Classical Deception

Counterfeits, Forgeries and Reproductions of Ancient Coins



- A candid and objective look at the history of falsifying ancient coins
- The essential guide to avoiding disaster as a collector or investor

WAYNE G. SAYLES



Counterfeits, Forgeries and Reproductions of Ancient Coins

From the author of the acclaimed *Ancient Coin Collecting* series comes yet another essential resource—one that could save beginning collectors considerable money and frustration. Counterfeits are relatively common among ancient coins and knowing where the dangers lie is key to avoiding disaster as a collector or investor.

Classical Deception takes an objective and candid look at the history of falsifying ancient coins. It traces the careers of well-known forgers and discusses the many fakes that proliferate in the modern market. Topics covered include manufacturing techniques, the collector response to the problem and tools and methods of detecting fakes. Special sections include a catalog of the previously unpublished work of reproduction artist Peter Rosa and extensive bibliographies leading to a wealth of technical information. Illustrated with more than 200 photos to help collectors differentiate authentic coins from fakes.

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PREFACE

The question most frequently posed by newcomers to the field of ancient coin collecting is, "How do you know it is real?" This is a much more difficult question to answer than one might think. The easier question to answer is "How do you know it is fake?"

Anyone who has visited collector bourses, museums, club meetings or an archaeological dig or two, will understand that many varieties of ancient coins are quite common—and that some are found in remarkable states of preservation. It is a natural expectation to find coins of great antiquity in worn and battered condition, and some specimens don't fail us in that regard. But a recently cleaned coin in near mint state condition will inevitably raise an eyebrow or two—even when perfectly genuine.

Being able to detect a fake requires a basic knowledge of how genuine coins were made. There are telltale indicators that stand out in certain cases, but most really good fakes are detected by smell. No, I don't mean that they have a distinctive aroma—although some have claimed so. A person who has seen hundreds or even thousands of coins of a particular type can often subconsciously smell a problem without knowing precisely why. Something abnormal about the look, feel or circumstances will trigger an uneasy feeling that leads one to question authenticity. Sometimes it just takes a little common sense. If a painting signed by Rembrandt were offered for $150 at a garage sale, there would be plenty of sceptics. Why should a Naxos tetradrachm offered for $150 on the Internet seem any more plausible?

This book is not a primer on how to spot fakes. That is an art which requires time and experience. Some of the techniques used by forgers and some methods of detection will be discussed, but this is primarily a book about the history of ancient coin counterfeiting, forgery and reproduction. It has been wisely said that the only effective weapon against forgery is knowledge. My aim is to bring together in one place the information necessary to prepare one for an inevitable confrontation with fakes in the collector market. It should be said from the start that almost every serious collector of ancient coins will sooner or later add a false coin to their trays. Like dealing with any other malady, we all try to avoid the experience and, failing that, to lessen the impact of the event.

In spite of the concern which this topic always generates, the percentage of forgeries compared to genuine coins in the modern ancient coin market is statistically insignificant. Even so, the topic has long been avoided by dealers—perhaps out of fear that collector paranoia might adversely affect that market. The main purpose of this book is to help put collector concerns into perspective by looking at the issue openly and objectively.

The format followed here is identical to that used in the preceding series of six books titled *Ancient Coin Collecting*. This, however, is not a num-

bered volume of that series. I have tried throughout to provide extensive bibliographies for further reading on various topics. Since this is a general survey, rather than a research monograph, footnoting has been replaced by references within the text. There will surely be some items of controversy within—some may say this book inflames the issue. I can only say that education breeds understanding, and any rational reader of this book will realize that forgery is a nuisance, not a terminal illness. I have been criticized in the past for not always following strict numismatic convention (as in the case of Romaion vs. Byzantine) and will surely be criticized here for the obverse/reverse placement of some Greek coins (e.g. Sicilian and Corinthian issues) in the Peter Rosa catalogue. Being aware of that, I have opted nonetheless for an art historical interpretation where the primary motif is regarded as the obverse—rather than a conventional numismatic one where the anvil die is always the obverse, regardless of imagery (see: "The technical obverse: Another archaic convention", *The Celator*, 14:11, November 2000).

My first encounter with fakes came very early in my collecting career (1967). With a library that consisted only of Zander Klawans' precious little guides and an early edition of *Roman Coins and Their Values*, I had virtually nothing in the way of background information about coin production. The question of authenticity was naturally a concern, but I hadn't a clue as to what to look for in judgement. I had been buying mediocre bronze coins for about 25¢ to 50¢ each—depending mainly on their size. Silver coins were selling for $1.00 each, and that was a stretch on a very limited budget (a dollar was still worth something back then). Nevertheless, I took the leap one day and purchased a lovely silver coin of the Constantinian era. It was a smallish coin, with a veiled head of Constantine on the obverse. On the reverse was a quadriga galloping to the right, with the hand of God extended from above. This silver coin did not appear in my meager references, but I did find a listing of the type in bronze (now Sear 3889). My initial presumption was that this find was quite rare in silver, and I was more than a little pleased about having spent the additional sum. On my next visit to the coin seller, I found another specimen of the same type. Immediately, I became suspicious. If the earlier purchase was indeed a rarity, how could I have been so lucky as to find another this quickly? Still, I purchased the second coin and took it home—not at all certain now that it was the right thing to do. Studying the two coins side by side, it became apparent that they had exactly the same shape and surface imperfections. Explaining the situation to a friend, I was introduced to the world of cast forgeries. At the time, it was an irritating deceit. But in retrospect, that two dollar lesson was one of the most valuable that I have ever had the good fortune to learn.

Over the intervening years, I have handled many thousands of ancient coins, and have culled perhaps fifty cast fakes from various bulk lots that I

have purchased. It now is rather amusing when one turns up, and they are always worth studying. They remind me a bit of the little scorpions we have here in southern Missouri. They are always out there, and they can sting you if you don't respect them, but the damage is pretty minor. The big sting comes from a different source.

Becoming knowledgeable about fakes is a long term and continuing exercise. Although a relatively experienced collector and dealer at the time, I naively chose a forgery of a Locrian coin to illustrate an article in the SAN journal some 15 years ago. It is humbling and embarrassing when this happens, but this is how we learn. Any longtime collector who says they have never purchased a forgery, or any dealer who says they have never sold one, is probably being overly optimistic.

Virtually every ancient coin dealer can relate a story similar to that above. Robert Hoge, curator of the American Numismatic Association Museum, and an authenticator of ancient coins for the American Numismatic Association, recently shared his story with members of the Internet group NUMISM-L. Bob's first purchase as a collector of ancients, at the age of 13, was a double denarius (antoninianus) of Quintillus. He paid $1.25 for this scarcity, only to realize years later that it was a forgery. Last summer, Bob participated in a blue ribbon symposium on the detection of counterfeit ancient coins at Seattle. The moral of course is that no one starts out an expert.

The fact that a coin has been in a number of important collections over the years does not provide any guarantee that it is genuine. The list of published collection coins that are now known to be fake is impressive—certainly long enough to invalidate pedigree as a mark of authenticity. Every museum has a tray of fakes that once were sources of pride. The silver lining in this cloud is that those fakes were eventually detected. Our knowledge about fakes, past and present, grows each day—just as our knowledge about the ancient world itself is a constantly growing thing.

Some newcomers to the field of ancient coin collecting clamor for the "ruthless" branding of fakes that seem to appear rather frequently for sale in Internet auctions. With a few admitted exceptions, it is very difficult to judge the authenticity of an ancient coin simply by looking at a digital scan or photograph. There are many characteristics which, to the novice, may appear as indicative of forgery, yet perfectly rational and legitimate explanations may come to light through close personal examination. The whole issue of condemnation in this manner is dangerous because, first of all, it suggests to beginners that the identification of fakes is a simple matter. This certainly is not the case. Many collectors of ancient coins don't possess even a rudimentary knowledge of what suggests authenticity. Some collectors can distinguish cast fakes and tourist market copies. And a few collectors can spot rather poor die-struck fakes (like Slavey copies). Very few collectors, or dealers for that matter, can distinguish high quality modern die-struck fakes simply by looking at them.

Unfortunately, nature has ways of leaving a perfectly authentic coin marked with characteristics that may be similar to those of some types of fakes. It would be interesting to know how many authentic coins with "Tiber Patina" have been rejected and tossed into junk boxes as fakes. Inappropriate style is often cited as a justification for condemnation. This too is a dangerous measure. There are many valid reasons why style changes significantly within any given series—not to mention the huge number of legitimate contemporary imitations. Before passing judgement on a coin, all of the indicators like weight, style, metal, surface, patina, etc. should be taken into consideration and evaluated in context with everything else that is known about it. We should be just as careful about false condemnation of a questionable coin as we are about accepting its authenticity. False condemnation does just as much to undermine collector confidence as the selling of a fake.

As you peruse the pages ahead, keep in mind that this is a very superficial overview of an enormously complex subject. It often has been necessary to encapsulate, in a page or two, thoughts that an entire monograph could be written about. It is my hope that through the extensive bibliographies, readers who find this subject fascinating will go on to expand their search for knowledge. If this happens in only one or two cases, the hobby will be enriched because there are not nearly enough collectors today who are really equipped to combat the modern forger.

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Many friends, colleagues and acquaintances have contributed to this book in a great variety of ways, from providing illustrations and resources to offering advice and helping with production. Among them are the American Numismatic Society; Michael Braunlin; Frank Campbell; Classical Numismatic Group; Basil Demetriadi; The Hellenic Numismatic Society; Robert Hoge; John Kleeberg; Robert Kokotailo; Frank Kovacs; Grzegorz Kryszczuk; Peter Lampinen; Dr. Hubert Lanz; John Lavender; Leu Numismatics; The NUMISM-L Discussion Group; Michel Prieur; Bill Puetz; Daniel Rosa; The Royal Numismatic Society, David Sear; Kari Stone and *Coinage* Magazine; Dr. Alan Walker; and Kerry Wetterstrom (*The Celator*).

The text synthesizes the work of a great many numismatists who have written on this subject. They cannot be named individually here, but their works will be found in the bibliographies throughout this book. We are indebted to them for sharing their wealth of knowledge and experience.

In addition to helping with the production of this book, my wife Doris has patiently weathered the inevitable isolation that this sort of work requires. Her steadfast support was critical to the completion of the project.

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The Basis for Deception

Collecting in general has been shown to be an instinctive reaction—although the impulse may be random and irrational. Collecting persists because people enjoy the activity, and it consequently becomes an end unto itself. It is because of the established market that ancient coin collecting takes on some sense of order. It is difficult to say with certainty when coins became valuable for their aesthetic qualities, but at some point the utilitarian or intrinsic value of a coin became only one facet of its perceived value. In other words, certain coins took on a greater value than other similar specimens because of a common perception that they were more desirable and therefore collectible.

At the core of this perception is the concept of taste. Styles of artistic representation have changed dramatically over time, and what may be attractive to one culture or society may not necessarily be so to another. This eventually leads to schools of art and adherents to certain canons. When people became willing to pay a premium to obtain certain objects above all others, the art market was born. Along with the development of connoisseurship—that is, the aesthetic judgement of artistic style—came an appreciation for things produced by previous generations or cultures. This might be considered an early form of antiquarianism. Not only did collectors accumulate and admire such works, artists often imitated the style of their predecessors in a manner referred to today as archaizing.

We know from surviving literary accounts that collecting was already a popular activity in the classical world. King Attalus I of Pergamum (241-197 BC) was a great patron of the arts and endowed a magnificent library which Mark Antony later gave as a present to Cleopatra. Attalus not only hired the best available artists to enhance the beauty of his palace, he imported (collected) existing masterpieces from all over the Hellenistic world. Some were acquired by conquest, some by political negotiation, and some by outright purchase. He is known to have bid 30 talents, a huge sum by anyone's standards, for a painting by Nicias. The need to offer such a princely sum reflects the maturity of the art market at that time, and the breadth of competition for collectibles. Attalus II (a grandson of Attalus I) unsuccessfully bid 100 talents for a painting by Aristides which was looted by the Romans following the sack of Corinth. By the first century BC, a long list of ancient sources mentioned certain art dealers by name and alluded to an active collector market. Cicero, in *Actio Secunda in C. Verrem,* describes how Gaius Verrus (Quaestor in Cilicia) expropriated archaic Greek sculpture and other masterpieces from the Aegean islands in 80 BC for his personal use. He later continued his plunderous collecting as governor of Sicily before he was forced into exile. Martial described the collection of Vindex, which purportedly included a small bronze of Hercules by

Lysippus. It was said to have a pedigree of previous owners which included Alexander the Great, Hannibal and Sulla. As unlikely as this may be, it demonstrates the importance that contemporary collectors placed upon provenance as well as patronage. Many other ancient sources attest to the continued interest in art collecting throughout the Roman period.

It is unlikely that the first coins issued in the seventh century BC were perceived as works of art. They were, after all, crude lumps of precious metal with a purely utilitarian function—the transfer of wealth. However, the need to have identifying types on the coins meant that artists were soon called upon to apply their talents to the production of coins with images. This adaptation launched coins into the world of art and art collecting. Contemporary recognition of coins as works of art is clearly present by the fifth century BC, when die engravers attained the same stature as painters and sculptors—being allowed to sign their creations. A signed work of art was then, as it is still today, perceived by many as "better" and more desirable than one which is not signed.

The alter-ego to numismatic art is numismatic history. Coins with nothing more than legends or crude markings may appeal to the collector from an entirely different perspective. This duality creates a potentially broad market where demand often can outpace supply. Therein lies the basis for value and the controls by which value is measured.

Counterfeiters produce fakes with the hope that they will be accepted as real and therefore pass in commerce. Forgers produce fakes with the hope that they will be accepted as real and therefore be desirable to a collector. Cecil Gould of the National Gallery in Britain once said "A fake only begins to be a fake when someone says it is genuine." Logically, by Gould's standard, the copyist like Robert Ready, Peter Rosa or Slavey Petrov does not produce fakes—at least not to our knowledge. If they sold a reproduction under the guise of authenticity, it would then become a fake and they would be forgers.

During the first half of the 14th century in Italy, a major revival of interest in classical culture bloomed. We refer to this period today as the Italian Renaissance. Particular interest was focussed on the images from antiquity that were preserved in sculpture, coins or gems. This movement spread north quickly and before long Europe was engulfed in a sea of Humanism. The collectors of the age were mainly from the well educated and wealthy nobility of Europe.

The burgeoning demand for antiquities naturally offered commercial opportunities and many influential collectors hired agents to acquire objects for their cabinets. One such agent, Ambrogio Traversari, worked for Niccolo Niccoli. Traversari revealed in a letter to Niccoli that one of his suppliers was an antiquarian by the name of Cyriac d'Ancona. A forerunner of the modern wholesaler, Cyriac made frequent trips from Italy to Greece to acquire objects including coins and gems for resale. It was in the

gold rush atmosphere of that era that forgery in the modern sense began.

By the sixteenth century, there was a very great demand for ancient Greek and Roman coins. A sestertius of Nero, for example, was offered to Isabella d'Este's agent for 25 ducats. In comparison, a painting by one of the great masters sold at that time for about 100 ducats. The end of that century not only saw the existence of many large collections, it was marked by a proliferation of catalogues from notable collections throughout Europe.

Human nature has changed little in the past 2,000 years and ancient observers of the lucrative art market could see that there was an opportunity then for profit through deception just as there is today. Pliny alluded to a general concern about authenticity in *Historia Naturalis,* and specifically stated that in his age (first century AD) forgeries were often purchased for higher prices than an authentic item would fetch. Phaedrus, in his version of *Aesop's Fables* (also first century), commented on the high prices obtained for forgeries of antique sculpture and paintings with imitated signatures of great masters.

In the late 14th century, artists at Padua, Italy began striking medals which incorporated imagery from and sometimes directly imitated ancient coins. The tradition lasted into the 16th century and probably later. Among the most famous of these were Benvenuto Cellini and Giovanni Cavino. Others in Italy who produced imitations were Sesto, Novello da Carrara, Camelio, Cesati, Dervieu and the brothers Bonzagna. The forgery (or *reproduction* to be more generous) of coins with ancient motifs was certainly not limited to Italy. Some others accused of this activity included Congornier in Lyons, Carteron in Holland and Galli and Larouch at Grenoble. The Dutch numismatist Abraham Gorlaeus, who assembled a collection of some 29,000 coins in the late 16th century, was accused by his contemporary Joseph Scaliger of being a skilled forger. John Pinkerton, who included a section about forgeries in his *Essay on Medals* (London, 1784) was described by one modern commentator as "an able forger".

As numismatics became a science, the nature of forgery changed. The successful forger in the 18th or 19th century had to contend with an ever growing awareness of the methods used by the ancients to strike coins. This led to a sort of chess match between forgers and collectors—a game that is still being played today. The growth of the market has ironically fostered a new type of forgery, that of the common ancient coin. At a time when the market for inexpensive late Roman bronzes was virtually nonexistent, there were few forgeries of these coins. The rapid growth of an entry level market has made them more appealing. Consequently, it has become viable for forgers to replicate even very common coins if they can do so in large quantities.

The reproduction of ancient medallic art differs from forgery of ancient coins only in the sense that it lacks the intention to deceive. There are

many surviving examples of coin reproductions from the very earliest period of numismatic history. These include a variety of medals and decorative objects created for adornment or display. Sometimes coins themselves were used in jewelry or the like, but copies were also produced in lighter weights and less noble metals. In our age, rare coins are usually considered unsuitable for use in jewelry or the decorative arts. Consequently, reproductions of such may be even more greatly admired. It was inevitable that reproductions would also become attractive to collectors who could not obtain certain coins due to their cost or extreme rarity. Ironically, a reproduction which is good enough to satisfy the collector's yen for the unobtainable is also good enough to be mistaken by some as genuine. This is where reproductions come into conflict with the hobby. In a perverse way, we crave them and support their manufacture, then condemn their existence.

Today, there is an even more distasteful scenario. The mass production of modern copies of ancient coins in Eastern Europe has inspired some unscrupulous sellers to market these pieces as authentic, or at the least "uncertain" as to authenticity. There is nothing uncertain about them, and their sale under the guise of anything but replicas is simply fraud. As in every age before us, collectors today suffer the retributions of greed. The forger preys not only on the ignorant and naive, but on the fact that some collectors will throw all caution to the wind if they stand to catch a bargain or obtain an elusive rarity. The forger is easily hidden behind a "good deal."

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Methods of Production

In antiquity, coins were either hand struck between dies or cast in molds. Both of these methods are labor intensive and slow. Modern coins and reproductions tend to be produced by pressing or stamping the design with presses which generate extreme pressures. Each method of production has its own characteristics and is usually identifiable from looking at the final product.

Learning to recognize how coins were produced is one of the most important elements of learning to judge authenticity. Forgers seldom use precisely the same tools and techniques that were employed in antiquity. Even when the same basic mode of production was employed, a modern forgery usually falls short of the mark in some respect. For example, the metal itself might not be of the proper composition. Often, the die or mold might be flawed in some detail of style or execution. The planchet may have been prepared differently than those of the original. Perhaps the weight is not within an acceptable range. Even the die axis may provide clues to authenticity. Unless forgers are truly experienced numismatists, they will usually trip themselves up somewhere in the production process.

Because there are so many variables of production, both for genuine coins as well as forgeries, there is no substitute for learning how a particular series was made. This is not something that you will find in a book, but rather something that is learned from examining many genuine specimens in large collections. It would be nice to live just down the street from a major numismatic museum, but few collectors are so fortunate. Most collectors will only visit a major museum once or twice in their lives. The more practical approach is to examine coins of the type in question at a coin show which attracts major dealers in ancient coinage. The problem is that, unless one has a photographic mind, it is virtually impossible to learn the details of production for more than a few coin types. Still, collectors tend to specialize and they may well learn the details of those types within their specialty. Dealers have a slight advantage in that many coins pass through their hands and comparisons can be made at leisure. In fact, most prominent dealers keep trays of forgeries for comparative purposes. This is how forgeries may be detected many years after they initially entered the market. But, in the final analysis, the dedicated and specialized collector is often the one who has the most information and the best feel for coins of a particular series.

Hammered Coinage

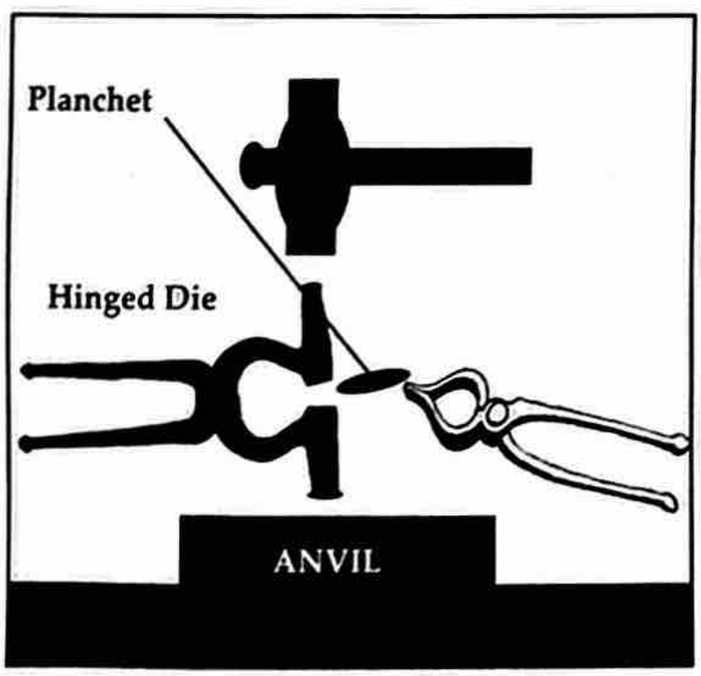
The production of hammered coinage is really quite simple—at least in theory. At ancient mints, the process was completely manual and required several steps. First, dies were engraved to impart the desired image or legend. Then, the metal to be struck was prepared in the form of a planchet of predetermined size and/or weight. The planchet, sometimes heated to make it soft, was placed upon the anvil die or "pile" and forced into the depressions of that die by striking the punch or "trussel" firmly with a hammer. In some cases the dies were fixed in a hinged apparatus to maintain alignment. Finally, the coin was removed from the anvil die and allowed to cool.



