having been ground off. The 1796 C-1, a legendary rarity, was engraved without a pole.

Obverse: the front or heads side of the coin.

Olive: a greenish color that is natural for toned copper coins; original Mint red fades to light olive and eventually brown.

Overdate: altered date made by superimposing numbers on a previously dated die.

Overstrike: impression with new dies on a previously struck coin.

Oxidation: a form of corrosion; in the case of copper, the formation of copper oxide or copper sulfide, *etc*. as a surface contaminant. Toning is the result of light oxidation.

Patina: surface film caused by oxidation, usually green or brown.

Pattern: a coin that represents a new design, motto, or denomination, proposed but not adopted in that year.

PCGS: Professional Coin Grading Service, one of the most successful third party grading services.

Penny (plural = **pence)**: a historic British coin, abbreviated d for the French denier, and valued at 12 to the shilling or 240 to the pound. The US cent is often (incorrectly) referred to as a penny.

Penny-Wise: official EAC publication containing original articles pertaining to early coppers and information about club activities. It now appears quarterly.

Pinprick: a tiny scratch in the surface of a coin.

Pit: a small indentation in the surface of a coin; usually the result of corrosion or an impurity in the planchet that has fallen out.

Plain edge: the third side of a coin that has no lettering or other design. Prior to 1836, US coppers were struck without collars, so the plain edge is usually convex, or rounded. This can be used for authentication, as most counterfeit coins are struck in collars and lack the rounded edge.

Planchet: blank prepared metal disk on which the coin is struck.

Plug: metal set into a coin to repair a hole; this is usually done to restore some numismatic value to a damaged coin.

Porosity: widespread pitting in the surface of a coin that results from corrosion.

Pound: the pound sterling, an obsolete British unit of money, abbreviated £ for the French livre. Much Colonial and State coinage was reckoned in £.

Pre-Federal: a coin that was minted prior to the ratification of the Constitution in 1789.

Problem-free: a coin that is very nice for the sharpness grade. See also, **Choice**.

Proof: coins specially struck, usually at least twice to bring up detail, as presentation pieces or for collectors using polished dies and planchets. The resulting coins usually have a mirror field.

Prooflike: having a mirrorlike surface but not struck by specially prepared dies on a specially prepared planchet.

Provenance: record of previous owners of a rare coin.

Punch: a device used in engraving dies.

Randall Hoard: a group of large cents that were discovered inside a keg near Atlanta, GA after the Civil War. The hoard changed hands a couple of times before being purchased by John Swan Randall of New York, who sold the coins to collectors for many years.

Rarity Scale: proposed by W. H. Sheldon to describe relative rarities for early copper coinage. His initial ratings for R8 excluded coins permanently impounded in the museum of the American Numismatic Society. The scale was subsequently modified with + and - symbols to show finer gradations.

Table 2: Modified Sheldon Rarity Scale

Rarity		Population Size
R1	COMMON	> 2000
R2–		1551 - 2000
R2	NOT SO COMMON	1051 - 1550
R2+		601 - 1050
R3–		451 - 600
R3	SCARCE	326 - 450
R3+		201 - 325
R4–		161 - 200
R4	VERY SCARCE	116 - 160
R4+		76 - 115
R5–		61 - 75
R5	RARE	46 - 60
R5+		31 - 45
R6–		25 - 30
R6	VERY RARE	19 - 24
R6+		13 - 18
R7–		10 - 12
R7	EXTREMELY RARE	7 - 9
R7+		4 - 6
R8–		3
R8	UNIQUE or NEARLY UNIQUE	2
R8+		1

Raw: coin that has not been encapsulated by any coin grading service.

Recolor: the act of retoning a coin, *i.e.,* simulating brown color on a coin that has been cleaned.

Red: a coin with at least 90% of its original, bright color remaining.

Red-brown (RB): a range of original colors on copper coins that corresponds to any remaining amount of original red between 10% and 90%. See also red, brown.