Lydian electrum, first coins of the West

It is commonly accepted among numismatists that the first hammered coins of ancient Greece were struck during the seventh century BC—probably in Lydia. These crude issues were struck in a gold/silver amalgam known as electrum. The earliest examples were struck without images, bearing only striations from the pile and punch marks from the trussel. Before long, obverse images were added and reverse punch marks took on geometric shapes. Later issues incorporated images on both sides of the coin. The obverse image was normally the primary design element and was engraved into the anvil die (there are exceptions). The purpose of this was mainly technical. The obverse, in most cases being a bold and higher relief image, required more metal to fill the engraved or "intaglio" depression. Aided by gravity and the force of striking, that need was satisfied as the soft metal was pushed downward into the anvil die.

The stress created during striking, especially when the planchets were allowed to cool prematurely, was hard on dies. The repeated hammering on a punch die would cause it to widen at the top and take on a mushroom shape. They wore out more quickly than the anvil die by a factor of about two to one. The anvil die was sometimes secured in a heavy block of wood to reduce the incidence of vibration or ringing which could lead



to irregular impressions. Anvil dies of the Roman Imperial period, with lower relief images, were typically designed to be set in a block of iron. It was not unusual for celators to rework broken dies or create replacements for dies fractured during production. Active mints would have needed a crew working full time at this task.

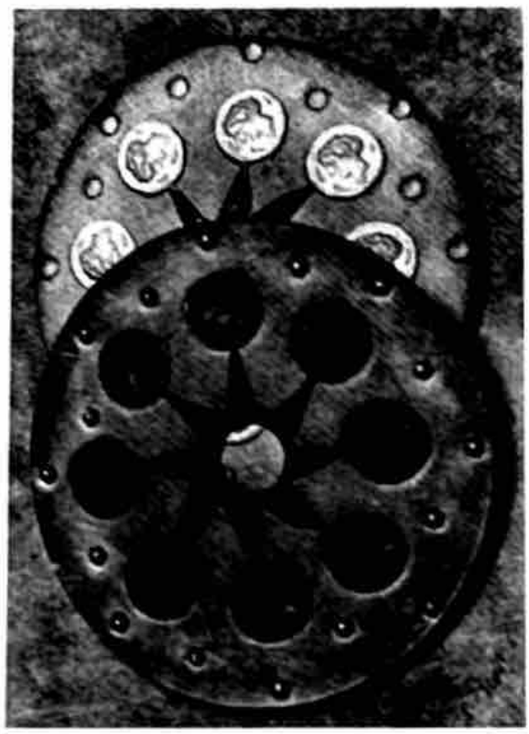
A hand struck coin often suffers from some condition of human error. They may be off-center, struck too softly, struck more than once or struck unevenly. It is seldom the case that a hammered coin is perfectly uniform in thickness or consistency. To a collector, these conditions are sometimes detractions—but they are also useful evidence of the striking process. When the planchet metal is forced into the anvil die, stress from the expansion causes "flow lines" which radiate outward from the point of highest relief. These can be seen easily with a 10 power loupe and sometimes even with the naked eye. Natural flow lines on a coin will be radial, not parallel or perpendicular. The edges of a hand struck coin tend to look exactly like what they are—squashed metal. They will not be filed or battered, unless someone tinkered with them after they were issued.

Determining that a coin was struck rather than cast is not in itself a determination of authenticity. Many modern forgeries, dating back to the time of Cavino, were hand struck in the manner of the ancients. It is however the first general consideration in the process. The next step, which is not always easy, is to determine whether that striking was ancient or modern. One common fault with newly struck coins is that they look like they are newly struck. This may seem a ridiculous statement, but some collectors intent on buying coins of the highest possible grade will overlook rather obvious warning signs. It is nearly impossible for a coin to survive 2,000 years of oxidation, the process of being dug up and transported half way around the world, cleaned with harsh chemicals and still have razor sharp edges. Especially troublesome on coins of this nature are very sharp edges at the perimeter. This is not a natural condition and should be a red flag to the wary. The red flag should be even bigger if there are signs of wear on the low points and the high points are mint state. Most successful forgers will take the time to make their work feel good as well as look good. That means they will introduce a little wear, even if minimal. They will tone or patinate the coins with a believable surface and they will usually offer the forgery in a context that reduces suspicion. Typically this is in conjunction with a group of genuine coins.

The foregoing should not be taken to mean that ancient coins do not survive in Extremely Fine or Mint State. Gold coins in particular are resistant to the effects of nature and coins struck in other metals are on rare occasion found in "as struck" condition.

Cast Coinage

Although some ancient coins (usually copper or bronze)were produced at an official mint by the casting method, the vast majority were struck from dies. Casting is the simplest method of production, and requires little expertise. It is probably for this reason that most authorities have chosen to strike coins. The latter are more difficult to effectively counterfeit.



Star wheel used by Peter Rosa for centrifugal casting of Syracusan decadrachms (Coinage photo)

The most simple cast requires only a moldable material, like clay, and a master object to be copied. The master is pressed into a flat section of clay and allowed to dry. It is then removed and another section of clay receives an impression from the opposite side of the coin. The two mold halves are fired to harden them. They are then bound together and molten metal is poured through a channel which leads from the outer edge of the mold to the voided area in the center. This is allowed to cool and the mold is separated—producing a replica of the master.

The lost wax method requires that a replica of the desired coin be made in wax. This can easily be done by making a transfer mold in clay or lead (see illustration) and impressing the wax. The wax is then encased in a ceramic material and molten metal is poured, as in the previous method (more about this on page 11). The wax melts and is evacuated through a second opening. This method produces very similar results to that above, except that the casting seam around the coin will not be present. Of course the entry and exit points will still be noticeable and forgers try to remove these casting marks by filing, grinding and polishing them.



Lead mold for lost wax casting

A slightly more complicated method of casting, which was not available to the ancients, employs centrifugal force to eliminate air pockets. The mold is spun in a circular motion as the molten metal is injected—thus forcing the air bubbles out and better filling the impressed details. A variation on this process is to inject the molten metal under pressure. These modern innovations have made it much more difficult to detect casts—especially of gold and silver coins which are softer metals than bronze.

Stamped Coinage

Stamped coinage relies on high pressure to transfer the image from a die to a planchet. Something on the order of four tons of pressure may be sufficient for low relief coins in soft metals, while thick bronze coins may require much greater pressure. One major advantage of this process is that the planchet does not require heating or special handling. Virtually all modern coinage is stamped by fast and powerful automatic presses. We tend to think of stamping and mass production in the same context, but that is not always the case. Producers of ancient coin reproductions for jewelry or hobbyists often stamp their product one at a time from small tabletop presses. A hydraulic jack of the type sold for automotive use can develop sufficient pressure to stamp coins in gold, silver or bronze.



Stamped coins are characterized by flat mirror-like fields, especially so at the rim

Peter Rosa's Becker Manufacturing Company used the stamping method to produce thousands of ancient coin replicas. More recently, stamped reproductions made in Bulgaria have been appearing on the market. The very nature of this process causes coins to be flat and uniform in thickness. This is particularly noticeable in the fields, which can take on a mirrorlike appearance. The flow lines that are typically considered a mark of hammered coins will sometimes be found on stamped coins as well.



Stamped Mesembria diobol note the flattened area to lower right

The Mesembria (Black Sea Hoard) diobol illustrated here was a bit off center when it was pressed. Consequently, the lower right corner reveals the flat even pressure of a pressed coin rather than the concave displacement of metal that one would expect to see on a hammered coin. The Black Sea Hoard fakes may be found in both pressed and hammered varieties, which is an interesting phenomenon.

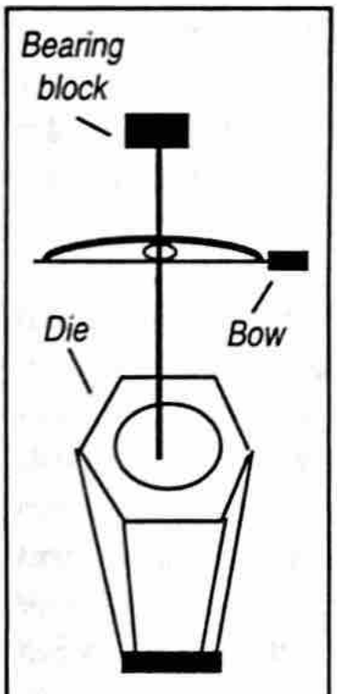
Engraved Dies



Aureus or denarius obverse die of Vespasian, AD 69-79

In antiquity, dies used for hammered coinage were normally made of annealed bronze of iron. Only hand tools were used, and these consisted of gravures or burins, punches, and drills. Gravures were made in various widths and depths. This tool was used to remove large amounts of metal for inscriptions and high relief images. The bow drill was used to create terminal indentations, remove large pockets of metal and polish die surfaces with abrasive compounds. This device consisted of a bow with the string looped around a long shaft-like drill. The bow was held in one hand and moved horizontally while the other hand held a bearing block which also helped to guide the drill. Punches were used mainly for accent and small detail work.

The tools used by the engraver often leave clues that aid the numismatist in detecting forgeries. Modern tools, like rotary drills and grinding wheels, produce effects which differ from those of the ancient hand tools. Since many forgers are not sufficiently trained or experienced in the use of these archaic tools and techniques they tend to use the tools most familiar to them and easiest to work with. This kind of investigation requires very powerful microscopes and direct comparison with known genuine specimens.



Bow drill used in die-engraving

It is remarkable how consistent ancient celators were with their finished products. Collectors today can find it difficult to distinguish between two nearly identical dies of the same type. The time required for an accomplished artist to produce one die of ordinary complexity was probably less than one work day. Perhaps the first die of a series took longer to execute, but after carving 40 or 50 dies of the same motif, the celator must have become quite proficient at it. Renaissance medallists were known to produce very complex dies in two or three days, and the forger Carl Becker wrote that it took him 18 hours to carve an Akragas decadrachm die. Some modern die engravers produce a die of equivalent complexity in one or two days.

Cast Dies

In addition to dies that were engraved by hand out of metal blanks, some dies used in antiquity—and by modern forgers—were made by casting with the lost-wax process. This process is explained by A.H. Levy in the Balog Memoriam (see bibliography). Also, a series of struck coins from cast dies has been studied by P.-H. Mitard (*Revue Numismatique*, 1963, pp. 116-18).

The lost-wax method of casting greatly predates the classical period, and techniques were well refined before the first coin was ever invented. In certain metals, particularly bronze, great detail may be achieved in reproducing images and objects by lost-wax casting. The first step in the process of casting a coin die is to pour molten wax over the original coin which is to be reproduced—or to impress the coin into soft wax. Beeswax is particularly good for this purpose. The wax lends itself well to being carved, smoothed and retouched as may be necessary. After the wax is defined in the shape of a die, it is coated with a heavy mold of clay. This hardens into a one-time vessel with openings provided for pouring molten metal into it and allowing air and wax to escape from it. When the super-hot liquid is poured into the clay mold, the wax inside melts quickly and is replaced by free flowing metal. This metal solidifies and takes on the shape of the wax it has replaced. In the case of large objects like statues or vases, the molten bronze is allowed to cool only until it coats the surface of the clay mold and then the remaining liquid is released from the mold. The result is a hollow bronze object. Allowing the metal to cool completely within the mold results in a solid object. The hardness of this object, and suitability for sustaining impacts, as in a die, can be enhanced by adding various alloys.

It is suggested by Levy that certain stone molds with coin images (published in 1970 by Y. Meshorer) were used to make multiple wax images for casting dies. It can easily be imagined that the production of dies by casting would be more efficient than by engraving. The process would be particularly advantageous in outlying mints where skilled celators might be in short supply. As for the quality of strike from a cast die, we know from the output of Peter Rosa that cast dies can sometimes produce outstanding results.

Although Levy's argument seems to have some merit, it cannot be assumed that the majority of ancient coin dies were cast. There are a great many cases in ancient numismatics where coins appear to have served a more political or ceremonial than economic role. A case in point would be the multitude of agonistic motifs on Roman provincial coins. In these cases efficiency of production would not have been a major consideration, nor would there have been a need for the replacement of deteriorating dies in such limited production runs.

Pressed Dies and Hubs

The production of pressed dies relies on the application of extreme pressures, which could not be attained in ancient times. But there is belief among some classical numismatists that the Greeks and Romans were on to the general idea with the use of hubs.

A modern pressed die is made by squeezing a *plastic* mold against a flat piece of metal. The term plastic is used here in the sculptural sense—not a mold made of the modern material. Designs carved into a surface so that they are incuse or depressed are referred to as *intaglio*. Those which are carved in relief, so that they project from the surface, are called plastic. A plastic mold will look very much like a real coin, and in some cases might actually be a real coin. The only requirement is that the mold must be harder than the die metal that it is pressed into—otherwise it would flatten the mold before making an impression. Therefore, soft metal coins like gold and silver must be replicated as a hardened mold in order to produce a pressed die. The pressing itself requires several hundred tons of hydraulic pressure. After pressing, dies can be retouched as necessary to remove any undesirable surface conditions. For this reason, coins struck from modern pressed or cast dies can be very deceptive.

Although the dies struck in ancient times seem to have been engraved freehand in most cases, there is mounting evidence that some celators used a process called hubbing to speed their work. David Sellwood did some experiments of his own with hubbing of dies and includes the interesting results in his article on "Minting" in *Roman Crafts* (see bibliography).

A design, engraved in relief on a hardened punch, can be imparted to a softer die material by striking with a hammer. This works particularly well with bronze dies, which can be hubbed while soft and then hardened before striking. The impressed die would need to be touched up and the legends would need to be added, but much of the initial effort of engraving could be avoided. The benefits of hubbing are similar to those argued by Levy for cast dies. There is insufficient evidence for us to believe that this process was used in an substantial way. If hubs were used in antiquity, they were probably an aid to engraving and not a replacement for it.

It is more than likely that modern forgers intent on producing large hoards of fakes would use hubs to speed their work. By using the hub, subsidiary designs can easily be changed without completely reengraving a new die. Of course the main elements are a perfect die match—and a warning signal to the collector. There have been several large hoards of entirely fake material to come on the market in the past decade and the number of dies used in some of these has been impressive. A careful die study of one of these fake hoards would answer the question, but die studies are laborious and most numismatists are more inclined to spend their time studying authentic coins.

Spark and Chemical Erosion Dies

Spark erosion technology for the production of dies was first developed in 1770 by an Englishman named Priestly. However, it was not put to practical use until World War II. Today it is often called Electrical Discharge Machining (EDM) or Electro-Erosion. The process basically consists of controlling the electrical discharge from a positive to a negative pole or receiver. The positive pole or donor in this case may be an actual coin or a conductive model—preferably in copper. The receiver is normally a piece of flat hardened steel. The two are placed in very close proximity, without actually touching each other. The spark generated when voltage is applied to the donor creates an extreme increase in temperature and a melting of molecules on the surface of the receiver. Since the spark will always take the shortest path from positive to negative pole, this erosion eventually leads to an accurate incuse reproduction of the donor image. During the process, the surface of the receiver is constantly refreshed with clean water to remove accumulations of waste. The donor actually loses a small amount of metal in the process, so it is unlikely that this process would be used to create dies for very rare or expensive coins. The most noticeable characteristics of coins struck from spark erosion dies are a softness of strike and rounded edges. This comes from the fact that the sacrificial donor electrode gives up part of itself in the transfer process. There is also a granularity from the erosion process which is usually eliminated by hand finishing the die before striking a coin.



Parthian drachm forgery (x2.5) from Spark erosion dies

A new technology, called the trans-electrolyte three-dimensional die sinking system, was developed in the 1990s and has been used commercially to create dies for striking medals. The process uses chemical corrosion to make a mold or die of the master. It is inevitable that this technology will lead to the production of dies for ancient coin forgeries—if indeed it has not already been used for this purpose. The process allows the sinking of dies into hard or soft steel, brass, copper or aluminum with remarkable accuracy and fidelity. Tolerances to .0005 inch, and surface luster can be achieved. The master can be made of practically any durable material, including a genuine coin, and there is no damage done to the master in the process.

Metal Composition

Ancient coins were struck in gold, electrum, silver, bronze, brass (orichalcum), copper, tin, zinc and lead. Sometimes these metals were mixed in a predetermined percentage to produce a desired alloy. In other cases, this alloy was determined by natural conditions. Only one specific proportion of dissimilar metals produces a uniform alloy in which the metals give up their own properties and take on those of the combined form, that proportion is known as the "eutectic". Other proportions will result in layering of the component metals. In some cases, it was advantageous to retain a separation of the metals. For example, relatively small percentages of silver in a coin (5% or less) could give an overall look of silver through a process called surface enrichment. This was accomplished by exposing the planchet to certain acids and corrosive salts that affect copper but not silver. The surface copper was thereby etched away and the subsequent strike took on a very bright silvery appearance. One can imagine the opportunities for profit that the discovery of this technique brought to bear. We often find coins today which still bear traces of this surface enrichment or silvering.

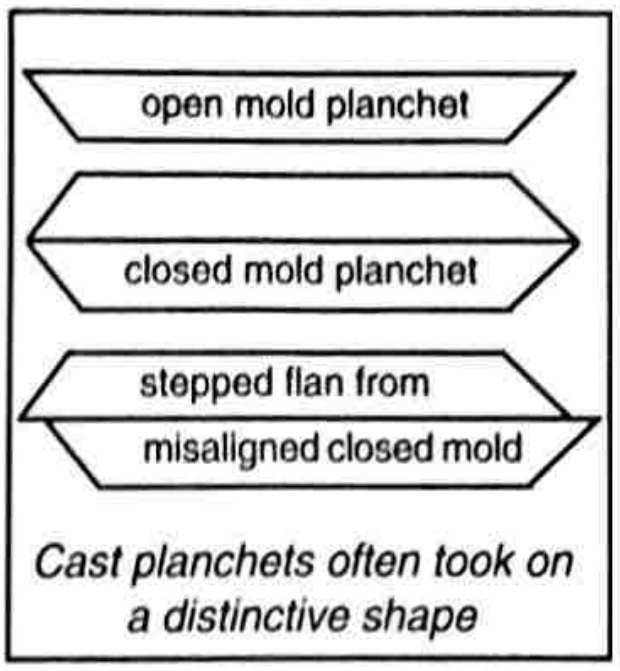
In the detection of forgeries, metal composition can be an important consideration. Ancient mints were surprisingly adept at refining precious metals. They normally obtained raw material from identifiable sources where the type and level of impurities can be measured and compared with some reliability—at least within certain chronological limits. The relative purity of metal can be approximated simply by weight or specific gravity measurements. These methods can sometimes weed out fakes made from totally improper metals or those that are plated. For more sensitive measurements, a variety of tests are available (see the section on X-Ray analysis later in this book).

Metallurgy is a science unto itself, and some numismatists find that this field is their prime interest. Much has been written on the subject, and the bibliographies at the end of this section and our section on Methods of Analysis and Detection include a long list of references. Most collectors, however, are content to know that a coin is either of good metal or debased. It is surprising how many new collectors will purchase lead copies of Greek and Roman coins out of junk boxes thinking that they are authentic. One must not only learn what metals to expect a coin to be struck in, it is important to understand the nature of debasement. Debased issues of progressively deteriorating purity are common among ancient coins. A debased coin in a series where purity is typically high may signal a warning. On the other hand, a fresh silver antoninianus of a late 3rd century Roman emperor may raise the same concerns. The only way for metal analysis to have any meaning is to be able to relate it to the known conditions for the time and period of the coin in question.

Planchets and Flans

A *planchet* is an unstruck mass of metal which has been prepared for the striking of a coin. The *flan* of a coin is the physical dimensionality of size and shape. Unfortunately, the words are often used interchangeably by numismatists.

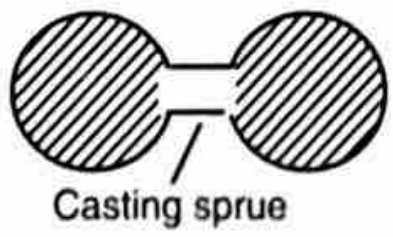
Planchets for bronze coins were often cast in shallow open molds. In order to facilitate extraction of the cooled metal from the mold, the sides were *chamfered.* That is, the bottom was not as wide as the top. Consequently, when the mold was turned upside down the planchet would easily fall out.



Cast planchets often took on a distinctive shape

It has been claimed that the coins of some mints were chamfered and struck with the obverse always on the same side. And that a deviation suggests forgery. Unfortunately, mints did not always pay that much attention. While the mint of Alexandria in Egypt is fairly uniform in this respect, coins from mints in Asia Minor may be found with the obverse on either side of the chamfered planchet.