Reeded Edge: the edge of a coin with closely spaced grooved lines that run vertically around the perimeter of the coin. Reeded edges are quite rare in early copper coinage.

Re-engraving: a form of coin doctoring in which details are added or strengthened through the use of engraving tools.

Registry set: an invention of coin certification companies to generate competition between collectors to have the best of each collection that has been certified by their company and thereby to generate business for their company.

Regular issue: any coin produced by the Mint for circulation.

Relief: part of the coin's design that is raised above the field, opposite of incuse.

Replica: a copy of a coin that is not meant to deceive.

Restored toning: a euphemism for cleaning and recoloring.

Restrike: coin struck from genuine dies at a date later than the original issue.

Retoned: a coin whose surfaces have been brightened unnaturally by cleaning and then allowed to darken again by artificial means.

Reverse: back or tails side of the coin. Opposite of Obverse.

Ribbon: the wreath on the reverse of all copper coins but Chain cents is tied at the bottom with a ribbon.

Rim: raised portion of the design along the edge that protects the coin from wear.

Roughness: uneven surface of a coin caused by corrosion; see porosity.

Rub: light wear from circulation.

Ryder: Hillyer Ryder wrote treatises on the state coinages of Connecticut, Vermont and Massachusetts with Henry Clay Miller.

Screw press: a heavy mechanical device using manual power for stamping images from coinage dies onto the surface of finished coins; all US coins were struck by hand on screw presses until 1836.

Scudzy: term invented to describe a copper coin with much worse than normal surfaces for the sharpness grade and variety.

Sharpness: the amount of detail remaining on the surface of a coin after circulation.

Sheldon: Dr. William Herbert Sheldon, EAC #1. 1898–1977. He was the author in 1949 of *Early American Cents*. In 1958 he published a revision titled *Penny Whimsy* in collaboration with Walter Breen and Dorothy Paschal. This became the standard reference work for the early cent series. Sheldon is credited with development of the Sheldon grade/price system using a scale from 1 to 70. Although it was originally intended as a means to determine the price of early large cents, it has been adopted as a grading scale for use in grading all series of US coins. His nomenclature of early (1793–1814) large cent varieties are known as Sheldon Numbers (S–).

Shilling: a historic British coin, abbreviated s for the French sou, valued at $^1/_{20}$ pound sterling, or 12 pence. Many colonial coins were valued relative to the shilling (*e.g.*, a New Jersey copper was the equivalent of $^1/_{15}$ of a shilling).

Silly Head: common name of one of the transitional middle date large cent heads minted in 1839. It is most easily identified by the fact that the hair curl at the shoulder is to the right of the bust and the hair at the top of the head forms a relatively smooth curve.

Spalling: pitting in the surface of a die that results in raised blobs on the surface of the coin. Often called die rust, it can be caused either by rusting or mechanical stress; either way, the result is the same.

Slab: plastic case containing a coin that has been graded and encapsulated.

Specie: technically, any legal tender circulating coin; it generally refers to gold and silver coins that are valued in accordance with their metal content.

Specific gravity: the ratio of an item's density to that of a reference substance, usually water. This value is characteristic of all metals used in coinage and therefore can test the metal composition of a coin or other metal object.

Specimen: in numismatics, this refers to a coin that was specially struck for presentation or for a special occasion. The term is often used to describe early US coins that are particularly nice, whether or not there is any evidence that they were struck for presentation or a special occasion.

Spiked Chin: an obverse die used for Draped Bust half cents in 1804 with a narrow horizontal projection from Ms. Liberty's chin, a smaller one protruding from between her lips, and curved lines in the field in front of the neck and bust that resulted from die damage of unknown origin. The spiked chin varieties are C-5, -6, -7 and -8.

Split grades: the practice of assigning separate grades to the obverse and reverse of a coin; the practice has been largely abandoned.

Starred Reverse: perhaps the most famous 1794 large cent variety (S-48), defined by 94 tiny stars punched among the dentils on the reverse.

Stemless Wreath: a die error that involves the omission of the stems at the bottom of the wreath. Such a half cent reverse used to strike common varieties of 1804, 1805 and 1806. This occurred twice in large cents: in 1797 (S-131-133, 143 and NC-8) and again in 1802 (S-231 and -241).

Strawberry Leaf: 1793 Wreath cent varieties NC-2 and NC-3, on which the sprig below the bust of Liberty contains tri-lobed leaves that resemble strawberry or cotton leaves, rather then the laurel leaves found on other Wreath cents.

Strike: as a verb, the action of a coinage press that transfers the image from the dies to the coin; numismatists often describe a strike as strong or full if it imparts all or nearly all of the detail from the dies to the coin.

Strike-through: an indentation in the surface of a coin produced by foreign matter on the die when the coin was struck. The foreign matter can be metal, fabric, grease, or anything else that fell onto the die.

Sulfur ointment: a concoction in which sulfur is suspended in an organic vehicle such as petroleum jelly. It has often been used for darkening cleaned copper coins. Beware of uniformly dark coppers, as they have been so treated. The sulfur eats into (etches) the surface of the coin, and over time is very destructive to it. The surfaces become dull and lifeless and eventually porous. MANY early coppers have been and will be destroyed for future generations by dealers and collectors who have used sulfur ointment.

Token: privately issued piece that has redeemable value for goods or services, but is not an official government coin.

Toning: change in the color reflected from the surface of a coin due to oxidation of metal.

Tooling: a general term describing the use of engraving implements on the surface of a coin. See also burnishing, engraving.

TPG: third party grading company, a commercial enterprise that offers a grade and authenticity opinion for a price and is supposedly independent of the dealer offering the coin and thereby providing some comfort to collectors; many TPGs are wholly or partly owned by dealers. *Caveat emptor*.

Transitional: term used to describe a series of modified heads used for large cents in the middle and late 1830s, between the Matron Head (Coronet) type introduced in 1816 and the Braided Hair type introduced in 1839.

Type: a coin's basic distinguishing design.

Uncirculated: term used to indicate a coin that has no wear. See also **Mint State**.

Undertype: the remaining evidence of the impression of an earlier strike on a coin.

Upset: a coin struck where the obverse and reverse are 180° out of alignment. See also: Medal alignment.

Variety: the coins minted from a single obverse-reverse die combination.

Veins: lines in the leaves on the reverse of early coppers.

Verdigris: techically, the corrosion resulting in the complex green patina that forms on the surface of copper or bronze as it is exposed to organic (*e.g.,* carbonic, formic, acetic) and inorganic (*e.g.,* hycrochloric, sulfuric) acids in the atmosphere. Think of the color of an old copper roof or a bronze sculpture that has stood outdoors for many years, such as the Statue of Liberty. Verdigris was used for centuries as a bright green pigment in painting. As commonly (mis)used by numismatists, the term generallly refers to a green- or brown-colored organic residue (aka, crud) that is occasionally found on early copper coins.

Void: a depression in the surface of a coin left behind because of foreign matter between the die and planchet at the time of striking.

Wear: loss of surface detail as the result of a coin's use in commerce.

Whist match: a game played by early copper aficionados. The participants bring their coins from the series in question, and compare them one-by-one. The rules of the game are somewhat fluidly defined, but in general, the collector with the most and best coins wins.

Whizzing: the act of simulating Mint luster through the use of a rapidly rotating wire brush.

Wood grain: a surface color in which alternating streaks of darker and lighter toning are found due to impurities in the planchet.

References

The following references are considered to be of great usefulness to the reader for either images or information, or both. This is by no means a complete list of references on early American copper coins, but these references would form the basis of an excellent library devoted to the subject. There are many other books and catalogs dealing with these coinages. Some of the older (and not so old) written research material has been superseded through newer research and discoveries, so never trust a single source for all of your information about a population of coins!

Bowers, Q. David, 2008. *Grading Coins by Photographs: an Action Guide for Collectors and Investors*, Whitman.