Closed molds created a planchet with relative symmetry, but were also prone to misalignment in which case a stepped planchet was formed. We often see this condition on certain Judaean bronze coins. Not all planchets were cast, some were cut from a rolled bar and others were cut out of a sheet.



Cast planchets were sometimes made in a strip with connecting channels

The striking process forces metal downward into the anvil die—usually referred to as the obverse—causing a slightly convex shape to that side of the coin and a slightly concave shape to the opposite side. If the planchet has defects or foreign matter in the metal they will usually show up on the surface of the coin. When struck, the planchet expands in random fashion. Therefore, it is virtually impossible that any two struck coins will look exactly the same. Close, yes, but never exactly. If you find two coins with exactly the same shape, wear, and detail it is probably the case that they are casts.


Ptolemaic bronze coin with planchet casting sprue

Weights and Measures

The weight of a coin is only important if the metal that the coin is made of has value. In the earliest period of coinage, and even in some later periods, coins were weighed before they were exchanged. It was only with the introduction of denominations and state guarantees that it became important for all coins of a given type to weigh basically the same amount. This is because any significant variance would result in the heavier coins being removed from circulation. This practical consideration gave rise to official weight standards and ratios of exchange.

It may seem odd that we are discussing weight standards in a book about forgeries and reproductions, but the forger is not always so learned as to know what a particular coin should weigh. The fact that ancient authorities followed identifiable standards helps us to know approximately what the weight range for a coin should be. An article by William E. Daehn in *The Celator* (see bibliography), discusses the origin and nature of Greek weight standards in a very coherent way and is highly recommended reading. The listing here of a chart with weights for various denominations would be pointless because there are so many deviations and variances from any established norm. There is no substitute for knowing the precise average weight of a type and taking into consideration the typical range of weights within which the series was struck. Sometimes this range is extended by external factors. Coins with relatively little wear will range to the high side and heavily worn coins will range to the low side. Heavily corroded coins will usually weigh much less than normal. Common sense must dictate whether the weight is realistic for the type. A coin that weighs in on the wrong side of the scale (pardon the pun) may need to be looked at a bit more closely.

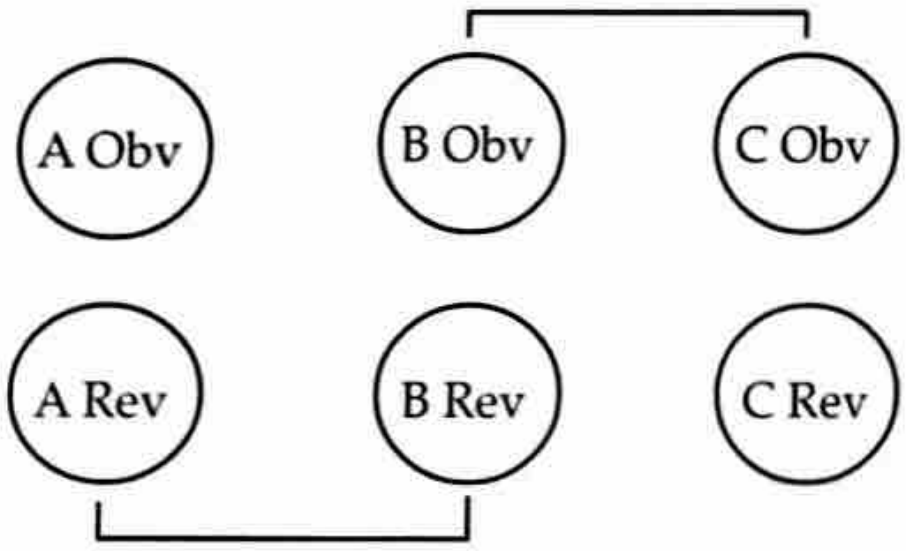
The diameter of a coin may not seem important, but the nature of casts, even good casts, is that the reproduction shrinks by a couple of percentage points. At a glance, they may appear to be the same diameter but a struck coin and its cast duplicate will not measure out the same with a sensitive caliper. It should go without saying that you have to measure the image, not the flan. The thickness of a coin may also be irregular in a cast or electrotype. This is a difficult call in bronze coins, especially in the Roman Provincial series, but silver and gold coins tend to be pretty uniform. If they are thicker than normal, they should have a short flan. If they have an exceptionally large flan they should be thinner than normal. The weight stays relatively constant in most cases. One should be particularly cautious of paper thin coins, remember that most coins were produced to be used in circulation. If the specimen you are looking at seems too flimsy to survive in a bag of loose change, it may be a jewelry piece of some kind.

Die Links

In antiquity, dies were very strictly controlled at the mint, for obvious reasons, and each die was carefully accounted for. Part of the reason for mint control devices on coins was to monitor the production of various workshops. At the end of a shift, mint workers were required to turn all of their dies in to the mintmaster, who secured them until the next work period. In some cases, obverse and reverse dies would be stored as pairs, and we see evidence of long production runs from a limited number of die sets. In other cases, the obverse dies seem to have been stored together in one place and the reverse dies together in another. The issue of dies at the start of a work period would in that case result in a random pairing. This would not affect the total number of coins produced, but it would greatly increase the incidence of obverse/reverse die links.

The study of die links and sequence can provide very useful information to the historian. Once a series is properly organized, changes in denomination, weight or purity may shed important light on the economic conditions of that time. The usefulness of this firmly grounded scientific data, in a discipline often reliant on subjective reports, is obvious. A good example of the sequential arrangement of dies, and the process used, may be seen in Noe's study of the coins of Poseidonia (see bibliography).

Die links are also of great value in detecting forgeries. Let us take a simple case for illustration. Coin A is known to be a forgery. It was struck from the same reverse die as Coin B, but Coin B has a different obverse die. Coin B is clearly a forgery. Coin C is struck from the same obverse die as Coin B, but has a different reverse die. If Coin B is fake then Coin C must be also. Although Coin C has neither the same obverse nor reverse as Coin A, we can demonstrate through die linkage that it too must be a forgery.

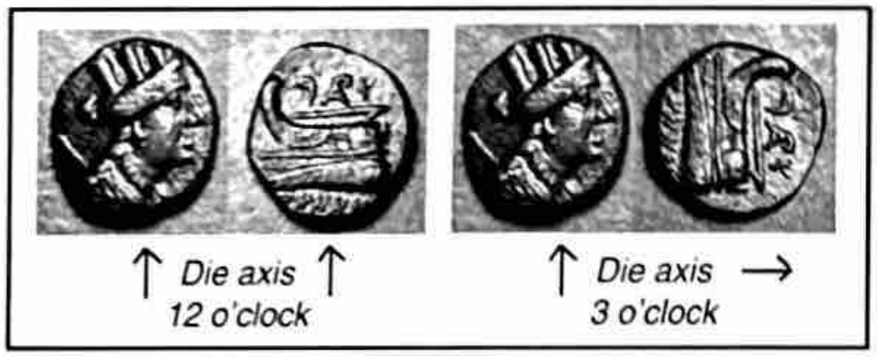


Inappropriate die pairing is one of the mistakes that forgers of the past have often made. It is impossible, for example, that a denarius of one emperor could have the reverse type unique to a later emperor. Other mistakes or just plain arrogance have paired the obverses and reverses of two totally unrelated Greek cities—as if we wouldn't notice?

Die Axes

It was only in the 20th century that numismatists began to realize the importance of die axis as an element of production. The die axis is simply the relationship between the orientation of the obverse and reverse dies. In certain issues, there is no direct relationship as the coins were struck with random alignments. In other issues, the axis is predictably uniform.

Two British numismatists, G. MacDonald and G.F. Hill, were the pioneers of die axis recording, and deserve credit for recognizing that this detail can be useful in detecting forgeries. Initially, die axis was represented by arrows pointing in the direction that the die faces. This convention is still popular with many, but another system of vectorial representation, introduced by J.P. Goddard, uses a 360 degree protractor to measure the deviation between obverse and reverse alignment in degrees. Others use a twelve-hour clock system, e.g.. 12 o'clock or 3 o'clock, while some use an eight point system.



Normally, the only real consideration is whether the dies were aligned or not. If the strike was from randomly aligned dies the degree of rotation is meaningless. If the issues of a particular mint are normally aligned, and a suspect coin is not, the evidence may point to a forgery. Of course it is difficult to make the reciprocal argument since a head to head pairing could still be a random incident. Some dies were made square in order to visually align the obverse and reverse. Others probably had notches or markings to aid alignment. One technological innovation was the invention of the hinged die, which kept obverse and reverse not only in alignment but paired.

Knowing the die axis of a single coin is of little value. It is necessary to determine the work habits of the mint at the time in question by recording the axis of many like coins. Fortunately, the published catalogues of most major collections include die axis annotations in one form or another. The typical collector will probably not have a library sophisticated enough to provide this information, but the on-line searchable database of coins at the American Numismatic Society will certainly be a help in many cases. As more institutions get their data on-line and accessible to the general public the individual collector will be able to do a remarkable amount of research without leaving the comforts of home.

Test Cuts, Banker's Marks and Countermarks

The production of a coin and its inherent guarantees necessitated a system of inspection to assure quality and to weed out the spurious introduction of false issues. In the market, a crude but effective method was employed. Suspect coins were tested simply by cutting into the surface. Sometimes the test cut was so severe that the coin was nearly cut into two pieces—this would normally reveal a plated coin. However, there are known cases of fourree coins where the core was deceptively test cut prior to plating. Test cuts are notably more common during certain periods and in certain regions. This may reflect an increased incidence of counterfeiting, but also was caused by testing of coins accepted as bullion in lands distant from their source.



Sidon, Phoenicia (30mm) test cut tetrashekel of Abdeshmun (410-400 BC)



Alexander I, 498-454 BC Test cut octadrachm

Over time, a special group of money changers evolved (the *nummulari* in Roman times) to verify authenticity and value. The use of a small punch to affix a single letter or geometric de-



Silver siglos (14mm) of the Achaemenid Kings in Lydia bearing eight different banker's marks

sign confirmed that verification. These small devices are normally referred to today as banker's marks. They differ from test cuts, seldom penetrating the surface very deeply, and are usually unobtrusive. On some issues, there may be multiple banker's marks. One Persian siglos that we examined recently had eight such marks of very interesting variety.



Egypt. hieroglyphic c/m "nefer"="good" on a 4dr. of Athens

Countermarks are yet another indication of post issue control. There are several reasons, both political and economic, for the application of a countermark. Perhaps the most common reason was to retariff coinage so that it would be acceptable at a different rate of exchange. Countermarking could legitimize a coin that might otherwise be demonetized by a change in political circumstance, or allow a worn coin to remain in circulation. Countermarks are normally more elaborate than banker's marks, and were applied at a mint or special workstation established by the controlling authority. Like banker's marks, countermarks often appear in multiples—especially on heavily worn coins that stayed in circulation for long periods. It is not unusual for a dateable countermark to be found on a host coin which was struck several hundred years earlier. Since countermarked coins often bring a premium in the market, it has not been lost on forgers that a new countermark on an old coin can create a multiple in value.



Kings of Thrace Akrosandros ca. 100 BC double c/m

There are a few ancient coin types with pseudo-countermarks—for example, the first issue of Najm al-Din Alpi of Mardin. This Turkoman prince came to power in AD 1152 and continued production of the current coin type of his father Timurtash. This large bronze dirhem copied the portrait from a Seleucid silver tetradrachm of Antiochus VII (struck some 1300 years earlier). Alpi placed his own name on the reverse of the new coinage, but did not immediately change the obverse. At some point, it was decided to countermark the older Timurtash coins by adding the name of Alpi. This countermark was carefully applied at the neck of the image. Bad news—the new coins (without c/m) now looked like the old coins, so they too were countermarked. Rather than strike more new coins and then immediately have to countermark them, the countermark was engraved into the die and became a pseudo-countermark on the remaining issues of that series.



Najm al-Din Alpi pseudo-c/m

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Contemporary Counterfeits

Counterfeits of circulating coinage have been produced for as long as there have been coins. Barclay Head (*Historia Numorum*, p. 645) records the existence of crude counterfeits or imitations of the Lydian lion's head tritae which date to the late 7th or early 6th century BC. There is hardly a series of ancient coinage that is not represented by contemporary counterfeits. The venerable historian Herodotus recounts an episode in which Polykratos, the king of Samos, paid a debt to the Spartans in fourree gold. At the end of the Peloponnesian War (ca. 405 BC) Athens was in such dire financial straits that the mint was relegated to producing fourree tetradrachms. Although not counterfeits, this emergency issue may be the only instance in which it is documented that an official mint produced fourrees.

Although fakes abounded in the flourishing art market of the Roman era, we do not have any evidence that coins were forged for sale to collectors. The few collectors that we do know about in this period (mainly powerful rulers) would have been in a position to stamp out the problem permanently. The production of fake coins in antiquity seems to have been limited to attempts to produce units that would be accepted in trade. These come in many varieties, but mainly as fourrees and casts. Although, on rare occasions, we encounter fourrees in gold or electrum, they most often occur in silver. Cast counterfeits were commonly made from bronze. The bronzes are undoubtedly found in greater numbers today because of the greater availability of bronze than of precious metals and also of the much less severe penalties imposed upon counterfeiters of bronze coins. The state response to counterfeiters of precious metal coins was generally severe. Both the Greeks and Romans treated it as a capital offense. However, in regions like Britain and Gaul where there was an acute shortage of coin, enforcement of the law was comparatively relaxed. The fact that barbarous copies of Claudius bronzes are found with countermarks attests to their general acceptance. At times, there were more barbarous radiates circulating in these provinces than imperial issues. It has been argued that the majority, if not all, of the mules of Roman coins are actually mint employee counterfeits.

The terms counterfeit and imitation have been used interchangeably by many writers. The distinction between these counterfeit coins and the coins that we refer to herein as contemporary imitations is that the former are typically private efforts. The latter were official issues of an independent state made to replicate coinage of their neighbors or trading partners. We'll examine some of these imitations in another section.

Plated Coins



Fourree of a Brutus EID MAR denarius (x2) with plating flaked heavily on obv. (Bob Levy Collection)

Fourrees, or plated coins, are sometimes difficult to distinguish from coins of good metal. There are various theories about the method of production—which range from arguments that a sheet of precious metal was soldered to a base metal core, to arguments that the cores were dipped in molten silver or gold. In reality, there were probably several methods used.

In the sandwich method, a base metal core was covered with a thin sheet of more noble metal and (by some theories) the molecular heat from striking of the wrapped planchet fused the two elements. However, a British Museum photomicrograph of a fourree silver stater of Byzantium apparently shows the presence of solder between the silver and copper core.

It has been calculated that the silver plating of a fourree is approximately 1/9 of the total weight (Bahrfeldt; cited by Crawford *RRC*, 560). Therefore, the potential for financial gain through mass production of these coins would have been significant. Harold Mattingly stated in *The Roman Serrati* that "the policy of issuing plated coins was on several occasions adopted by the Senatorial Government of Rome..." On the other hand, although fourrees are quite common among Roman Republican types, Crawford has steadfastly argued that all of these are unofficial issues.

Fourrees should not be confused with the "silvered" coins of the middle Roman empire discussed earlier. Those coins were official mint issues which actually had a percentage of silver in their composition and were made to look shiny through surface enrichment or "pickling". Coins could also be made to look silvery through an arsenic treatment.

Doug Smith's Web site (see Internet section) illustrates a gold nomisma fourree of Basil II and Constantine VIII with a copper core. There are also fourrees of gold over a silver core, silver over a copper core, and oddly enough bronze over an iron core.

Cast Counterfeits

The casting of coins as a legitimate form of mint production goes back nearly to the beginning of coinage itself. Even with hammered coins, the planchets were often cast and then reheated before being struck with engraved dies. Most official coinage however was die-struck at state operated mints. An independent coinage, the contemporary cast bronze counterfeits of the second through the fourth centuries AD, were produced in such large quantities that they could almost be treated as imitations rather than counterfeits. The distinction is that these casts were not the issues of any controlling authority. They circulated in Roman held lands without explicit Roman authorization. They are referred to by numismatists as a case of "epidemic forgery" which is prompted by a chronic shortage of official coinage. These are not to be confused with the die-struck "barbarous radiates" which proliferated during the same period—those will be discussed in the following section.



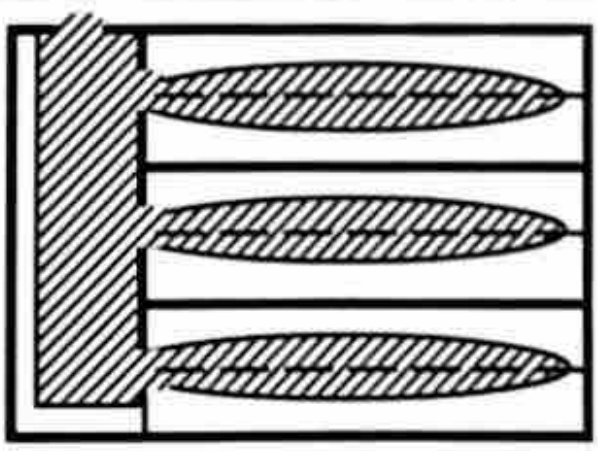
Terracotta mold (fragment) for casting a follis of Maximinus II



4th century AD, terracotta mold (fragment) with back to back reverses impressed from the same original (Alexandria mint)



Terracotta mold (fragment) for casting a follis of Licinius I (Alexandria mint).



Terracotta molds were cascaded for casting

Great numbers of simple molds, made of terracotta, have survived and are often seen in modern auctions and dealer catalogues. There is a surprising body of literature relating to these molds, their manufacture, and the conjectured circumstances of their use. Casting molds for which the provenance can be determined have come from such diverse locations as Egypt, North Africa, the Levant, India, Gaul and Britain. It is a matter of perennial debate as to whether these cast coins were products from the workshops of forgers or quasi-official issues





Contemporary cast counterfeit Maximinus II, Alexandria mint, edge shows signs of residue from feeder channel

produced under emergency conditions for limited local circulation. Perhaps there was some of each going on.

The terra-cotta molds were created by impressing actual coins into soft clay. This was sometimes done as a single unit, and sometimes as a multiple coin set with several obverses and mated reverses. In some cases a "tree" with molds arranged along each side of a center channel was employed. In other cases the molds (with images on each side) were stacked to form a long tube. The illustrations on the previous page are of this latter type. Once these molds were hardened by baking, they were tightly bound and filled with molten metal—which was poured into a feeder channel. When cooled, the molds were opened and casting sprues and seams could be broken off or filed away. Some types of molds could be used more than once, while others were broken apart after a single use.

It was possible, in this method of production, to mate an obverse mold with a reverse mold from some unrelated coin. Consequently, we sometimes find interesting mules made this way. Among the many contemporary counterfeits which still survive, are a group of cast bronzes which in appearance resemble the denarii of the Severan period. It is conjectured that some of these were probably silver coated in antiquity and what remains is only the copper core. These pieces tend to be found mainly in the Balkans and along the Danube. In addition to the many counterfeit bronzes of this period, we also find casts in various alloys of base metal.

Due to the inconspicuous nature of these contemporary counterfeits, they often pass for regular issues. They are of course genuinely ancient, and they look ancient enough, usually covered with encrustation and dirt. The only difference is that they were not official mint issues. One does not normally think to examine them for signs of casting because they are typically very low grade and inexpensive pieces. It's impossible to say how many thousands of these pieces might still be floating around in junk boxes and huge bronze lots.

Die-struck Counterfeits

Contemporary counterfeits were not limited to cast copies of circulating issues. We often find die-struck specimens (usually of crude style) which clearly were not issued at an official mint. Among the variety of surviving die-struck counterfeits are the third century types generally referred to as "Barbarous Radiates". These coins were born in monetary crisis and range from issues that are nearly identical to official mint products to tiny minimae that can hardly be called coins. The primary motivation for their manufacture was profit by reduction of content. Consequently, the issues become increasingly reduced in size and weight over time. The barbarous radiates are primarily found in the former Roman provinces of Gaul and Britain.



Barbarous radiate
AE 14mm of Tetricus I

A similar situation prevailed in other provinces with counterfeits of the coins of the tetrarchy and its successors. Like the radiates, the "Fallen Horseman" and "Urbs Roma" bronze counterfeits were particularly abundant on the periphery of the empire where regular issues were in short supply. The term *Limesfalsa,* for example, refers to the ubiquitous bronze counterfeits which circulated along the Roman Limes (frontier defenses) in northeastern Europe.



Barbarous struck follis of Licinius I

In spite of their great numbers and variety, there is relatively little known about the origin of these so-called barbarous coins. Most of what has been written about them is limited to hoard analysis. An article by James Meyer in *Roman Coins and Culture* reports the rare excavation of a private (counterfeiter's) mint at Heidenkopf in northeastern France. Although ancient coin dies in general are scarce, there have been some notable finds of dies used by counterfeiters. Some of these were apparently made from casts of genuine coins and some were original engravings. It is possible that some of these counterfeiters used hubs to aid in the manufacture of their dies. The barbarous copies seem to be one of the few areas that modern counterfeiters have not seen fit to exploit.



Barbarous radiate of Tetricus I
from the Heidenkopf "mint"

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Ancient Imitations

There is a fine distinction between contemporary counterfeits of ancient coins and contemporary or later imitations. The former are generally thought of as coins that were produced by individuals for profit motives. The latter served as the official currency of a political entity, and were produced in emulation of another state's coinage for purposes of politics or trade. For example, the Celtic series bears many excellent examples of imitative coinage. The vast majority of Celtic coins copy either Greek or Roman prototypes. Some Celtic tribes merely copied the imitative issues of their neighbors, so we find a progressive degeneration or stylization of the original motif.



Danubian Celts
imitation of Philip II tetradrachm



Himyarite silver 1/2 unit
imitating Roman & Greek coins

Gaza, at the head of the caravan route between Arabia and the Mediterranean countries, was the source of a very large production of silver coins imitating those of Athens. These were used mainly for trade, and their popularity grew rapidly to very distant lands including those of the Sabaeans and Himyarites in the south of the Arabian peninsula. Between the second century BC and the first century AD, the Athenian style was commonplace in Arabia. As trading routes fell under the control of the Romans, these lands began to place Roman inspired images on their coinage. One remarkable silver issue from southern Arabia imitates the Roman coinage of Augustus on its obverse and the coinage of Athens on its reverse. Athenian coins were imitated at a great many places, and a substantial article could be written about these issues alone (see Jongkees in the bibliography).



Hatra, AE 25mm
imitating
Roman coinage

The city-state of Hatra in Mesopotamia struck imitative bronze coins which portrayed their sun god in the fashion of the Roman Sol and included a crude and retrograde SC imitating the senatorial mark of approval on Roman Imperial bronzes.

As far away as India, Roman coinage was admired and imitated. Many hoards of Roman gold



Imitations of Roman denarii found in southern India
Above: Faustina Senior
Below: Marcus Aurelius

and silver coins from the first to the third centuries have been found there, including the Akkenpalle Hoard found in 1959, which contained 55 imitative Roman coins. The issues imitating denarii of Tiberius are frequently seen in the market.

Coinage of the Romaion (Byzantine) successors of the Roman Empire was extensively imitated from Spain to Central Asia and the Balkans to North Africa. An insightful discussion of these imitations is provided by Peter Lampinen within *Ancient Coin Collecting*, Volume V.

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The Italian Renaissance saw a widespread resurgence of interest in the classical world. The insatiable craving for Greek and Roman artifacts nurtured a market not only for items of antiquity, but for contemporary creations based on ancient themes. Almost as quickly as this penchant emerged, forgeries of antiquities and coins were produced to satiate the market. As early as 1555, the Italian numismatist Enea Vico included a section on the issue of forgeries in his *Discorsi sopra le Medaglie degli Antichi*. The warnings of Vico read much like the warnings one might hear today about re-engraving or tooling, casts, modern die-struck specimens etc. The list of names which Vico offers as responsible for fakes in his own time (Cavino, Belli, Cellini, Cesati, Leoni, and others) is an impressive list of famous Renaissance sculptors as well.



Signed "Paduan" imitating an AE sestertius of Lucius Verus. By Giovanni Cavino, AD 1500-1570, with Letter C superimposed on inscription in exergue

Padua was one of the earliest and most important centers of Humanism and was also home to the most talented engravers and celators of the time—of whom Giovanni Cavino was the most prolific. The Cabinet des Médailles at Paris preserves 54 of his dies in their collection, and his medals are prized in collections worldwide. Cavino was born about 1500 and died at Padua in 1570. Most commentators have portrayed him as an artist working in the antique style, rather than a forger. The archaeologist and numismatist Johann Heinrich Schulze (1687-1744), who advanced numismatics as an academic discipline, praised Cavino for his "sincere intentions in propagating interest in Greek and Roman art." He did sign some of his dies, albeit rarely. Whether or not he personally engaged in any form of deception, it is certainly a fact that some of his strikes were sold to contemporary collectors as genuine antiquities.

Cavino's work differs from much of the other material termed "Paduan" in that his medals were die-struck creations of his own artistry. His ability to imitate the style of classical antiques was not a particular advantage in his lifetime as Renaissance art acquired a taste and style of its

own. It was only in later generations that his talent was truly appreciated. This is not to say that he was unrecognized in his own time, but he did not achieve the same fame as some of his peers who worked in more contemporary Renaissance styles. Cavino's medals were primarily struck in bronze, but there are a few known in silver. New specimens continued to be struck from his dies even after his death—some apparently by his son Vincenzo. An agent by the name of Thomas Lecompte (a.k.a. Lecointe),



"Paduan" by Giovanni Cavino, AD 1500-1570
imitating AE sestertius of Aelius



Struck "Paduan" after Giovanni Cavino,
ca. AD 1550, imitating sestertius of Faustina II



"Paduan" later cast issue
imitating AE sestertius of Nero

Antiquary to the King of France, purchased 122 Cavino dies from the Lazarra family at Padua in the mid 17th century. He bequeathed them to the Abbey of St. Geneviève on his death in 1670. According to Klawans, 68 of these dies are presently unaccounted for—although the types are known from strikes. In addition to these 122 pieces, a few other types are debatably Cavinos. Many cast copies of the original Cavinos were made during the 19th century when there was a particular attraction to this style.

"Paduans", as the medals of this general type are usually referred to, normally imitate or were inspired by Roman themes and designs. They are generally more medallic in appearance than genuine bronzes, and tend to be particularly round. The flan is usually too thin. Many of them, being cast, take on a "soapy" appearance. The inscriptions are composed of letters that are unusually flat and square compared to ancient Latin inscriptions.

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Post-Renaissance Deception

As collecting, and the world in general, became increasingly scientific in the 17th and 18th centuries, the nature of forgeries changed. The rise of connoisseurship during this period presented to forgers of the day an irresistible challenge. For the first time in the long history of making fakes, a conscious effort was made to produce items specifically for collector consumption. The post-renaissance forgers not only trained themselves to produce works in the antique style, they learned how to produce objects which would appeal to the educated connoisseur because of their unusual or appealing imagery. In other words, the forgers had become art historians.

It was at this time that the contest between forger and collector wits really began. The major forgers not only produced successful deceptions, they became notorious as personalities. A very welcome addition to scholarship on forgers of this period has appeared recently in the form of an article by Jeffrey Spier and Jonathan Kagan: "Sir Charles Frederick and the forgery of ancient coins in eighteenth-century Rome" (*Journal of the History of Collections*, 12:1, 2000, pp. 35-90). Spier and Kagan unravel the copious notes of an English gentleman who not only knew coins but forgers as well. The translated texts reproduced in this enlightening article are of the greatest interest. From them we learn about a ring of forgers in Rome that prospered during the 18th century . Included among those named was the French medallist and Papal die-engraver Ferdinand de Saint-Urbain (1658-1738). A group of 46 dies in Vienna, published by Karl Pink in 1933 as belonging to Claude Augustin de Saint-Urbain, are believed by Spier and Kagan to be those of his father Ferdinand. Another notable forger of the day was Nicolo Cocornier, who was described by his contemporary Sterbini as the most dangerous of all the forgers in Rome.

However skilled, none of the early forgers—excepting maybe Cavino—were destined to become as famous as the German engraver Carl Wilhelm Becker. His skill and ingenuity took the forger's art to new heights. Even today, Becker's work finds its way into publications under the guise of authenticity. Following Becker, there came an ever increasing number of highly skilled masters of deception. The production of fakes by the age-old method of casting became obsolete for all but the tourist trade. By the early 19th century, die-struck forgeries proliferated. Some of these were produced from original engraved dies, others from dies which mechanically copied genuine coins. In 1883, the noted numismatist and art historian J. Friedlaender published a substantial catalogue of die-struck forgeries, and these did not even include the Beckers. Many types that were virtually unknown prior to the advent of the collection cataloguing era, became prime targets for forgers. The lack of good photographs, or any

photographs at all, in these catalogues was a distinct advantage to the forger in that a type might be known by description alone. Comparison of dies or styles was practically impossible except within close circles where collectors shared information or plaster casts of their coins.

Forgers of the last century may not have had access to all of the technological aids that exist today, but they produced some remarkable works nonetheless. Even today, we are just discovering fakes that were made a century ago. Old fakes are not only good, they are old. The natural aging of a 19th century forgery can go a long way toward dispelling any uneasiness one might feel about the style or fabric. These are some of the hardest fakes to detect. The biggest problem today is with old fakes struck from dies made by copying genuine coins. As these coins mature, they become increasingly difficult to detect. We could predict that without any advances in the technology to detect fakes, these forgeries would be impossible to detect in the next generation. The silver lining in this cloud is that there are new techniques being developed that will not only make accurate authentication possible, but also practical. The race between collector and forger is far from over, but the collector has plenty of room for optimism.

Carl Wilhelm Becker, the son of a vintner and wine merchant, was born in 1772. Following briefly in his father's trade, he was more inclined toward classical art and especially toward the images on ancient coins. By his mid twenties, Becker was already engraving dies for the striking of coins. Unfortunately, his considerable talent was set to unscrupulous ends as he produced many rare varieties for sale in the antiquities trade.



Carl Wilhelm Becker (1772-1830)

We are fortunate to know many of the details of Becker's life and work through the study conducted by Sir George F. Hill and first published in 1924. This treatise, titled *Becker the Counterfeiter,* provides an interesting biographical background and, more importantly, a set of plates with photographs of examples from many of Becker's dies. It utilizes many primary sources and is very well documented.

There has been some difference of opinion as to whether Becker should be considered a forger or merely an artist producing reproductions of ancient works. Those defending his reputation rely mainly on the fact that he did not work secretively. In fact, he openly advertised his work and sold dies for various projects on commission. Hill addressed this question with seeming objectivity and concluded that the charges of forgery are nevertheless supportable.



"Thebes" (Hill 62) a Becker fantasy

Becker worked entirely by freehand. That is, he engraved dies without the use of casts or any mechanical transfer methods. He did use alphabet punches for the inscriptions on medieval coins, but engraved the details and inscriptions on Greek and Roman coins. He sometimes struck over genuine ancient coins of low grade or less rare



Becker's Antiochus Hierax, (Hill 108)

variety, and sometimes on fresh planchets which he purchased from others. The striking was done with a hammer, as in ancient times, and some specimens exhibit the characteristics of double striking. To age the new strikes, he placed them in a box of iron filings which was attached to the axle of his carriage and taken for a ride.



Becker forgery (Hill 232 / 209) of a Postumus aureus



Becker forgery (Hill 164) of a Trajan restitution issue

The first condemnations of Becker actually came during his lifetime. The noted numismatist Domenico Sestini published a list of Becker forgeries in 1826. By then, practically every important collection in Europe had acquired a Becker forgery, or perhaps several. Becker's response was that he only produced inexpensive replicas of rare coins that most collectors could not afford to enjoy. How could one (he argued) control the unscrupulous sale of those copies by others as original? He actually sold "complete" sets of specimens from his dies in silver (some 296 pieces) for the sum of 300 ducats. It happens that the set was not complete—additional varieties have since been identified. One might question whether some of these unlisted types weren't still being sold as genuine after the rest were revealed.

During the last four years of his life, Becker took on an assistant by the name of Zindel. This apprentice learned his craft well and produced fakes of his own which were perhaps as dangerous as those of his master.

Surprisingly, Becker did not achieve wealth through his efforts. Although he included such famous personalities as Goethe, and several influential Counts, as personal friends, he was often in financial straits. Near the end of his life, he tried unsuccessfully to sell his dies. He passed away on 11 April 1830. For a time, his widow and her new husband Martin Seidenstricker sold inexpensive lead and tin impressions from the dies. The set included 330 pieces. One of these sets was offered and sold in the Triton III sale at New York (1999) for $2,800 + 15% buyer's fee. Most of the dies eventually went to the Saalburg Museum and from there to the Kaiser Friedrich Museum in Berlin. A few dies remained in the possession of a private collector.

In 1836, a list of the counterfeits was published by Steinbüchel—director of the Imperial Coin Cabinet at Vienna. This was followed up by Pinder in an expanded list with partial plates (1843), and in a *Numismatic Chronicle* article by T.J. Arnold in 1863. Becker was included

in Forrer's *Biographical Dictionary of Medallists* (1904), and was the subject of several rather obscure articles in the early 20th century.

Martin Price, in a contribution to *Fakes? The Art of Deception*, credits Mionnet's 1806 publication of *Description de médailles antiques grecques et romaines avec leur degré de rareté et leur estimation* as the impetus behind Becker's career. Without the development of a stable and mature market, Becker would not have succeeded. Ironically, the Becker forgeries are now a market unto themselves. There have been many reproductions of Becker strikes through the years, some even being sold by the Berlin museum. Peter Rosa reproduced a great many Beckers, some marked on the edge with the name "Becker" and some unmarked. Some of the unmarked specimens could easily be mistaken for Becker originals.



Hill 258, Becker forgery of Maximianus Hercules



A pair of Becker forgeries struck from the same die (Hill 266). AR siliquae of Procopius, the upper 2.55 gm, the lower 3.10 gm.

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Caprara

A contemporary of Becker's, known only as "Caprara", was active from the city of Smyrna in western Turkey and from the Aegean island of Syros in the 1820s. He is also referred to sometimes as the "Smyrna Forger". The work of this obscure personality was first recorded by Sestini in 1826 at the time of his condemnations of Becker. There had been only fleeting references between that date and the eventual publication of *The Caprara Forgeries* by Philip Kinns. The scope of Caprara's work seems to have included about 80 known forgeries and still counting. A *Numismatic Chronicle* note of 1844 mentions him by name as a forger who worked some twenty years earlier, subsequently becoming blind and inactive. Kinns places the terminal date of his die engraving in the early 1830s.



Caprara forgery
AR tetradrachm of the Chalcidic League



Caprara forgery
AR tetradrachm of Maroneia



Caprara forgery
AR stater of Thebes

Like Becker, Caprara was well acquainted with the collector market and produced items which would tend to attract the interest of serious numismatists. Concentrating entirely in the field of Greek coinage, he employed such interesting ploys as unknown reverse types, new monograms, artificial wear or corrosion and multiple dies of the same type. At times, his execution was exceptional—even the venerable Ernest Babelon, in his *Traité des monnaies grecques et romaines*, included nine Caprara forgeries as genuine.

Details that he failed to get right were die-axis, weight and style. He also was prone to impossible obverse and reverse pairings. All of the latter signs were poorly understood at the time, and much of his work passed into major collections as genuine.

A good example of the foregoing is related by Kinns in his catalogue number 76—a Macrinus bronze of Ocea in Syrtica. It happens that Ocea

was considered a mint under Antoninus Pius by collectors in the 17th and 18th centuries. It wasn't until 1849 that the few coins which were read as such were shown to be from a different mint. Sometime before 1825, Caprara had created the Macrinus bronze as a complete fantasy. He used the erroneous Mionnet catalogue description of an Ocea coin of Antoninus Pius which is really from Olbasa in Pisidia for the inspiration. The forgery was mentioned in passing by Sestini, but no example appeared on the market until 1969 when one was purchased in Italy by G. Missere and published as the Ocea of Mionnet. This prompted a string of historical conclusions which seemed to be proven by this new coin. Fortunately, the exposure by Kinns as a Caprara forgery prevented further embarrassing revisions in the history of Roman Africa.

Like most successful forgers, Caprara employed a network of agents to lend credibility to his offerings. These agents were in frequent contact with the wealthiest and most active collectors of the day. Those coins which made their way into important collections have continued to be a problem. In 1999, Silvia Hurter published an article in the *Numismatic Chronicle* exposing a Caprara forged tetradrachm of the Chalcidic League which had been in the Burton Berry collection since the 1930s, and which came from an even older collection. Hurter also suggests that a related coin in the Empedokles collection, now lost, is also a formerly unknown Caprara forgery. We feel confident in stating that there are certainly more Caprara forgeries to be discovered. It may take another generation—maybe longer—but sooner or later they will be exposed. In the meantime, we thankfully have the work of Kinns to keep us out of serious trouble on that front.

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The Cigoi Forgeries

Luigi Cigoi (1811-1875) was from Udine in the northern part of Italy. His workshop produced large quantities of forgeries covering virtually every period from antiquity to the Renaissance. Cigoi's forgeries were not only accurate numismatically, they were finished with great care. Those who describe his forgeries are particularly impressed with the lovely patinas which he created. He was particularly fond of small denominations from Italian mints of the 4th to 6th centuries.



BMC Matasuntha 1



BMC Wittigis 7

Two Cigoi forgeries of Ostrogothic coins which were accepted as genuine by Wroth in 1911 and published in the British Museum Catalogue.

Cigoi was eventually exposed by Carlo Kunz, the director of the Trieste Museum when the counterfeiter sold a group of fakes to the numismatic firm of Adolph Hess in Germany. At the time of his death, Cigoi's collection of fakes was bequeathed to the museum in Udine.

Aside from an article in *Numismatische Zeitschrift* (1895) and Brunetti's monograph, there is little written about Cigoi. The Dumbarton Oaks Catalogue mentions him in three brief notes. One refers to a fake pentanummia of Tiberius II with CAT mintmark (not in Brunetti); one to a Catana pentanummium of Focas; and one to a Ravenna half follis of Heraclius. All are considered dangerous.

Luigi Cigoi was the kind of forger that is particularly dangerous to collectors. He was interested in the smallest details of the most obscure coins and knew not only what there was a demand for, but what made sense numismatically. In spite of this, it is extremely unlikely that any modern collector would ever purchase a Cigoi fake, and if they did it would be somewhat of a treasure in itself.

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The Sazonov Forgeries

The story of M. Sazonov, a Crimean forger of ancient coins in the latter half of the 19th century, is told in his own words through a remarkable document now preserved in the Museum of Antiquities at Kerch. The translation of this "confession" by Konstantin V. Golenko (see bibliography) provides us with a fascinating firsthand account of this forger's methods and activities.

For the production of gold coins, Sazonov engraved his dies into iron, with the obverse into a thick plate and the reverse into a cylinder of the same diameter as the coin. To soften the image, he would rub the die with acid. The dies were then tempered lightly by fire. He drove the cylinder die, with sharpened end, into the stump of a tree and used the flat plate as the upper die which was struck with a 2 1/2 pound hammer. The globular planchet was dipped in sulfuric acid prior to striking. By this account, the coins would have been struck with the obverse up and the reverse down—just the opposite of typical striking in ancient times. He used the same process for silver and bronze coins, except that for a planchet he would use a genuine ancient coin of the required size. Leaving the natural patina intact, the restruck coins would look authentic without any kind of chemical treatment.

At the height of his activity, the forger claimed to have produced some fifty dies of Bosporus coins during a three-month period of 1868 and 1869. He sold them mainly in Odessa. The types were inspired by Spasskii's catalog of coins of the Cimmerian Bosporus, and occasionally by authentic coins seen in the market. They included gold coins of Asander and silver of Polemon and Spartocus as well as a variety of others from the region. Smaller autonomous coins of the Bosporus were copied by Sazonov, and a contemporary named Bukzel, who had access to a hoard found in 1870. Sazonov also produced gold plates and small antiquities modeled after Scythian artifacts. Many of the forgeries were produced for collectors whose coins were disposed of in documented sales.

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Twentieth Century Fakes

The most notable change in the nature of forgeries during the 20th century was the use of advanced technology to make precision copies of genuine coins. The first major advances were in the field of casting. Taken in isolation, a good cast can be very deceiving. The problem with early casts, like those of the 19th century, was that surface air left tell-tale bubble marks and edge seams were easily recognizable. Both of these problems were made less obvious with the development of centrifugal and pressure casting. The improvements in casting applied equally to the production of cast dies, which were even more dangerous because forgers with a little artistic talent could touch up any areas of deficiency on the die before putting it to use. New methods of die production have made it possible to copy genuine coins with extreme accuracy.

The salting of hoards with fakes has for years been a ploy used by sellers in source countries to increase the net worth of their finds. In recent decades, forgers have become so bold as to offer hoards consisting entirely of fakes. The first case of this that we personally encountered was a group of ancient bronzes from India of the Soter Megas type. A dealer friend and I were visiting the gallery of a New York City antiquarian some dozen or so years back . Our friend was busily examining these Kushan coins and, after awhile, had lined them up in about six rows. Being curious, I asked him what was notable about these groups. His answer surprised me. The coins he had lined up were all casts from the same mold. There were six or so different variations, and every coin in the group fit into one variety or the other. Not too long after that, the ancient coin world was rocked by the controversial Black Sea Hoard debate. In this "hoard" which apparently numbered over 1,000 die-struck diobols, there were seven obverse dies of types from Apollonia and seven Mesembria obverse dies. There were slightly more reverse dies and virtually all obverses and reverses of each respective city were die linked. The entire group was eventually proven false. The newest "hoard" of forgeries to hit the market is a group consisting of many thousands of coins from the same Apollonia Pontica.

The decline of Soviet power in Eastern Europe has opened many new sources of supply for the market in general, but it also has brought about the proliferation of forgers in a land where wages are low and it is worth one's time to mass produce very inexpensive items. Sorting out the wheat from the chaff has been the challenge to modern day dealers and collectors. To a large extent, this has been done and the traditional market has been kept free of most fakes of this type. The uncontrolled international market of the Internet has been a different story. Here, it is truly a buyer beware market. The internet is a great source of material, but the rules are the same as everywhere else. Only buy from someone who can stand behind the coins.