Bowers, Q. David, 2009. *Whitman Encyclopedia of Colonial and Early American Coins*, Whitman Publishing, Atlanta, GA.

Bowers Q. David and James F. Ruddy, 1962. *United States Half Cents 1793-1857*, Empire Coin Co., Johnson City, NY.

Breen, Walter H. 1983. *Walter Breen's Encyclopedia of United States Half Cents 1793–1857*, American Institute of Numismatic Research, South Gate, CA.

Breen, Walter H. 1988. *Walter Breen's Complete Encyclopedia of US and Colonial Coins*. Doubleday, New York.

Breen, Walter H. 2000. *Walter Breen's Encyclopedia of Early United States Cents 1793-1814*, Bowers and Merena Galleries, Wolfeboro, NH.

Bressett, Kenneth E. (earlier editions by R.S. Yeoman), 1947-2014. *A Guide Book of United States Coins*, Whitman Publishing, Atlanta, GA.

Bressett, Kenneth E. 1976. *The Vermont Copper Coinage*. p/o *Studies on Money in Early America*. American Numismatic Society, New York.

Bressett, Kenneth E. and A. Kosoff, 1977. *The Official American Numismatic Association Grading Standards for United States Coins*, ANA, Colorado Springs, Colorado.

Brown, Martin R. and John W. Dunn, 1958. *A Guide to the Grading of United States Coins*, Whitman Publishing, Racine, Wisconsin.

Carlotto, Tony, 1998. *The Copper Coins of Vermont and Those Bearing the Vermont Name*. Colonial Coin Collectors Club.

Cohen, Jr., Roger S. 1971. *American Half Cents, the Little Half Sisters*, 1st edition, Arlington, VA.

Cohen, Jr., Roger S. 1982. *American Half Cents, the Little Half Sisters*, 2nd edition, Wigglesworth and Ghatt, Arlington, VA.

Crosby, Sylvester S. 1875. *The Early Coins of America*. Privately published, Boston.

Deisher, Beth, 2012. *Making the Grade,* 3rd edition, Amos Press, Sidney, OH.

Demling, Michael A. 2012. *New Jersey Coppers: A Comprehensive Analysis and Attribution Guide of New Jersey Colonial Coppers*. Privately published, Linwood, NJ.

Gilbert, Ebenezer, 1916. *The United States Half Cents*.

Grellman, J.R. 2001. *The Die Varieties of United States Large Cents 1840–1857*, privately published,

Hall, David, 1997. *The Official Guide to Coin Grading and Counterfeit Detection*, Random House, New York.

Halperin, James L. 1986. *N.C.I. Grading Guide*. Ivy Press, Dallas.

Kessler, Alan, 1976. *The Fugio Cents*. Colony Coin Co., Newtonville, MA.

Manley, Ronald P. 1998. *The Half Cent Die State Book 1793–1857*, privately published.

Maris, Edward, 1869. *Varieties of the Copper Issues of the United States in the year 1794*, William K. Bellows, Philadelphia.

Maris, Edward, 1881. *Historical Sketch of the Coins of New Jersey*, William K. Bellows, Philadelphia.

Miller, Henry C. and Hillyer Ryder, 1920. *State Coinages of New England*, American Numismatic Society, New York, NY.

Newcomb, Howard R. 1944. *The United States Copper Cents of the Years 1816-1857*. Numismatic Review, New York.

Newman, Eric P. 1952. *Varieties of the Fugio cent*, *Coin Collector's Journal*, July-August, 1952.

Newman, Eric P. 2007. *The United States Fugio Copper Coinage of 1787*. Jon Lusk, Ypsilanti, MI.

Noyes, William C. 1991a. *United States Large Cents 1793–1814*, Litho Technical Services, Bloomington, MN.

Noyes, WIlliam C. 1991b. *United States Large Cents 1816*–1839, Litho Technical Services, Bloomington, MN.