AA

The Baghdad Forgeries

The "Baghdad Forgeries" were the product of a Mesopotamian workshop operating between 1890 and 1912-13. The name was given to this group by Philip Kinns, who linked the various issues in an article in ANS *Museum Notes* 30. The choice of name, which may represent a forger, school or simply a common point of origin, was based on known provenances for many of the pieces. Thirty-six dies are listed, including several wreathed tetradrachms of Myrina—hence the ANS article's title. One of these forgeries is a Myrina tetradrachm without wreath which was thought for some time to be a prototype for the series. Other types assigned to the Baghdad group include Seleukid, Armenian, Bithynian, Parthian and Elymain tetradrachms. Oddly, a couple of Anactorium staters seem to be linked to this workshop as well.



Baghdad forgery, AR tetradrachm of Myrina (ANS Forgery collection)

The overall quality and success of these forgeries is made clear by the locations at which Kinns found specimens. These included the black trays at the ANS, the British Museum, Baldwin's, Sotheby's, Spink's, Oxford and the sale catalogues of many important collections. One in particular which had more than its share of fakes was the Allotte de Fuÿe collection sold by Florange & Ciani in 1925. One of the forgeries located by Kinns, which has probably been circulating among private collections, showed up in a sale as late as 1958.



Baghdad forgery, Kamnaskires and Anzaze AR tetradrachm of Elymais (Naville 12, 18 Oct. 1926, lot 2527)

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The Geneva Forgeries

It often is the case, when discussing the work of a forger, that the individual or members of their family might still be alive. This presents a matter of some concern to the critic both from a legal and a practical perspective. For this very reason, as explained by R.A.G. Carson in *The Geneva Forgeries*, the group of fakes exposed here were generically named.

The scope of this forger's work, as far as could be determined by Carson, included only the bronze coins of five late Roman emperors. They are Nigrinian, Julian of Pannonia, Alexander of Carthage, Valens (AD 314) and Martinian. Even a novice collector of Roman coins will quickly realize that the coins of these rulers are exceedingly rare. Nevertheless, Carson was able to examine an aggregate of 103 specimens of the forgeries. The conclusions which led to condemnation were based on that visual comparison. Suspicious indicators included the lack of die variety within a type, virtually no die linking between types, similarity of fabric and patina between unrelated issues, and above all a European coin dealer's donation in 1949 of seventy-six specimens to the British Museum—along with details about the forger.

According to Carson's source, the author of these forgeries operated a small antiquities business in Geneva during the 1920s. He was particularly adept at cleaning and restoring bronzes and was employed upon occasion by the dealer mentioned above. During this time, the forger brought to this dealer a rare coin of Valens which was sent to the British Museum for authentication. The coin was accepted as genuine, which prompted the appearance over time of a number of other great rarities. Each, in isolation, was accepted as authentic. If there were any doubt about the deceptiveness of these pieces it should have been allayed by the number of these coins that made their way into the most prestigious sales of the late 20s and early 30s. Two pieces were discovered in the Glendining sale (1950) of the Hall collection. Oddly, Carson also found one of the Alexander forgeries in the Hirsch sale of the Consul Weber collection which was held in 1909. This unlikely interval in appearance from the early 1900s to the mid 1920s (WWI not withstanding) has caused some speculation that the so-called "Geneva Forger" was actually using dies cut by an earlier master—or acting as an agent for someone else who reactivated old dies.

The illustrations provided here are intended only to provide a general impression of the forger's work, consequently a few minor die variants have been omitted. An unfortunate printing error occurred in the plates of the original *Numismatic Chronicle* article by R.A.G. Carson. The illustration of No. 1 (Plate V) was not the intended Geneva forgery, but actually a genuine specimen of Nigrinian from the British Museum's collection. This was corrected by a note which appeared fifteen years

later in the same journal. The 1977 Attic reprint of Carson's article did not correct the error and should be used with caution. Although the coin illustrated in the article and reprint is of the same type (Eagle standing, facing, head left) it is not from a false die.

As an appendix to his Geneva Forgeries article, Carson wrote a detailed and very useful synopsis of the situation concerning coins of Valerius Valens. This Roman general was appointed Caesar by Licinius in AD 314, during the civil war with Constantine. Although no literary or documentary evidence confirms his elevation to the rank of Augustus, there are several rare coins in existence bearing that title.

Sixteenth and seventeenth century reports of a coin in this ruler's name were probably misreadings, and the specimens quoted have since been lost. A specimen in Paris, purchased in 1862, has been questioned but not convincingly proven false. This may be the coin mentioned by Cohen in his 1862 edition. In 1889, the Berlin Museum purchased a coin of Valens from the noted dealer Rollin in Paris. These two coins (Paris and London) were the only ones of the examples known by Carson that he believed might be genuine. Three other forgeries were produced in Italy at the end of the 19th century, and an unspecified number (apparently several) were produced by the Geneva forger.

Since the publication of Carson's article, several more genuine specimens have come to light. One, which was sold at auction by Numismatic Fine Arts in 1990, reportedly came from an uncleaned hoard of some 12,000 Constantinian era bronzes. Another specimen was sold at the Triton III auction in New York in 1999. It brought $40,000 (excluding the 15% buyer's fee) against a $17,500 pre-auction estimate. The most recent discoveries are apparently uncontested.

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Nigrinian



Julian of Pannonia



Julian of Pannonia



Alexander of Carthage

Geneva Forgeries



Martinian

Valens

The Christodoulou Forgeries



Christodoulou Dekadrachm of Athens

Born in a small village near Varosia, on the island of Cyprus, Constantinos Christodoulou was a collector, a dealer and a very competent forger of ancient coins. He began manufacturing ancients about 1900 and continued until about the time of the Second World War. His archrival, John N. Svoronos (Director of the Numismatic Museum of Athens in the early 20th century) characterized Christodoulou as "a completely illiterate man who was neither capable of engraving original dies for a coin, nor of distinguishing a false ancient coin from an authentic one." These disparaging remarks were probably laced with a bit of personal animosity—having been duped himself by the forger. Christodoulou died sometime after 1955 and his dies were reportedly sold by the family to an Athenian dealer, who some claim continued to strike copies and sell them.

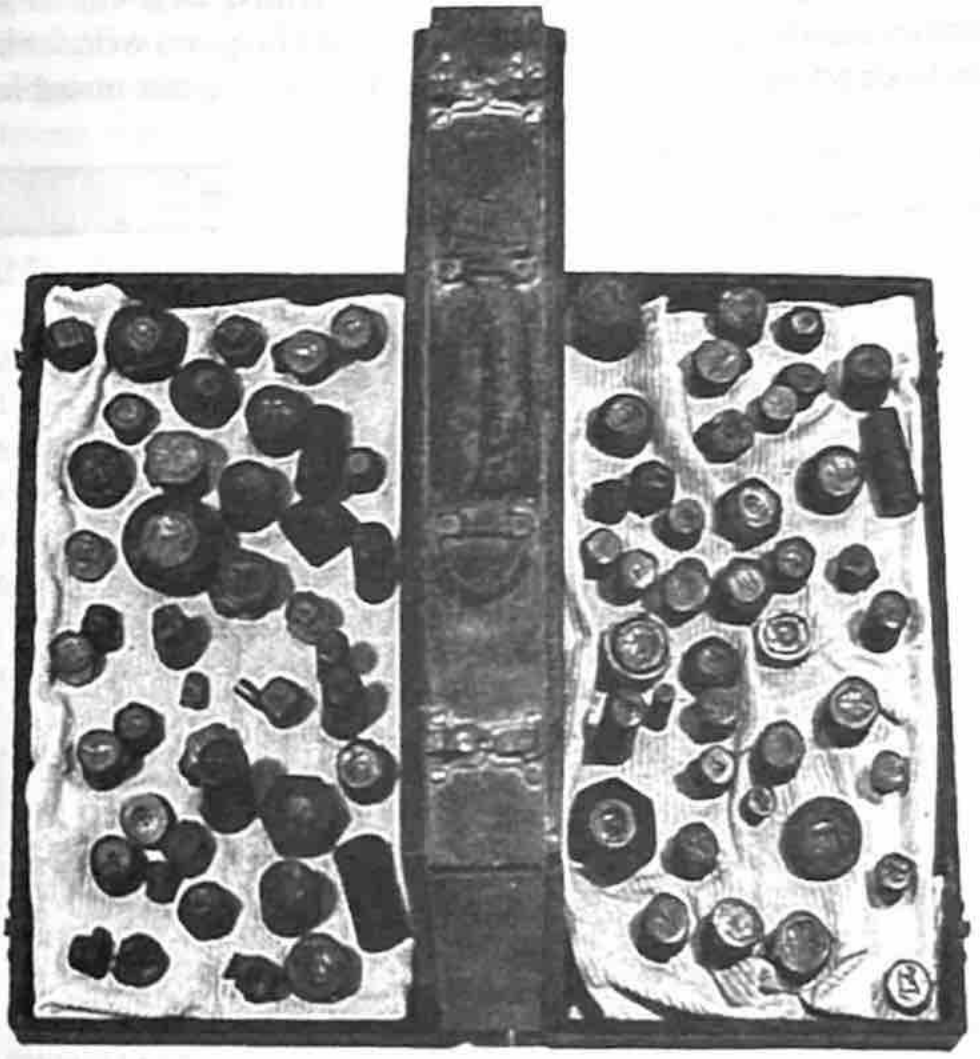
Svoronos was well informed about the work of Christodoulou and his unnamed accomplice in the antiquities trade at Athens. It was through his personal effort that in 1914 the Greek government seized about 1,000 dies—obverses and reverses of 500+ coins—from the forger's workshops at Athens, Pireaus and Corfu. Those dies were later defaced and returned to the family in 1939. Recent articles (see bibliography: Dodson, Tazedakis, Kovacs, Moulakis) have demonstrated that the total number of Christodoulou dies is significantly higher, and that his production did not stop after the 1914 confiscation. The Moulakis article relates a fascinating



Christodoulou die of a Paros tetradrachm

story about the discovery of 78 Christodoulou era dies in an Athenian goldsmith's shop in 1991. The dies, made of bronze and steel, could be traced through a succession of owners to the partner and heir (a nephew) of Christodoulou. Another twenty suspected Christodoulou fakes were published by Dr. Moulakis in a subsequent article. Illustrations of these dies or strikings from them are published in the Kovacs and Moulakis articles.

According to Svoronos, Christodoulou manufactured dies mechanically by copying genuine ancient coins and even some forgeries from other sources (also see Kinns, *The Caprara Forgeries,* note 60). The dies were usually finished by enhancing detail, polishing, or making slight alterations. Coins struck from these dies were also carefully finished, even to the extent of double-striking or adding countermarks, banker's marks or graffiti. He apparently did not limit his production to rare types. Svoronos stated that some of the forger's common types were mixed in with genuine ancient coins for sale as groups. He also engraved some dies for coins and medals freehand.



Box of dies found in an Athens goldsmith's shop in 1991, attributed by Moulakis to Christodoulou; some are believed by Demetriadi to be dies of Orphanides.

Christodoulou forgeries were (and are) very dangerous because they were die struck and many were stylistically accurate. One of his most notorious pieces was the Athenian decadrachm purchased as genuine in 1920 by the British Museum and exposed with the publication of his dies in 1922 (example illustrated on second preceding page). Ravel suggests that the work of Christodoulou was followed by two forgers referred to only as "X" and "Y". One of these, according to Dodson was a nephew by the name of Garyphallakis. The other might well be the mysterious forger named Orphanides. While it is clear that Christodoulou was active for a very long period, one must wonder if some of the newly discovered dies which are attributed to him were not actually produced by these successors.

The author lived in Athens during the years 1973-1975 and enjoyed wandering through the Monasteraki flea market and the many shops which surround it. One particular shop very near the square specialized in antiques and antiquities. The front window always displayed a number of Greek silver coins, almost all of which were rather freshly struck modern forgeries. In retrospect, we can't help but wonder if these weren't struck from Christodoulou dies. It surely seems possible.

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The Italian and Sicilian Forgeries

Tardani, said to be one of the most successful individuals ever to forge a die, worked in Italy or Sicily at about the same time that Christodoulou was producing forgeries of ancient Greek coins in Athens. He is rarely mentioned by name, although Elvira Clain-Stefanelli annotated the bibliographic entry for G. Cornaggia's *RIN* article as being "On Tardani." The numismatic world was first warned about this workshop by Francesco Gnecchi in 1896. His article in *Rivista italiana di numismatica* exposed the production of Roman gold aurei at that time. In 1902, 1905, 1913 and 1916 Ercole Gnecchi followed up this notice with articles and lists of forgeries in the same publication. The 1902 issue of *RIN* also contained a reprint of a ten-page pamphlet on the subject written by O. Vitalini at Camerino. Additional types were identified by Cornaggia in 1924. In the ANS *Centennial Publication* (1958), Philip Grierson provided substantial information about the forger—highlighting a group of Carolingian fakes—but declined to name the individual. One aspect which makes his work exceptional is its breadth. The range of material produced is encyclopedic. In one project, this industrious craftsman is said to have produced an entire hoard of early Papal coins which was purchased intact by the Vatican. They were known as the "Hoard of Bolsena". An effort of this magnitude was inconceivable in those days.

It was reported that Tardani died in 1919. According to Grierson, the Muzeo Nationale at Rome acquired over one thousand of his dies at that time—which they still apparently have in their possession. This, it turns out, was not the entirety of his production. Grierson also mentions some dies in the possession of the Società Numismatica Italiana and also some in private hands. The Smithsonian Museum has also accessioned a large number of this forger's dies. There have been sporadic attempts to publish images of the known forgeries. Unfortunately, none of these efforts have been very fruitful. We know from Professor Grierson's account that there were approximately 230 dies for Greek coins, 520 for Roman and 300 for Medieval or Modern coins in the museum at Rome. He states that about 100 of these were engraved by hand and the remainder were made by an electrotype process.



Katana tetradrachm by Ravel's "L"

A panic arose in the ancient coin market during the 1930s, as extremely deceptive forgeries began to surface again in Italy. Oscar Ravel assigned

this work to a forger identified only as "L...". The methodology was similar to that used by the followers of Christodoulou ("X" and "Y"). That is, dies were made by copying from actual coins and were then reworked prior to striking. According to Ravel, the Sicilian workshop of "L" was obliterated by aerial bombing during World War II.

Another forger of Greek coins from Italy was an individual known as Festa, who produced some excellent distaters of Thurium. He was reportedly a specialist at adding new coins to hoards.



Himera, Sicily — AE hemilitrae modern forgeries, one with brown patina, one with green

Like a bad penny, good Sicilian fakes began to reappear on the market again in the 1990s (if indeed there was ever a lull). This time, the typically good style of previous Italian forgeries was augmented by the development of exceptional patinas. Consequently, bronze coins which had earlier been a sort of sanctuary for concerned collectors were no longer sacrosanct. Since many of these forgeries are mixed in with genuine hoard coins, they often go unnoticed. Of course superb forgeries of the really valuable pieces are still handled individually, as they always have been.

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Orphanides

A talented Greek forger, known to some dealers and collectors as Orphanides, operated from the 1930s to 1960s. He has been referred to by Philip Kinns as "a major problem" and by Basil Demetriadi as "the most dangerous of the old boys." Because of his great skill, and the lack of any documentary evidence, virtually nothing has been written about this individual. Some of his better work is obviously still circulating in the trade. Orphanides was a talented engraver, not simply a reproduction artist. Some of the dies which might be attributed to his hand are made of steel. The finished pieces are usually worn or encrusted to enhance their believability—a trick he may have learned from Christodoulou. Alan Walker relates a case where the forger used an illustration of a fragmentary coin in a hoard published in 1927 to produce a unique new specimen. Mr. Demetriadi has always been interested in the work of Orphanides and has collected what he thinks are his fakes. We are indebted to him for most of the information which follows.

The German ancient coin dealer Hellmuth Kricheldorf related an experience in *Berichte* 43 (Feb. 1968) which may be our only personal account of the activities of Orphanides. The story tells about an elderly Greek gentleman, partially blind, who came to Kricheldorf with a female interpreter who translated into French. They offered a variety of lower grade silver coins, presumably genuine, and ended up selling Kricheldorf some Macedonian gold staters of the period from Philip II to Philip III. These turned out to be excellent fakes. Kricheldorf set them aside, biding his time, with the expectation that the forger would some day return for another dip from the well. A year and a half later, the old man reappeared with more offerings. This led to a rather bizarre tale of attempted and botched arrest by local authorities. The outcome was that the forger escaped back to Greece. Apparently, this all happened quite a long time before the article was written. The fact that Orphanides was vision impaired at the end of his life was confirmed by several of the old-timers in Athens who knew him.



Above: Silver drachm of Larissa by Orphanides
Below: Genuine Larissa drachm

Mr. Demetriadi had some contact, as far back as the 1970s, with a nephew of Orphanides named Aristides Ioakimides. From this vest-pocket dealer, Demetriadi obtained a rare Larissa eagle reverse drachm, which was claimed to be the last coin left from his uncle's "collection". The coin was offered

The Utmanzai Forgeries

During World War II, a dealer by the name of Sri Chand sold a number of Indo-Greek silver coins to prominent British collectors at Rawal Pindi. These coins were purported to be from a hoard found near the village of Utmanzai in the Northwest Frontier of India. Major-General H.L. Haughton also bought a substantial number of similar coins from local villagers at Utmanzai. The coins became dispersed into a number of important private and public collections including that of the British Museum. The American Numismatic Society unwittingly purchased five similar coins from Sri Chand in 1947—four of which turned out to be forgeries.

Suspicion arose as to the authenticity of these pieces in the 1950s and a long controversy ensued. H. De S. Shortt, with an aim to proving them authentic, conducted a comprehensive study which included nineteen of his own and virtually all other retrievable specimens. The study, which was published in the *Numismatic Chronicle* of 1963, included X-ray fluorescent analysis of the group—a budding technology at the time. Ironically, the metallurgical composition could neither prove nor disprove the authenticity of the coins. Considering the case against these coins, Shortt was able to counter every argument but one. The Utmanzai coins were uniformly two percent smaller than other known specimens of the same die. This proved to be the Achilles' heel of the counterfeiter. The conclusion reached jointly by Shortt and G.K. Jenkins of the British Museum was that the Utmanzai coins were modern strikes from dies cast from authentic coins. In some cases, the dies had been reworked before striking so that various details were enhanced or changed.

The Utmanzai dies were apparently made between 1940 and 1947. At that time, the technology available to forgers in India was rather limited. The belief that local forgers could not have produced work of this caliber must have weighed heavily in the argument for their authenticity. Of course, by that time, this method of creating forgeries had already been refined in Greece and Italy. It was therefore believed by some that the dies were produced outside of India and that the forgeries were merely sold there to enhance their acceptability.

The quality of the Utmanzai issues brought attention to the entire series of Indo-Greek coins, which had been thought to be relatively immune to really dangerous forgeries. The idea that forgers worked in secluded little hermitages, oblivious to the world about them, was shattered by the exposure of these excellent fakes. It was this episode which caused the numismatic world to realize that forgery and its detection was not just a gentleman's sport—it was an international business of some significance.

Utmanzai Forgeries

The following coins were sold to the American Numismatic Society in 1947 by the Rawal Pindi dealer named Sri Chand. (Photos courtesy of ANS)



Hermaeus and Calliope
AR tetradrachm



Zoilus
AR tetradrachm



Antialkidas
AR tetradrachm



Artemidorus
AR tetradrachm

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with the caveat that the seller was "not sure about it." Further investigation, and comparison with an example at the British Museum, proved that it was a fake. Ioakimides also showed Demetriadi a set of well-worn M&M and Hess-Leu catalogues inherited from his uncle. These presumably served the forger well in developing a realistic style. In the 1980s, Aristides died at his home during a robbery in which intruders dug up his floor looking for treasure (or dies?). They were never caught by the police, so it is unknown whether anything was found.

Demetriadi believes that several of the dies recently published by Moulakis as newly found works of Christodoulou actually belong to Orphanides. If this is so, and the suggestion is certainly plausible, one has to wonder whether a young Orphanides might not have been a student of Christodoulou—perhaps even the "X" or "Y" referred to by Ravel. The very nature, and excellence, of his work makes it difficult to catalogue the forgeries of Orphanides. A forthcoming publication of the IAPN will present a special catalogue of fakes which includes a number of items tentatively identified as originating from this source.

One set of "Christodoulou" dies that Demetriadi ascribes to Orphanides is from a stater of Olympia. This same die is known from a specimen (No. 81) published in the ANS monograph *A Hoard of Silver Coins from Carystus*, by David M. Robinson. It is one of two hoard coins from Olympia, neither of which is published in Seltman's *Temple Coins of Olympia*. This creates a sort of conundrum. The hoard published by Robinson was supposedly purchased uncleaned and intact in the early 1950s. According to Robinson, all 92 pieces in the hoard were covered with what he called a "thick purplish encrustation". If this was indeed the case, then this intrusion was treated so that it exactly matched the existing encrustation of the hoard pieces.



Orphanides: Stymphalos, Arkadia
AR hemidrachm
Ex: Niggeler I, 327
Ex: Leu 42, 254



Stater of Olympia
an Orphanides forgery
(Demetriadi Collection)

This may be possible, but seems unlikely. What are some other possibilities? It is possible that all of the coins in the hoard were fake—also a very unlikely scenario. Or, it is possible that all of them, including the genuine coins, were artificially encrusted to give a uniform appearance. This seems the most likely case. It is remotely possible that the die published by Moulakis was not an original freehand engraving, but rather a mechanical reproduction of a genuine coin struck from the same die as that specimen in the Carystus Hoard—that would be a remarkable, if not incredible, coincidence. And, finally, there is always the possibility that Robinson erred—that this specimen was not covered with exactly the same encrustation and should have raised suspicion early on. Finally, we have to ask how this intrusion got into the hoard, and if one intrusion is known how many others might there have been? Are there other works by Orphanides in this hoard? Of course we do not know all of the particulars conerning the handling of the hoard, so it is impossible to say when or to what degree any intrusions might have appeared. In any case, there is an interesting mystery here that some numismatic sleuth will surely figure out one day.

The identification of forgers by name, when possible, helps future numismatists to congregate their attention and observations. It is usually the case that a single collector or scholar takes up the banner to enlighten others about a forger's work and when appropriate to publish all that is known. As we study the history of forgery, it is remarkable how little information would exist about the personalities themselves were it not in each case for the dedicated work of one person. Hill became the central authority on Becker, Kinns on Caprara, Svoronos on Christodoulou, Carson on the Geneva forger and and perhaps one day someone will produce a study on Orphanides

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The Beirut Forgeries



Solidus of Constantius II
Beirut School forgery

The term "Beirut Forgeries" normally brings to mind the Romaion (Byzantine) gold forgeries published by Michael Dennis O'Hara as a supplement to David Sear's *Byzantine Coins and Their Values*. In addition to the extensive issue of those fakes, a workshop in Beirut is credited with producing many varieties of Roman gold coins, several die-struck forgeries of Seleucid tetradrachms, wreathed tetradrachms from Macedon, Kyme and Myrina, and modern U.S. gold coins. Also said to have been made in Beirut is a group of fake Ptolemaic gold octodrachms with the legends ΑΔΕΛΦΩΝ ΘΕΩΝ and the portraits of Ptolemaios II with Arsinoe II and Ptolemaios I with Berenike I. One of the keys to identification of these Ptolemaic forgeries is improper die axis. The forgeries were struck with loose dies whereas the genuine coins were all struck with fixed 12 o'clock orientation. Also, the flans are too large and are concave on both sides (Mildenberg).

The early issues from Beirut, dating to the 1950s, were manufactured by the pressure casting method, but later issues were die struck. These fakes are fairly well known to specialists in their respective fields, but the Beirut forgeries are certainly good enough to be a problem for the non-specialist. The O'Hara article indicates the existence of additional types which are still being analyzed, and suggests that production of these fakes is ongoing. Another unlisted Beirut School forgery of a Romaion gold coin (purchased in Jerusalem in 1979) was recently announced by Marvin Tameanko.

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The Bulgarian School

In a recent interview, the Bulgarian die-engraver Slavey Petrov admitted that some of his former students may be responsible for the rash of modern forgeries coming out of Bulgaria in the last decade. The whole region has, it seems, taken a fancy to die-engraving. Although Slavey steadfastly denies any role on his own part, there are many other "Masters" who produce fakes meant to deceive. Some of these are quite believable and the bronzes are beautifully patinated. These forgers are often poor, at least by western standards, and will happily sell their work for a few dollars per copy. It is not surprising that increasing numbers of the Bulgarian fakes are finding their way into the ancient coin market. A few forgers have tried marketing directly via the Internet, but general suspicion has kept most potential buyers at bay. The majority of Bulgarian fakes that do make it into the hands of collectors are those that filter into the market along with genuine hoard coins and are overlooked because of the inconspicuous nature.



Bulgarian School forgery of an Istrus drachm

Due to the relatively high number of tourists visiting Turkey, the work of Bulgarian forgers often makes its way to Istanbul where there is a stronger market than in Bulgaria. In a rather bizarre twist, some small groups of these fakes, which are obvious by their style, have appeared on the market with the claim that they were found in Turkey (perhaps the Turkish government will demand their repatriation :-).

In the past, most of the Bulgarian fakes, which were struck from dies engraved freehand, could be characterized by a style that is recognizable. For this reason, they have often been attributed to Slavey. It is impossible to say what he has or has not produced himself, but it is obvious that Slavey's particular view of ancient art has permeated the entire genre of Bulgarian fakes through some of his apprentices in the Bulgarian School. The quality of engraving has improved over the past decade, and some current issues are quite realistic. Several have been good enough to warrant publishing by the IBSCC in the *Bulletin on Counterfeits.*



Bulgarian School forgery of an Athens tetradrachm (rev. legend is AOE *rather than* AΘE)



The Black Sea Hoard diobols
Above: Apollonia; Below: Mesembria

The most recent innovation in the repertoire of forgers is the production of entire hoards of related coins. Perhaps the most notorious of these is the infamous Black Sea Hoard. The so-called hoard apparently consisted of many thousands of diobols with types from the two neighboring Thracian cities of Apollonia and Mesembria.

The first specimens seem to have appeared on the market about 1988. Analysis of a large group revealed seven obverse dies of the Apollonia type and eight of the Mesembria type. Reverse dies numbered about the same. Shortly thereafter, it was recognized by several dealers that the diobols did not conform to the style and fabric of previously known specimens. They were submitted to Dr. Martin Price at the British Museum, who was of the opinion that they were forgeries. CNG consequently recalled all of the specimens that they had sold. Kerry K. Wetterstrom, at that time a CNG employee, published photos of the various obverses and the rationale for condemnation in an article in *The Celator*. Heritage Rare Coin Galleries had also advertised and sold the diobols, but they remained of the opinion that the coins were authentic.

Dr. Stanley Flegler, a scientist at Michigan State University, had been doing analyses of ancient coins with the aid of a 'scanning electron microscope' and publishing his results at about this time. To resolve the issue, Heritage hired Dr. Flegler to analyze the hoard diobols. His findings indicated that the coins were ancient.

There followed an emotional and sometimes bitter debate that found the community of professional numismatists almost equally divided. In Bulletin 15/1 (1990) the IBSCC summarized the debate and advanced a middle-ground theory that the diobols were the work of an ancient counterfeiter's workshop. In a follow-up, the IBSCC later wrote: "At this point the matter rested. Except for Mr. Wayne Sayles, editor of the American publication on ancient coins, *The Celator*, who embarked on a personal crusade to prove these coins' falsity." A blitz of articles in virtually all of the numismatic media, and even in the *Chicago Tribune*, generally supported the scientific analysis. In fact, a *Coin World* editorial of Oct. 9, 1991 chastised those who disagreed with Flegler. Heritage ran a full page ad in that same issue, which included quotes like "Own a Part

of the Numismatic Controversy of the Decade." The ad referred to arguments against Flegler's analysis as "Proof That Arrogance Breeds Ignorance." The asking price for a set of two EF specimens was $450.00. The claims, charges and even insults that followed were a black cloud over the entire hobby.

The hoard coins themselves are tiny, rather crude issues. They typically measure about 10mm in diameter and weigh a bit over 1 gram. The metal is debased silver (about 30%) with surface enrichment to a level of about 65% silver. In their uncleaned state, they are a dull gray in appearance, but cleaned specimens can look very silvery. The metallurgical analysis detected small amounts of lead, which did not contain any of the isotope 210. Dr. Flegler's interpretation was that "the absence of lead 210 indicates the artifact is more than 100 years old." Of course this does not necessarily mean the "artifact" is that old, it simply means the lead that was analyzed is at least that old. Whether that lead came from a freshly mined source or from some older source is anyone's guess. It is a relatively simple matter to obtain old metal. Flegler also exposed four of the hoard diobols to analysis by 'neutron activation'. The results showed that the hoard coins contained a similar percentage of trace gold (.44% vs. .36%) to non-hoard diobols of Mesembria and Apollonia. This was interpreted by Flegler as a 99.5% statistical probability of the metal coming from the same source. It was inconceivable to Flegler that any counterfeiter could come this close purely by accident. That may well be the case, but one should not forget that some forgers and copyists, particularly in Bulgaria, have degrees in metallurgy. The style in which these coins were engraved was at that time still new to the world of ancient numismatics. Today, we can easily recognize it as that of the "Bulgarian School" but that was less evident to some in 1988. Nevertheless, it was their completely deviant style that kept the argument against their authenticity alive. The treatment of the helmet on the coins of Mesembria is entirely wrong. Rather than being an inanimate element of armor, with cutouts for sight



Bulgarian School diobols (x2) of Apollonia (left) and Istrus (note the similarities of style in eyes, nose and mouth)



A face only a mother could love — Black Sea Hoard, Apollonia diobol

and breathing, the helmet here is depicted with eyebrows, lids, pupils and nose, as if representing the face of a living person.



The artist turned this helmet on a Mesembria diobol into a human face

The details of the whole argument are much too complex to relate here in their entirety, but the essence of it is that the scientific analysis found conditions which had been believed to be reliable indicators of age and authenticity. The completely unscientific evaluation by dealers, with little but street smarts to offer as credentials, smelled a rat. The final proof came from IAPN anti-forgery committee member Frank L. Kovacs. During a visit to Bulgaria, Kovacs purchased a pair of the diobols for the equivalent of a few dollars at the Bulgarian National Historical Museum in Sofia—accompanied by a receipt clearly identifying them as modern reproductions. In a bizarre twist, the museum reportedly called the receipt a fake! But later, the actual dies used to strike these copies surfaced. The final word from the IBSCC was that "The stylistically anomalous group of Black Sea diobols are, thus, modern forgeries."

The analysis of Dr. Flegler had been entirely accurate, the interpretation of his findings entirely wrong. The failing of this scientific analysis was that alternate explanations for the measurable conditions were not fully considered. That does not mean that the techniques of analysis are not useful, only that they need to be considered along with all other evidence, both scientific and non-scientific. The IBSCC closed its books on the Black Sea Hoard with an important observation. "In all fairness to Dr. Flegler, it seems that scientists have not realized what astonishing techniques forgers have to counterfeit the aging process. Researchers have recently duplicated what had previously been thought to be thousands of years of surface aging on marble in a matter of months, and there is no good reason why this can not be done with metals. What this embroglio teaches us is that we should continue to rely on our eyes rather than always turning to scientific props."



The Celator, *August 1993 — the nail in the coffin*

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Costodoulos



Gold staters of Philip of Macedon (above) and Alexander of Epirus struck by the Athens Master, a.k.a. Costadoulos

The series of modern fakes referred to initially by the IBSCC as products of "The British Museum Forger" are attributed to an individual for whom that organization chose the pseudonym "Costadoulos". This pun on the name of the notorious 20th century Greek forger Christodoulou stems from the Greek origin of these deceptive new pieces. Many in the trade refer to this individual simply as the "Athens Master". The connection to the British Museum is that the prototypes for virtually all of the known dies in this group came from the British Museum collection. Realizing that the moniker could be perceived by some as disparaging to the museum, the forger and an alleged London associate (with the pseudonym Gulyas) were referred to in subsequent IBSCC bulletins as "The Galvano Boys".

The forger reportedly cast dies from electrotypes of genuine coins in the museum, enhanced detail on the dies, and struck new issues. Some of these were then introduced to artificial corrosion and crystallization. The work is characterized by rounder higher reliefs than the prototypes. Identifiable detractions on the original were often masked with repairs or additions of detail on the new die. On gold coins, the fields are unusually flat and mirrorlike. Wear patterns are unusual—for example, sharp detail may be present on the high points with wear on lower points. Some 30 types were identified in the initial IBSCC bulletin, with additional pieces being published in subsequent issues. Another technique of this forger is to cast a die from a worn but rare genuine coin, rework the die, and restrike the worn coin. This results in a coin of higher grade and higher value.

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Alexander Forgeries

The genuine coins of Alexander the Great are so widely collected, and so readily available, that it is no wonder there have been many forgeries in the series. Christodoulou alone produced at least seven different dies in gold and 13 in silver. We show the work of only a few forgers here to illustrate the point, but collectors of this series will be well advised to obtain and study the section about forgeries in Martin Price's definitive study. This publication has brought together a wealth of information and visual references that the collector would otherwise have to search far and wide to obtain.



Becker forgery of Alexander AV 1/2 stater

One of the problems with detecting fakes of Alexandrine coinage is that so many diverse styles exist within the legitimate series. When Alexander conquered distant lands, he brought standard Greek iconography to the local coinage. However, he continued to use existing mints and employ local artisans. The consequence is that many local styles found their way into the broadly similar types of Alexander's gold and silver coinage. Some of these styles inevitably are similar to styles seen on known forgeries, and the appearance of a new style is not usually alarming considering the breadth of the series. In addition to that, there were many contemporary imitations of Alexander's coin types—some of which are close in style to the prototypes. Except in the case of blatant fakes, only a specialist in the coins of Alexander is likely to notice a problem stylistically.



Christodoulou forgery of Alexander AR drachm



Bulgarian School forgery of Alexander AR tetradrachm

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Altered Coins

The production of coins does not always end at the mint. Alterations to genuine coins include a wide range of practices—some intended to deceive. These range from the filling of cracks and corrosion pits with wax or epoxy to the recutting of details or altering of inscriptions. One of the most creative of these practices is the recutting of a genuine antoninianus of Aurelian into the exceedingly rare antoninianus of Julian of Pannonia. The E of AVRELIANVS is erased, and an IV added to form the new combination AVR IVLIANUS. Of course this only fools the naive or a novice, but it has bitten a good many of each over the centuries. Other legend alterations include reengraving a Gordian III into a Gordian I or II and turning a Volusian into an Aemilian. The enhancement of detail by reengraving lost hairlines, facial details or strengthening weakly struck legends is also a form of forgery perpetrated on a genuine coin.

The cleaning and repatination of coins, without altering surface conditions or detail are not considered in the same light as the above alterations and occur fairly often. In fact, it is rare to find an ancient coin on the market that has not been cleaned at some point. This is a topic which always generates a good deal of controversy, but that is an issue for another place and time.

The collector's cachet is yet another form of post-minting alteration. It was once popular, though unimaginable in our minds today, for collectors to place their mark of ownership on an ancient coin. The most notable of these was the Gonzaga gold or silver inlaid eagle of the 17th century (wrongly ascribed to the Este family). These "pedigreed" coins show up now and then in the market, and always bring a premium. During the nineteenth century, some collectors stamped their initials into coins in their collections—much like the graffiti names and initials scratched on circulating coins in antiquity.

Alterations to ancient coins are not always motivated by profit. In some cases, particularly in the early days of collecting when competition among "connoisseurs" was at a peak, alterations have been made solely for the purpose of making that specimen a more important part of one's collection. This is in every way as harmful as the profit motivated forgery, because the information tends to be published as fact and can become the basis for erroneous historical interpretations and assumptions. The simple alteration of the date on a coin, for example, can provide the impetus for chronological rearrangement and completely new theories about the rise and fall of obscure dynasties. Of course the owner and/or publisher of such an important discovery derives a certain amount of attention as a result.

Replicas and Reproductions

One numismatist recently wrote "The only defense a coin has against counterfeiters is to be of such little value that it is not worth anybody's time to make." He was, of course, referring to counterfeits of modern coins. No ancient coin is so worthless that it is immune to counterfeiting or reproduction. Even small bronze coins of the Constantinian era, worth perhaps $2 or $3 on the retail coin market have been copied by modern day forgers. How can this be? One of the largest markets for which these fakes are reproduced is the tourist market—where individual pieces might fetch $10 or more if the seller is particularly cunning (or the buyer particularly naive). The actual cost of production is a tiny fraction of that amount. Furthermore, the seller of these kinds of coins in places like Turkey, Lebanon, or Egypt, might earn an average annual income of less than $1000 from traditional sources. This can make the sale of a $10 reproduction quite lucrative. We refer to these pieces as reproductions rather than forgeries, because they are not made intentionally for the collector market. They may make their way into the market at some point, but they are usually pulled out of circulation quickly because of their obvious lack of authenticity.

The copying of ancient coins to use in jewelry or the decorative arts is a practice which goes back to nearly the beginning of coinage itself. A great many artifacts from antiquity bear either coins or their reproduced images. The practice continues today, and is still very popular.

Reproductions made for the collector can sometimes pose a problem. Some are good enough that nonspecialist dealers may unknowingly offer them for sale as authentic. The history of reproductions goes back to the Renaissance, but this section will deal with those produced in modern times. The British Museum electrotypes have earned a certain fame of their own, and are sold today as collectibles. In fact, they usually bring quite respectable prices.

One of the most prolific manufacturers of ancient reproductions in the 20th century was Peter Rosa. Because of the scope of his work, and the fact that little has been written about him, we have allowed much more space than for others. Rosa's work ranged from poor to excellent. Some pieces are very easy to detect as reproductions, but others have raised the eyebrows of some seasoned dealers. The photographs in the catalogue included here should not be taken too seriously as a reflection of the quality of strike. Many of these photos are of trial pieces in off metals. A pure silver strike from the same die is infinitely more convincing in most cases. Unfortunately, we do not know which dies might have been used to strike coins in silver. We do know that he often did this upon request for customers.



The most easily recognizable of fakes or replicas are those base metal cast pieces produced for sale to the throng of tourists who invade the Middle East each year. Practically every traveller to this region has at one time or another been approached by an innocent looking peasant, or perhaps a young child, with a handful of dirty coins for sale. The story is always the same, that these were found in the nearby village, and of course the seller is always ignorant of their attribution or value. Usually, these offerings include a potpourri of low grade but genuine late Roman, Islamic and Medieval bronzes and an equal number of wretched fakes. Of course the fakes are the only ones which have recognizable images, so they are the ones that most tourists snap up. Everything about these coins will ring a warning bell to the numismatist, and for that reason we include them here as reproductions rather than forgeries. They are often produced in the wrong metal—bronze tetradrachms or white metal sestertii for example.



Tourist special
cast copy in brass of a tetradrachm from Athens

They are crudely cast, with very little or no effort to conceal the seams or file marks. The artificial patinas look like something a pigeon might leave behind. In fact, it is a common practice in some Eastern Mediterranean countries to bury these tourist coins in animal manure to "age" them. They are usually very light—unless made of lead. Sometimes the images are reproduced from authentic coins, and sometimes they are engraved freehand into the mold. In the latter case, the stylistic aberrations are usually obvious to the most casual observer. Rarely does a tourist quality fake fool anyone but the completely uninitiated. Nevertheless, they do show up in junk boxes at shows and in large bulk lots at auction.



Crudely executed cast replica of a silver stater from Elis in the Peloponnesus

Occasionally, tourist fakes are made in silver. The coin illustrated here (top right) is modelled after a type issued at Elis in Olympia. The image was very crudely engraved into a mold and the piece was cast. The edge seams have been filed, the surface is porous and soapy looking and the patina is artificial (paint). The planchet is very thin and the coin weighs only 4.3 grams—much too light for a stater. It does have a pretty ring when dropped on a hard surface, but that only means that the metal is relatively good. This fake was obviously not made to fool a collector, but rather to add a personal touch to some tourist's visit to an ancient site.

A stater from Tarsus (right) should be struck in silver, but this tourist special is about a fifth generation cast in bronze. Even without a magnifier, it is obvious that this coin was not struck. The image is exceedingly soft and the edge has been very heavily worked to remove casting seams. It is quite common for coins which normally would be found in silver to be cast for distribution in the tourist market. Perhaps the most common of these are coins of Alexander the Great and the Athena/Owl tetradrachms of Athens. Another popular prototype, because of its size, is the large bronze follis of Justinian the Great.





Commercial Premiums, Store Cards and Art Medals

The use of classical coins as commercial premiums and incentives goes back at least to the 19th century in the United States and probably even earlier in Europe and Britain. These reproductions are generally of very low quality and are seldom mistaken for genuine. Many have some sort of advertising slogan on them. These are less popular today, partly because classical culture has been on the decline. However, we still see the occasional promotion. Physicians, for example, were given a "set" of ancient coins as a pharmaceutical company promotion in the early 1960s. Replica coins have long been used by schools and universities for teaching purposes, and that market is still active.

Several numismatic firms have used reproductions of ancient coins as store cards. A $1.00 trade token produced in the early 1990s by the Continental Coin company in Johnston, Rhode Island, was modelled after a sestertius of the emperor Claudius. The token was made by casting in a mold produced from a genuine coin. The reverse was smoothed to accept and highlight the incuse inscription of the promoter.



Trade token issued by Continental Coin Company



Issued by the Medal Arts Company of Rochester, NY in 1963, this reproduction of a decadrachm of Syracuse was packaged along with a 75mm bronze art medal designed by Toivo Johnson and Robert Schabel. The medal commemorated the celator Euainetos in the "Great Names in Numismatics" series.

Museum Quality Replicas

Ironically, museum gift shops have played a major role in the proliferation of replicas in the marketplace. The British Museum electrotype series is probably the most notable of these as the quality and quantity of their production is impressive. The electrotype process was developed for the Russian printing industry in 1838. It basically amounts to electroplating a thin layer of metal on a uniface mold. The metal skin is then removed and the hollow area is filled with lead. This process was initially used to duplicate printing plates. It was quickly adapted to other applications, including the reproduction of coins. This was seen as a desirable alternative to plaster casts which were fragile and not particularly attractive.