Noyes, William C. 2006. *United States Large Cents 1793–1794*, Digital Dynamics, Ann Arbor, MI.

Noyes, William C. 2007. *United States Large Cents 1795–1797*, Digital Dynamics, Ann Arbor, MI.

Robinson, Jack H. 1984-2011. *Copper Quotes by Robinson*, Centreville, VA.

Ruddy, James F. 1970. *Photograde*, Bowers and Ruddy Galleries, Inc, Los Angeles, CA.

Sheldon, William H. 1949. *Early American Cents*, Harper and Brothers, New York

Sheldon, William H. 1958. *Penny Whimsy*, Harper and Row, New York.

Siboni, Roger, John Howes, and Buell Ish, 2013. *New Jersey Copper Coinage*. American Numismatic Society and Colonial Coin Collectors Club (co-published), New York.

Stewart, Frank H. 1924. *First United States Mint: Its People and its Operations*, privately published.

Wright, John, 1992. *The CENT Book 1816–1839*, privately published.

Auction Catalogs and Fixed Price Lists Recommended for Grading

The following sales contain many plated coins that will be of significant benefit to the collector in improving his/her skill at grading early coppers. *Auction catalogs and fixed price lists are listed chronologically.*

EAC Sales (McCawley and Grellman Auctions), various locations and dates 2001-2014.

McCawley and Grellman. The Michael Spurlock Collection (FPL). 2007. (half cents)

Ira and Larry Goldberg, Auctioneers. Ray Rouse Collection and Ted Naftzger Early Dates, Beverly Hills, September 14, 2008. (half and large cents)

McCawley and Grellman. The Bill Eckberg Collection (FPL). 2008. (half cents)

Ira and Larry Goldberg, Auctioneers. Ted Naftzger Middle Date Collection, Beverly Hills, February 1, 2009. (large cents)

Ira and Larry Goldberg, Auctioneers. Dan Holmes Collection I and Ted Naftzger Late Dates, Beverly Hills, September 6, 2009. (large cents)

Ira and Larry Goldberg, Auctioneers. Dan Holmes Collection II, Beverly Hills, May 30, 2010. (large cents)

Ira and Larry Goldberg, Auctioneers. Davy Collection I and Dan Holmes Collection III, Beverly Hills, September 19, 2010. (excellent reference for error half and large cents)

Ira and Larry Goldberg, Auctioneers. Dan Holmes Collection IV, Beverly Hills, January 30, 2011. (large cents)

Ira and Larry Goldberg, Auctioneers. Whister Collection and Davy Collection II, Beverly Hills, September 4, 2011. (half cents)

Ira and Larry Goldberg, Auctioneers. Carvin Goodridge Collection, Los Angeles, September 2, 2012. (half cents)

Stack's-Bowers Galleries. Early American Coin Session in Cooperation with the Colonial Coin Collectors Club, Baltimore, MD, November 16, 2012. (Fugio)

Ira and Larry Goldberg, Auctioneers. Paul Gerrie Collection, Los Angeles, February 3, 2013. (large cents)

Ira and Larry Goldberg, Auctioneers. Pre-Long Beach Auction, Los Angeles, June 2-4, 2013. (large cents)

Heritage Numismatic Auctions Inc., Adam Mervis Collection. January 9, 2014.

Ira and Larry Goldberg, Auctioneers. Missouri Cabinet Collection, Los Angeles, January 26, 2014. (half cents)

Other Auction Catalogs and Fixed Price Lists

The following are significant sales with many varieties and/or high quality coins, but because the quality of the images is inadequate, we do not recommend them as adjuncts for learning to grade early coppers.

Confederation Era Coppers

Bowers and Merena. The Frederick Taylor Collection, New York, March 26-28, 1987. (New Jersey, Connecticut, Vermont)

Bowers and Merena. The Norweb Collection II, New York, March 24-25, 1988. (Massachusetts)

C4 Sales (McCawley and Grellman Auctions with Tom Rinaldo), Boston, 1995-2011.