In the reproduction of a coin by electrotype, obverses and reverses are fused together, with their edges trimmed, to make one complete unit. These are not a serious threat to experienced numismatists, but there have been many cases of novice collectors buying an electrotype with the belief that it was genuine. Electrotypes will usually be spotted by their joining seam. The letters and de-



BM electrotype - R on edge copies an AR tetradrachm of Amphipolis



BM electrotype - R on edge copies an AR tetradrachm of Gela



BM electrotype of a medallion of Marcus Aurelius

tails may tend to be blurred, and they are invariably lighter than a genuine specimen of the type.



Robert Ready

Robert Ready was born in 1811 at Norwich, England and became interested in the electrotype process early in its evolution. At the age of 48, Ready was hired by the British Museum to make electrotypes of the most popular coins in the museum's collection. He did so, working to the remarkable age of 85. Ready then turned the task over to his sons, one of whom worked for the museum until 1931. The Ready family produced electrotypes of over 800 Greek coins and a large number of Roman coins during their remarkable term of employment. The British Museum electrotypes are very collectable today, and appear from time to time in modern auction catalogues. The copies were stamped on the edge with the letters "R" or "RR" so there would not be any question of identifying them.



BM electrotype of Athens decadrachm

The electrotypes produced in the later 19th and early 20th centuries by the British Museum were sold to collectors in the belief that they encouraged scholarship and the appreciation of ancient numismatic art. In reality, they provided a ready resource for many a forger and were eventually discontinued.



Black Sea Hoard diobols

If the BM electrotypes are the most notable, the most notorious must surely be the Black Sea Hoard diobols, which were being sold as replicas at the Bulgarian National Museum in Sofia—literally at the same time they were being sold in the ancient coin market as genuine (see the Black Sea Hoard section herein). These cheap reproductions humbled a lot of the "experts."



Replica of an Athenian tetradrachm sold by the Metropolitan Museum

Another museum replica that keeps popping up in the hands of novice collectors is a brass Athenian tetradrachm sold in the 1950s and 60s by the Metropolitan Museum of Art in New York. It is likely that this commercially reproduced cast was also sold through other outlets. The fact that it was manufactured in the wrong metal, that it has very obvious edge seams, and that every specimen has a characteristic dimple in the center, has not slowed countless beginners from asking how much it is worth.



Coins of the Holy Land, an offering of replicas by the Biblical Archaeology Society

The Biblical Archaeology Society markets a line of "Museum Quality Replicas" which has at times included replica sets of ancient coins. One set featured 11 coins of the Holy Land minted between 400 BC and 200 AD. These sets of coins, which are marketed by a number of promoters, usually are boxed in a presentation case and are accompanied by a brochure with historical data about the coins. Sometimes the case and the brochure get trashed and the coins end up in dealer junk boxes.

The Hobby Protection Act, which was designed to prevent this sort of thing, has not deterred some of the largest publishers of material related to antiquity. The Archaeological Institute of America, for example, is an organization which finds private collecting anathema and forbids its members to participate in collector or market related activities. But they have run advertisements for unmarked metal replicas of ancient coins in their popular magazine *Archaeology*.

It is either ironic or criminal that some of the museums and professional societies which are charged with preserving and expanding our knowledge of the past, are indifferent to the problem of fakes and reproductions in the market. The fact that these replicas might somewhere down the line end up as an expensive addition to a collector's black cabinet, or worse yet a crushing disappointment to some budding young antiquarian, seems not to have occurred to them, or not to have mattered.

One participant in an Internet discussion group recently wrote: "While looking through the few dozen 'ancient' Roman and Greek coins that a dealer offered at a gem show, I noticed a strange thing: all of the VRBS ROMA commemoratives had the same mint mark, the same die axis and the same nick in the same place on the flan. The Constantinople commemoratives were also strikingly similar. A couple of coins of Probus were mirror images of one another.... I left the show a sad man. Who would want to make cheap copies of Constantine's coins?" The answer to that question is simple—jewelers.

Coin motifs have been popular with jewelers and artisans in the decorative arts since ancient times. Sometimes coins themselves were molded into rings, bracelets, pendants, dinnerware, and the like. In other cases, the coins were used as models to produce a variety of copies. The fact that all of these reproductions mentioned above were seen at a gem show is a pretty good clue that they were intended for the costume jewelry market to begin with.

History and art history were popular subjects in antiquity just as they are today. Many "restoration" types of coinage brought back themes of an earlier era. We also see many examples of "archaizing", where celators produced designs in a style of an earlier era. The artist who designed the military or civic award (girdle) illustrated here, used a gold bracteate which replicates a coin of the Constantinian era—struck at least two hundred years earlier.



AV bracteate girdle detail ca. 6th century AD, (x1.5) CNG XXIV, lot 493



AV uniface disk copied from a Sicyon hemidrachm

Another thin gold foil disk copies the reverse of a Sicyon hemidrachm struck about the 3rd to 2nd century BC. Pieces like this are sometimes referred to as "Charon's obols". They are thought to have been used in burials, for the deceased to pay the ferryman across the river Styx to Hades. Pieces like this were also sewn into garments, and are often found with holes in them. The ancients also used coin impressions in lead to decorate caskets and for many other forms of ornamentation, including ceremonial dress. Among the less wealthy, it was not unusual to replace precious metal coins with replicas of lighter fabric and lesser value.

The obverse of a posthumous antoninianus of Claudius II (AD 268-270) would easily pass for a genuine ancient coin, with lovely smooth brown patina. When turned over, a large circular void in the center (for attachment) reveals a lead core beneath thick copper plating. This piece was obviously made to serve as some form of jewelry or decoration.



Claudius II, antoninianus (x1.5)
copper plate—lead core

Modern reproductions in gold have been very popular in the jewelry trade and are offered in purities from 12 to 24 karat. The Constantius II solidi in cuff links illustrated here are struck specimens from the same die. Since much of this kind of jewelry was made with authentic coins, and dismounted coins are sold (at a discount) in the market as ex-jewelry, it would not be difficult for a reproduction like this to be mistaken (for a time, at least) as genuine.



Constantius II solidus
reproductions
made into cuff links

Silver, pewter, copper, lead and gilded reproductions are used in jewelry as well. That market was an important source of revenue for Peter Rosa, who made thousands of reproductions for use in the trade. Illustrated here is a pile of reproductions specifically prepared by Rosa to be used as cuff links. They are uniformly 20mm in diameter and have a round indentation on one side, designed to hold a clasp. One such piece was actually found by the author in a bulk lot of otherwise genuine coins.



Rosa reproductions made for cuff links



17th-18th century
Roman Gold Medallion
Augustus / Pompey the Great

Many artists, from antiquity to our own time, have created fantasies of classical inspiration, often prompted by a whimsical mood or by a demand for things which do not exist. For example, there has always been a demand for coins with the likeness of Plato, Socrates, Cicero and many other figures notable in literature but conspicuously absent from numismatic iconography. Some artists who catered to this demand, like Valerio Belli, were famous. Others remain anonymous.



Otho sestertius—a fantasy

An unlikely pairing of Augustus (the heir to Caesar's fame and fortune) and Pompey the Great (Caesar's archrival) appears on a fantasy gold medallion of uncertain provenance—perhaps of the 17th-18th century.

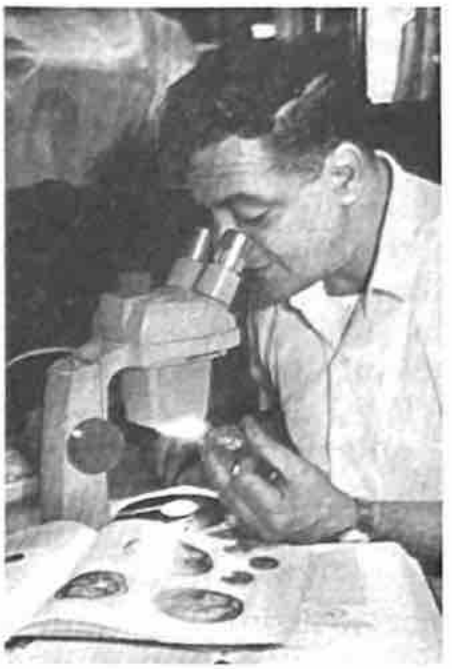
The elusive Roman Imperial bronze of Otho has been created in fantasy many times from the Renaissance to modern times. The one illustrated here is a cast. See the Rosa catalogue herein for a die-struck example.

One of the more controversial groups of fantasies are the phantom legion coins of Marc Antony. History tells us that Antony had 23 legions. We find that these legions are all represented among the legionary denarii that Antony issued. Strangely, there are a few of these denarii with legions numbered from 24 to 30. Were there really more legions that the historians have missed? No, instead it seems that there have been fertile minds at work creating items of unusual interest which just might sell to the right person. Some of these fakes are quite old and can look authentic. In addition to this subterfuge, there have been many fantasy pairings of obverse and reverse types which, if genuine, would be very desirable to the collector.



Debased AV aureus electrotype
Obv: Macrinus
Rev: Septimius Severus

Peter Rosa



Peter Rosa
(Coinage photo)

The great forgers and copyists of the past have earned a place in the annals of numismatic history alongside the best known collectors and researchers. We cannot help but remember these individuals for their great skill and also for their love of antiquity. Although the motives of some were far from laudatory, not all of them followed the path of deceit. In fact, some were very open about the nature of their work, and took great pride in it. There is something of a mystique about names like Cavino, Becker, and Christodoulou—as if they were not "real people". It was this author's good fortune to know one of these historic personalities on a personal level.

Peter J. Rosa, the son of second generation immigrants from Italy, was born on January 2, 1926 in the Bronx, New York. He started collecting coins and medals at the age of nine, but found that he could not afford to own the pieces that he admired most. At a very early age Peter developed an appreciation of classical art, and especially of the art on ancient coins and medals. During World War II he served in the U.S. Coast Guard (enlisted at the age of 16) and made many trips across the Atlantic. After the war he joined the Merchant Marine and often found himself in London. There, he began collecting casts of the most exquisite examples of ancient coinage, mostly from the collection of the British Museum. Many of the casts of Greek coins were ordered from the museum using the catalog numbers from Barclay Head's *Principal Coins of the Greeks*. He continued this effort for many years, and ultimately assembled a stock of hundreds of casts of the rarest and choicest Greek, Roman, and Judaean coins. He also admired intaglio gems, and possessed a substantial collection of 19th century plaster casts of gems from important European private collections.

Rosa's initial foray into selling ancient coin reproductions was launched in 1955 under the name Becker Manufacturing Company. Yes, the company was named after the famous 18th century forger. With an address of 437 East 156th Street in the Bronx, his first advertising flyer featured a set of 36 reproductions of rare Greek coins at prices ranging from $1.50 to $3.00. The complete set was offered at $75. Thirty-five of the specimens were reproductions of forgeries engraved by Carl Wilhelm Becker. The only non-Becker coin in this group was a Shekel of Tyre.

According to Rosa, these reproductions were made from a set of 306 original strikes from Becker dies—which he claims were obtained from the "Royal Numismatic Society" [probably the British Museum]. Rosa made his own molds of the Becker fakes and then sold the original lead strikes through a New York dealer. He apparently operated for a time as Dory Duplicates with an address "at the end of Davenport Avenue" in New Rochelle and as Becker Medallic Arts with an address of 342 Bowery, New York. Late in his career, he moved to Sunnymeade Village on Staten Island—where he continued to operate out of his home in semi-retirement.

Rosa's work was quickly noticed in the trade and met with resistance from both dealers and the press. An editorial in *The Numismatic Review* (Vol. IV, No. 2, 1963) roundly condemned the manufacture of reproductions, naming Rosa and one of his outlets by the name of Siegel. In a report for the *First International Congress for the Study of and the Defence Against Coin Forgery* (IAPN Pub. No. 2, 1965) William Selfridge referred to Peter Roser (sic) as one of the greatest manufacturers of imitations in the United States. The report claims that during the holiday season of 1964 alone he manufactured some 15,000 imitations. Despite the critics (or perhaps because of them) Rosa's market grew rapidly. In the late 60s, the company reportedly sold 200,000 replicas per year to customers in 47 countries. By 1968, there were 538 different replicas in the Becker stock—and that was just the beginning. In a 1978 correspondence to the ANA, Rosa mentioned the existence of (and threatened to sell) some 700 dies. He was still producing new dies as late as 1988.

This success was partly responsible for the introduction of the Hobby Protection Act in 1969—although that bill was aimed primarily at Lebanese forgers of U.S. and modern coins. The bill did not pass into law until 1973, but from that point on the numismatic press denied advertising to Rosa or anyone else producing copies which were not marked in accordance with the law. His correspondence with various publishers who had denied him advertising privileges was caustic to say the least (incidentally, *The Celator* also refused his ads after being advised that he had offered unmarked silver reproductions to readers answering his plaster cast ads). He held the ANA in contempt, and had no respect whatsoever for the PNG. Still, Peter Rosa had a way about him that one could not help but admire. He was "crusty" and very outspoken, but he did love ancient coins, and devoted his entire life to their study and appreciation.

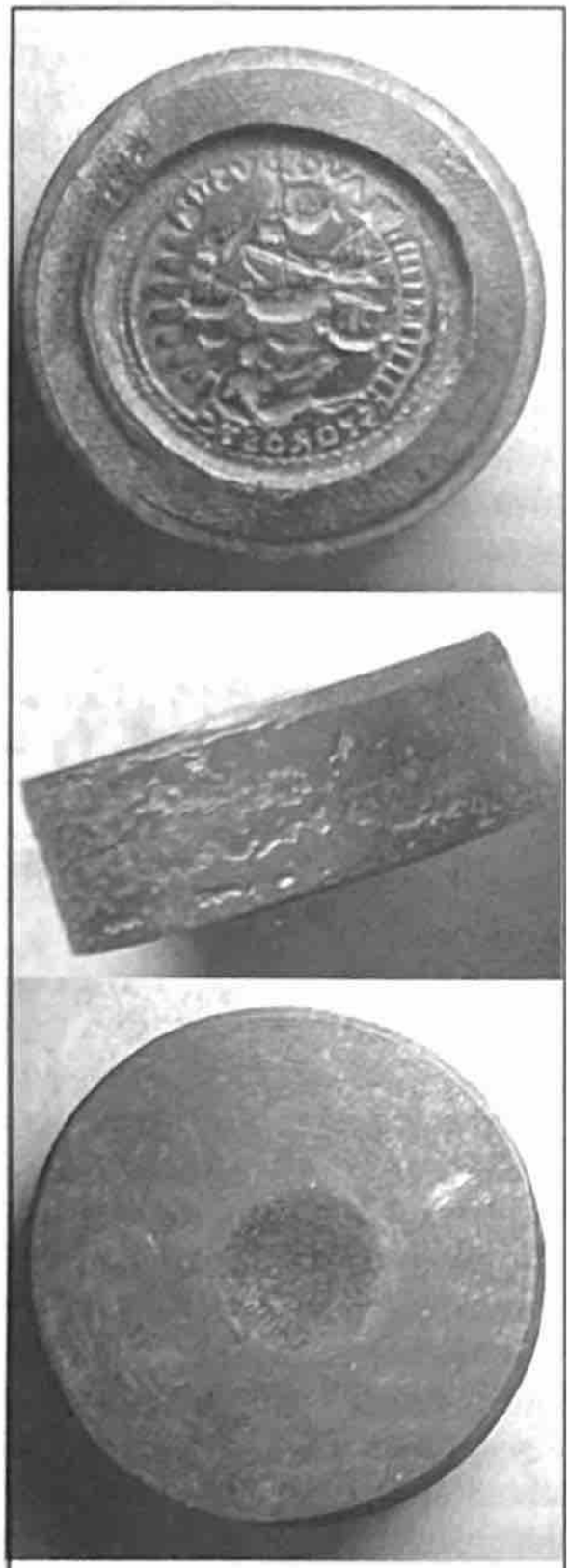
We first met Peter Rosa in 1987. He had been forced to curtail mass production of his copies some fifteen years earlier because of the Hobby Protection Act. Peter felt that the defacing of his copies by stamping the word "COPY" on the surface of the replica was an unbearable aesthetic concession. Instead of offering coin replicas, he started to manufacture

plaster cast reproductions and uniface silver/lead laminates. These were marketed through *The Celator*, with some limited success. He also concentrated on producing copies for jewelry and on the reproduction of fine gem carvings. In a personal letter to the author, he once wrote "no matter what happens, I am committed to protect and nurture the growth of numismatics in its pure form".

The "pure form" to Peter Rosa was the universal appreciation of artistic beauty in classical coinage. In this regard he had his supporters. Even the director of the American Numismatic Society agreed with his motives. In a letter to Rosa about the marketing of reproductions, Leslie Elam wrote: "It strikes me that you probably prejudice your chances of having these ads accepted by the provocative way in which you wrote the copy. Nevertheless, I think my position is quite clear. I think that the word copy should be a featured element of the object. I do not agree that the law [Hobby Protection Act] is either flawed or not in the best interest of the hobby. I do, however, agree that these fine reproductions have an educational value of presenting 'art in miniature' to a public for whom this may be the first contact with artistic Greek coinage. It is incumbent upon you to find a way to market these reproductions as educational and cultural tools rather than as coins." Although the ANS did not agree with Rosa's stand on refusing to mark copies sold to the public, they privately engaged him to reproduce (without markings) a number of specimens for their own use. Following the 1977 smash and grab theft of coins from a display case at the ANS museum, he was hired by the society to replicate certain rare and/or valuable coins in the ANS collection for placement in gallery displays. Several private collectors also availed themselves of Rosa's talent to produce copies of their own coins that could be enjoyed while the originals were protected in a vault.

The scope of Rosa's work is truly amazing. Under the business name Becker Reproductions, Inc. Rosa advertised "Rare Ancient Greek, Roman, Biblical, Judaean, Pirate and Early American Coins". In one advertising flyer he offered a series of 50 Roman sestertii and dupondii at $2.00 each. He proudly stated that "Each coin is finished in copper or bronze, aged and patinated to enhance their ancient beauty". He also offered "thermotypes" for sale, which were "finished by electrodepositing a pure coating of Gold or Silver." His ad states that "You will receive your silver coins completely oxidized. By simply rubbing lightly it will highlight and bring out the beauty. An exact reproduction is second only to the original." Later, he produced uniface laminates of silver or copper on lead—as well as a variety of plaster casts. Many of the types were struck or cast in a variety of states—some in silver, some in base metal. He also manufactured a variety of reproductions and reduced size strikes for use in jewelry or gift items such as cuff links, tie tacks, letter openers, pencil holders and paperweights.

The initial issues from Becker Reproductions were cast copies. An article by Larry Stevens in *Coinage* magazine (August, 1968) has some excellent photographs of the Becker workshop, which show the equipment used. Later, Rosa cast dies from his masters and began to strike the Beckers. Several of these Rosa/Becker dies are now in the collection of the American Numismatic Society in New York. The first few digits of Rosa's stock number for each of these museum replicas were actually the catalog numbers from Hill's *Becker the Counterfeiter.* It is unknown whatever happened to the bulk of these dies. It is possible that some broke during use. Also, Rosa claimed to have sold some of his dies during a period of financial hardship. The early Rosa reproductions are relatively easy to identify, because they not only replicate the imagery but also the shape and surface conditions of the prototype. Since the coins were reproduced from published collections, it is possible to match them up even with relatively poor quality photos. One will often find both cast and struck examples from the same prototype. The former are from Rosa's earliest period of production. They are generally made by centrifugal casting in an alloy consisting of 80% lead, 12% tin and 6% antimony—sometimes with a thin gold, silver or copper plating. The latter, being pressed rather than struck, have a very flat and uniform fabric which is quite unnatural for an ancient coin. Over lunch at the Carnegie Deli in Manhattan one December afternoon, Peter Rosa described to the author how (in his retirement years) he used an ordinary hydraulic automobile jack on his kitchen table to transfer the images from die to planchet. Needless to say, it was an amusing and memo-



Rosa bronze die for Nero, "Port of Ostia" sestertius

rable discussion. The majority of these struck reproductions have a head-to-foot die axis, indicating some care in the alignment—even when the prototypes were randomly aligned. Rosa was certainly aware of die alignment, but his purpose was to present coins as appealing images. Aligning the dies head to foot allowed the viewer to simply flip the coin over to see the reverse "right side up". This is not, however, a hard and fast rule. On occasion, he erred or the die rotated and the image took on some other alignment.

Although he worked for some time at Taylor Industries, a metal stamping and casting firm, he had no formal education in die making or metal work . He claimed that he learned all that he knew from books and a process of trial and error.

The majority of the dies were pressure cast in an alloy of zinc and aluminum, with a few in bronze. Examination of a large group of



Early Rosa die for Syracusan tetradrachm - BMC 188



Later Rosa die for Syracusan tetradrachm - BMC 188

Rosa dies (331 of which are now in the ANS Museum) reveals that the shape and composition of the die itself changed over time. The earliest dies were relatively thin and flat. It is likely that the extreme pressure used in cold pressing coins caused a number of these to break. In fact, one of these dies in the ANS group was fractured in use. The image was set deeply into the die so that the expanding planchet was forced to assume the shape of the prototype. Due to the irregular shape of this collar, it would have been necessary to align the obverse and reverse dies very carefully.

The later dies were designed with an integral shaft which helped to relieve stress and also served as an aid to mounting the dies in a press. Indentations on the shaft of these dies suggests that Rosa mounted them in a collar with a set screw. This indentation would also serve as a handy guide for maintaining the preferred alignment. The lack of a collar on these later dies allowed the planchet to expand randomly and therefore each strike could take on a unique shape. This, and the fact that later issues were not marked on the edge, can make identification of a Rosa reproduction somewhat more difficult.