EAC Sale (Pine Tree Auction Co.), New York, February 15, 1975. (Connecticut)

EAC Sale (Pine Tree Auction Co.), New York, March 5, 1976. (New Jersey)

McCawley and Grellman Auctions. The John M Griffee Sale, Pennsauken, NJ, October 21, 1995. (New Jersey)

Numismatic and Antiquarian Service Corporation of America (NASCA) Sale. Kessler – Spangenberger Auction, New York, April 28-29, 1981. (Fugio)

Stack's Auction. The George C. Perkins, Esq. Collection, New York, January 12, 2000. (Connecticut)

Stack's. The John J. Ford Collection Part I, New York, October 14, 2003. (New Jersey, Vermont and Fugio)

Stack's. The John J. Ford Collection Part V, New York, October 12, 2004. (Massachusetts)

Stack's. The John J. Ford Collection Part IX, New York, May 10, 2005. (Connecticut)

Stack's-Bowers Galleries. Americana Sales. January, annually.

Half Cents

Stack's. United States Half Cents (Joseph Brobston Collection FPL). 1963.

Bowers and Merena Galleries. Norweb Collection. New York, October 12, 1987.

Superior Galleries. The Jack H. Robinson Collection, Beverly Hills, January 29-30, 1989.

Superior Galleries. Roger S. Cohen, Jr. Collection. Beverly Hills, February 2, 1992.

Bowers and Merena (with Stack's). Louis E. Eliasberg, Sr. Collection. New York. May 21, 1996.

Superior Galleries. The J.R. Frankenfield Collection, Beverly Hills, February 17, 2001.

Superior Galleries/McCawley and Grellman. Bill Weber Collection. Beverly Hills, June 3, 2002.

Superior Galleries/McCawley and Grellman. Dr. Wallace Lee Collection. Beverly Hills, May 25, 2003.

Heritage Numismatic Auctions Inc. The Jules Reiver Collection – Volume 1, Dallas, January 24-28, 2006.

Large Cents

Superior Galleries. The Dr. Charles L. Ruby Collection, Los Angeles, February 11-13, 1974.

Bowers and Ruddy Galleries, Inc., The Celebrated John W. Adams Collection of United States Large Cents of the Year 1794 (FPL). 1982.

Stacks, The Floyd T. Starr Collection, New York, June 13-14, 1984.

Kagan's. Philip Van Cleave Collection, New York, January 30-February 1, 1986.

Superior Galleries. The Robinson S. Brown Jr. Collection, Los Angeles, September 30 – October 1, 1986.

Stacks, The Magnificent Herman Halpern Collection, New York, March 16-17, 1988.

Superior Galleries. The Jack H. Robinson Collection, Beverly Hills, January 29-30, 1989.

Superior Galleries. The Dennis Mendelson Collection of Large Cents, Beverly Hills, February 3-5, 1991.

Superior Galleries. The G. Lee Kuntz Collection Sale, Beverly Hills, October 6-8, 1991.

Superior Galleries. The Robinson S. Brown Jr. Collection of Large Cents 1793-1839, Beverly Hills, January 27, 1996.

Superior Galleries. The Wes Rasmussen Collection Sale, Beverly Hills, February 8-9, 1998.

Superior Galleries. The J.R. Frankenfield Collection of American Half Cents and Large Cents, Beverly Hills, February 17, 2001.

Superior Galleries. The Robinson S. Brown Jr. His Third Collection of Large Cents, Beverly Hills, June 2, 2002.

Heritage Numismatic Auctions Inc., The Wes Rasmussen Collection, Fort Lauderdale, January 13, 2005.

Heritage Numismatic Auctions Inc., The Jules Reiver Collection – Volume 1, Dallas, January. 24-28, 2006.

Heritage Numismatic Auctions Inc., The Walter J. Husak Collection, Long Beach, February 15, 2008.

Stack's-Bowers Galleries, The Cardinal Collection, New York, January 24, 2013.

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