Rosa apparently had access to a Janvier lathe or some similar method of reducing and enlarging images. He used this technique to create dies for various jewelry items, including cuff links and tie tacks. Among the numismatic items in his estate was an old cigar box full of trial strikes. Included therein were the items shown to the right. At the top is a miniature (12mm image size) reproduction of a Naxus tetradrachm. This was struck on a modern U.S. one cent copper coin. In the center is a 20mm image from the same prototype, struck on a thin sheet of brass and forming a bracteate. The lower illustration is of an actual size uniface strike on silver-laminated lead.



Multiple dies of varying size were created from a Naxus tetradrachm

Although he rarely altered the dies that he cast from these and other museum replicas, one of the Becker dies exhibits signs of retouching. Initially, the Becker forgery of a Sidon tetradrachm (Hill 123) was replicated exactly by Rosa. This is evident from the illustration in his first

commercial advertisement. However, a lead strike included in items from his estate clearly shows that drapery detail on the obverse and lettering on the reverse of this die has been reengraved. Also, a monogram consisting of the ligate letters VF has been added to the reverse field. It seems that the dies for several specimens of early U.S. coinage were hand engraved from photographs. The inscriptions have also been altered on two Republican denarii dies—Caesia (CR 298/1) and Crepereia (CR 399/1b). The latter is the most interesting alteration. Rosa changed the end of the name from ROCVS to ROS$^{\forall}$S turning the C to an S and the V into an inverted A and thereby making it "Rosa's". Due to the nature of his manufacturing process, errors were rare. However, at least one double-struck uniface specimen is known. It is possible that this was an intentional error, as Rosa was constantly experimenting with different techniques and effects. Also, as in catalogue numbers 236, 254 and others, the obverse and reverse dies are incorrectly paired.



Rosa's denarius

Peter Rosa consistently claimed that his sole purpose in creating reproductions of ancient coins was to make the art of the ancients available to the collector of ordinary means. As far as we know, he never sold—either personally or through agents—any reproduction under the guise of authenticity. All of his prototypes came from well published museum collections—and were advertised as such. He solicited customer registration in his Reproduction Owners Society of America (ROSA) which was "dedicated to the dissemination of ancient art."







In the early days, Rosa marked his coins with a variety of devices. The markings were always on the edge of the coin, as he strongly opposed any marking which would detract from the aesthetic value of the reproduction. On some cast reproductions he used the incuse letters COPY. In a 1988 letter to the author he claimed to have 360 such

molds. On others, he added the name BECKER or the BM catalogue numbe On Roman sestertii and dupondii, he used his own catalogue number. Fo example, a dupondius of Livia is stamped XIV on the edge. That specimen i listed in Rosa's flyers as S-14. Unfortunately, the edge marking is rather easil obscured by those inclined toward deception.

Late in Rosa's career he was stymied by the refusal of numismatic publications to accept his advertising for reproductions. The impetus for this, as mentioned earlier, was passage of the Hobby Protection Act. However, publishers tended to extend that law to the realm of uniface replicas, which Rosa took as a personal affront. In retaliation, he stopped marking the edges of his reproductions—protesting unfair treatment by the numismatic press and the American Numismatic Association. Worse than that, he advertised and sold die struck copies of Sicilian tetradrachms in silver for $50 each. These pieces, especially when worn, scratched and mixed with genuine coins, can be deceiving. There can be little doubt that some of the so-called British Museum electrotypes and Becker forgeries that are sold in the collector market today (also in violation of the Hobby Protection Act) are actually Rosas.

Acknowledging that this could become a problem for collectors, Rosa was always willing to donate specimens from his dies for use in comparison and certification. He was, in fact, an avid supporter of certification services. In response to a request in 1988, from Dr. Martin J. Price of the British Museum, he wrote "Enclosed lists as you requested. I will be pleased to prepare die splashes that will help for the future certification of my work. Feel free to request any specifics I may be able to contribute to programs anticipated by your organization." He also donated strikes from his dies to the collections of the American Numismatic Society, the American Numismatic Association and the Smithsonian Institute.

Even in semi-retirement, Rosa continued to make dies and strike replicas. In a letter to the author dated April 7, 1988 he wrote "Just finished dies for 10 denarii of Julius Caesar, am really enjoying my semi retirement." In another letter, he wrote "I am now making dies for the Dekas Agrigentum, Syracuse Demarateion, Carthage and Arsinoe Octadrachm of Egypt. I love my work—I feel I'm doing the same thing as the ancient Romans who reproduced Greek statues for propagation of same." That Rosa was a true connoisseur becomes clear when one considers the types that he chose to replicate. The dies of Julius Caesar denarii are unaccounted for, but the Greek types mentioned are known from dies or strikes. For a catalogue of Rosa issues see the Appendix on page 126.

Peter Rosa was an energetic and amiable person, but could become bellicose if he felt that he was under attack. He was a rugged individual who was at turns both sensitive and cantankerous. He never did stop fighting the "bureaucracy" that he considered his nemesis. To many, he was a thorn—to others, he was a riddle. To the hobby, he was a piece of history. He died of cancer on October 5, 1990 at Staten Island.

Slavey



Slavey Petrov

The celator most frequently discussed in the past decade is not Kimon or Euainetos, or any of the great artists of classical Greece, but the Bulgarian die engraver Slavey Atanassov Petrov (Latin form is Slavei). Slavey was born in 1951 at Haskovo and still lives in the city of about 100,000 people. He started making copies of coins when he was fifteen years old and his work has appeared in the ancient coin market in profusion. He is himself a collector of ancient coins and enjoys them mainly as works of art. If there is one predominant reason that the general topic of fakes and reproductions now permeates every medium of collector discourse, it is Slavey.

In the past, the manufacturers of fakes kept a low profile. Their work was intended to circulate quietly and they seldom admitted to being the source of any pieces which were eventually exposed. To the contrary, Slavey has been very open to the public in not only acknowledging his work but in promoting its distribution in the market. Consequently, it is difficult to accuse the Bulgarian celator of deception. Nevertheless, his work *is* deceiving to some and it is the source of much controversy.

Slavey reproductions are regularly offered on various Internet auction sites, and several ancient coin dealers of rather impressive credentials have offered the reproductions for sale in their fixed price lists and public or mail-bid auctions. These offerings are always identified in the narrative descriptions as copies by Slavey, but in some cases the



Silver Medallion of Galerius, 35mm, 12.20 gm, by Slavey
(Published as genuine in Numismatic Chronicle, *1996, pp. 235-236)*

photos are commingled with those of genuine ancient coins. It is inescapable that novice collectors may be confused and bid on these reproductions without realizing that they are copies. We personally know of at least one case where this did indeed happen. With Internet auctions offering a venue for virtually anyone to sell such an item, it is inevitable that some of these fakes will be offered under false pretenses.

Slavey considers his work an art form, and does all of the die work freehand. He is a member of the Bulgarian Association of Master Artists. Just how good is he? Well, that depends on what you want to measure. He is an excellent artist, and has a good sense of design, but his work tends to take on a special style that is a part of his own being. At his worst, Slavey is not a problem to be concerned with. But, at his best, his work can be deceptive. When asked recently "Who was the greatest forger of ancient coins?", he answered "The one who has still not been recognized as being such and people think that his coins are real." Aside from being a very skilled artist, Slavey holds a degree in metallurgy and machinery from the Varna Technical Institute. He certainly has the background to produce dangerous forgeries if that were his intention. Even the mediocre specimens of his work are improved with aging, and that has already been done by some unscrupulous sellers. A Caligula denarius struck by Slavey was recently offered as genuine to a French dealer, who of course recognized it and ended the charade. Slavey has apparently engraved about 300 dies, of which only a few are published in any one place. According to one close acquaintance, he did not keep all of the dies and has had to buy back some of his own copies just to have an archive specimen. Dr. Stanley Flegler's article in *World Coin News* mentions that



Caligula denarius copy by Slavey Below: the same toned & scratched



Naxos tetradrachm by Slavey



Alexander III tetradrachm by Slavey

Slavey struck coins in gold, silver and bronze, but the Slavey acquaintance mentioned above claims that Slavey has never made bronze copies. The copies are stamped with a very high pressure hydraulic press, and exhibit the usual characteristics of stamped coins explained on page 9.



Nero Aureus by Slavey

There is some debate over which dies of Bulgarian fakes on the market were actually engraved by Slavey. He denies many of them and it is probably the case that some of his former apprentices sell works in his style. A brother, who once worked with Slavey, is now operating his own business making copies. Bill Puetz, who recently published a remarkable interview with Slavey both online and in *The Celator* has started a catalogue of Slavey reproductions at his Internet site (http://www.12caesars.com). The *Celator* article by Basil Demetriadi includes photographs of a great many of the pieces that Slavey himself claims to have created.

Although many collectors in Britain, Western Europe and North America find Slavey's work objectionable, it is perfectly legal in his homeland. If there are any laws violated in the sale of his copies it is only the U.S. law commonly referred to as the Hobby Protection Act, which requires the word COPY be incused on any reproduction imported into or sold in the United States. The fact that a dealer in New York state, who happens also to be a state judge, routinely sells Slavey fakes in his auctions, and illustrates them in his catalogues, speaks volumes about the enforceability, or lack thereof, of the current law. In all fairness, this dealer is not by any means the only one to do so. There is a growing trade in this kind of material, which flies in the face of the expressions of concern in collector forums. Someone is buying the material—and usually with the full knowledge of what it is and where it came from.

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Methods of Analysis and Detection

A good technician, or a superb artist, producing struck coins with careful finishing can be a major problem to the collecting world. It sometimes takes years or even generations to uncover their work. Fortunately, they are few and far between. One of the most useful tools in the long and continuing war waged by numismatists against forgers is publication of the known works of those who have been exposed. Through the efforts of earlier generations, we are now familiar with the dies, styles and techniques of several notorious forgers who were successful in their own time—and often well beyond. This important database of images is constantly being added to as new workshops are detected and details become available. As in all eras, the modern danger to collectors includes forgeries which have yet to be revealed in a published medium. Due to advances in technology, and the ingenuity of modern day forgers, it is becoming ever more difficult to detect fakes. Of course each generation can have made this claim as there is always new technology and the forger's ingenuity never wanes. Fortunately, these same advances in technology have given collectors and scholars more tools to evaluate the authenticity of suspect coins than were available in the past. Therefore, any serious effort to combat forgeries must include not only historical knowledge and the human senses but also an understanding of modern scientific methods and applications. Analyzing the authenticity of ancient coins should be an exercise similar to that which law enforcement agencies use to analyze fingerprints. In order to confirm a match, several points of verification are necessary. Any one condition, by itself, is not conclusive. It is a combination of findings which together tip the scale of proof in one direction or the other.

Even when analysis suggests that a coin is fake, it may be hard to find universal support. The vested interests in a debate over authenticity can easily cloud objectivity. Dr. Alan Walker went through a lengthy and sometimes bitter exercise to condemn a group of Parthian gold coins which appeared on the market in the early 1990s. Walker condemned the coins for a variety of reasons and published them in a special edition of the IBSCC Bulletin on Counterfeits. The individual who had handled all of these coins insisted they were genuine and threatened legal action. In an unprecedented move, The IBSCC and this individual agreed to submit the issue to a mutually acceptible scholar for consideration and a legally binding decision. The individual selected and was Professor T.V. Buttrey. After a year and a half of intense study, Buttrey declared that the coins in question were false.

This all took the better part of a decade, during which the forgers (who learned what they had done wrong) were probably the biggest

winners. One could understand why few numismatists would risk this kind of ordeal in order to condemn a coin. The formal condemnation of any coin should never be taken lightly, and all of the analytical tools at our disposal should first be brought to bear. Then, when all is said and done—publish.

Misconceptions About Fakes

The following are frequent misconceptions among collectors of ancient coins. One must consider *all* of the evidence before passing judgement on the authenticity of *any* coin.

1. Flan cracks are a sure sign of authenticity.
   —flan cracks can occur in any struck or pressed coin whether ancient or modern. They can also be replicated to some degree in a cast coin.
2. Flow lines on the surface mean a coin is authentic.
   —flow lines are the sign of a struck coin, fake or authentic.
3. Crystallinity occurs only in ancient metal.
   —modern fakes may be crystalline.
4. Coins struck from pressed or cast dies are "fuzzy".
   —high quality, sharp, cast dies are possible with new advances.
5. Coins with pitted surfaces and indistinct detail are casts.
   —natural corrosion and a weak strike can make perfectly genuine coins look much like casts.
6. Cast coins will always have air bubble pits on the surface.
   —centrifugal and pressure casts in silver and gold can be virtually free of air bubbles.
7. Cheap coins are not worth the forger's time and effort.
   —every coin is worth some forger's time and effort.
8. Most fakes are cast, not struck.
   —once true, not anymore.
9. All cast coins are fake.
   —genuine cast coins exist in several series.
10. Weight is a reliable indicator of authenticity.
    —weight is one indicator, but not conclusive in itself.
11. Horn silver is a guarantee of authenticity.
    —modern fakes often are covered with horn silver.
12. Uncleaned hoards are usually free from forgeries.
    —this is the forger's preferred method of distribution.

—continued on following page—

13. Filed or shaved edges indicate a cast fake.
    —many genuine silver and gold coins, especially of the late Roman period were clipped or shaved to obtain precious metal. Bronze coins are another matter.
14. Style is too subjective to evaluate authenticity.
    —in some cases, style is the only thing wrong with a fake.
15. Coins with old pedigrees are safe to buy.
    —old pedigrees only guarantee that a coin, if fake, is not modern.
16. If it's bright and beautiful, it's probably fake.
    —if it's bright and beautiful it's been cleaned recently.
17. Wear is an indicator of authenticity.
    —artificial wear is one of the forger's oldest tricks.
18. Worn coins with sharp edges are probably fake.
    —or they were struck from worn dies and circulated little.
19. Filled letters, like D and A, indicate a cast coin.
    —dies can chip as readily as molds can fill.
20. You can tell if a coin is lead by rubbing the edge on a piece of paper.
    —silver coins can also leave a grey streak on a piece of paper, if it is lead your fingernail will put a dent in it (go easy!).
21. If a coin rings when you drop it on a hard surface it is genuine.
    —some fakes ring and some genuine coins don't.
22. If a coin is tooled it must be genuine (who would tool a fake?).
    —read the section on Provenance.
23. Identifying a forger will eliminate them as a threat.
    —The really good forgers will not sell their own work, they will find an intermediary who is relatively well known and less likely to arouse suspicion. With rare exception, the famous forgers of the past have used agents to place their work on the market. Christodoulous, for example, was exposed early in the 20th century, but remained active for decades after that.

Here's an axiom that is *not* a misconception. In fact, it is probably the most useful advice that one might remember.

"If you have to imagine a peculiar set of circumstances for the coin to be real, it probably isn't."

Provenance

One would think that provenance is a pretty good indicator of authenticity. For example, a coin which has been recorded as residing in several important collections over a century or more of time would seem to be above suspicion. This, unfortunately, is not the case. Good forgeries get even better with age. The very fact that a forgery eluded detection by some of the venerable numismatists of yore, helps to build a resistance to criticism amongst later generations.

Dr. Alan Walker weaves a fascinating tale of one fake's journey to the Ivory Tower of collectordom in a 1995 *Celator* article. This highly touted "Colosseum" sestertius of the Roman emperor Titus was first sold in the 1847 Sotheby sale of coins belonging to John Robert Steuart, Esq. (a.k.a. Stewart). It reappeared in 1859 at auction of the collection of Francis Hobler, and was described as being from the Steuart collection and having been found at Pompeii. This incidental note led eventually to Walker's suspicion that the coin might be a forgery. Pompeii was destroyed in AD 79, but this coin type of Titus was not struck until AD 81! See: A. Walker, "Pedigrees: A cautionary tale", *The Celator*, 9:3 1995. The Steuart coin then passed successively through the Bunbury, Mackerell, Barron, Vierordt, Evans, Weintraub, Hunt and a few undisclosed collections. It finally was consigned for sale at Leu Numismatics in 1991 and had a fatal encounter with Dr. Walker. Picking up on the chronology problem, Walker started probing and found that the obverse die of this coin matched that of a known Cavino forgery in the British Museum. It was a fake, probably struck during the 18th century. One reason that so many competent numismatists had missed this link was because the Steuart coin was tooled— a condition once considered a sure sign of authenticity.



The Steuart, Hobler, Bunbury, Mackerell, Barron, Vierordt Evans, Weintraub, Hunt Colosseum sestertius

It is also true that a century or more of natural patination can make it very difficult to see conditions that might otherwise cause suspicion. It is inevitable that every museum and major private collection of ancient coins will have at least a few fakes in its trays. The activity has been going on for

too long, and some forgers are too good, for anyone who amasses a large holding to completely avoid the problem.

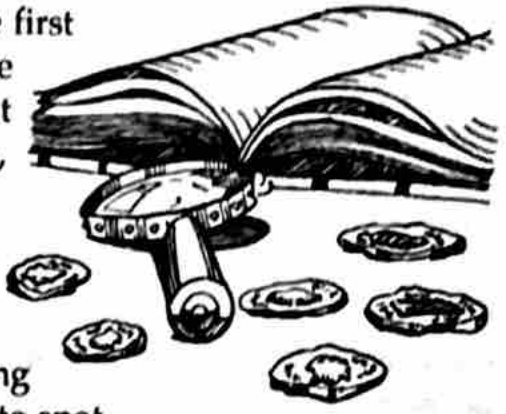
In the past, it was fairly common for authenticators to compare the dies of a suspect coin against known dies in public or private collections. The logic was that a struck coin from the same dies as one with good provenance must, by extension, be authentic. Today, we realize that this is a false security. First of all, the provenanced coin may not itself be authentic, and secondly, it is possible to create very accurate dies from authentic coins and therein produce die-struck fakes which match.

What about coins which come from official excavations? It would seem that a coin found in an official archaeological excavation would have to be authentic, and could therefore be used for stylistic or metallurgical comparison. The Black Sea Hoard debate of the early 1990s taught us that this is not entirely reliable either. Diobols of Mesembria from a museum in Bulgaria were die-matched with coins from the suspect hoard. These coins were supposedly unearthed in an official excavation near the museum. The argument was presented that the Black Sea Hoard must therefore be of ancient origin. Subsequent proof of the hoard as modern (see the section on Black Sea Hoard within) leaves us with the realization that the museum specimens were also fakes. As it turns out, these coins were accessioned in 1986, only a short time before the first fakes of that type began appearing on the market. One could hypothesize that the excavation was purposely salted by the forgers, or that the museum records of provenance were not accurate.

Our only knowledge of certain extremely rare coin types is based upon reports of citings by early numismatists of coins that can no longer be located. In many cases they were probably misreadings of some relatively common type and quietly disappeared to avoid embarrassment. Still, these reports lend credibility to the appearance of a new specimen on the market. It is the natural tendency of collectors to want to find that elusive rarity that has escaped the hobby for generations—and sometimes, albeit rarely, that does happen. It is also this aspect of human nature which readily plays into the hand of the forger. The forger's best friends are mystery, the absence of comparable objects for analysis, and plain old human greed. A pearl of wisdom was related to the author by a well-known collector who is a likely target for the kinds of coins related above. "If you have any doubts about a coin, the worst thing to do is buy it and *then* do the research."

Provenance is useful in determining that a coin is not a product of an active forger's workshop. In that respect, it has significant value. Also, the number of good coins with recorded provenance vastly exceeds the number of fakes that have gone undiscovered over the years. It is good to remember, however, that important collections have always been to a forger what a light is to a moth.

Physical Examination



Visual examination is generally the first line of defense against fakes. Poorly made fakes will be readily apparent to all but the most novice collector. For example, crude casts—with their soapy and pitted surfaces—always stand out in a crowd. It is also quite easy to recognize modern die-struck fantasies and the odd token-like premium. With increasing experience, collectors can usually learn to spot stylistic anomalies within their areas of specialization.

Unlikely as it seems, sight, sound, smell, touch and taste have all played a role at one time or another in the detection of forgeries. Plautus makes an allusion to the smell of money in one of his plays, and the antiquarian Friedlander claimed to be able to detect forgeries in coin collections by their smell. Coins which have been artificially patinated by exposure to sulphur will retain the distinctive sulphur smell for quite a long time. Also, the compounds used to patinate new fakes sometimes leave distinctive odors which a sensitive nose can detect. Cleaning agents can do the same, but a cleaned coin is not necessarily a forgery.

The ringing of a coin has been used as a test for forgery throughout the centuries. Unfortunately, modern struck forgeries will also ring like a bell. The ring test is still a quick way to check a suspected lead copy. In the past, people sometimes checked gold coins by biting into them with their teeth. This is not particularly recommended on gold aurei—suspect or not. It is amazing how sensitive human touch can be, and a coin of seriously deviant weight can often be detected just by the heft of it. We discourage using the taste test, but chemicals on a coin's surface have led some with a sensitive palate and strong stomach to suspect commercial treatment.

One thing that can usually be determined from a visual inspection, at least with the aid of a simple magnifying glass, is the nature of patina on a coin. Natural patina is very hard to duplicate, and few forgers or coin doctors have mastered the art of patinating fresh material. Chemical patination usually produces a thin patina with colors that are a bit unnatural. They are soft by nature and tend to look gooey when thickly applied. Some patina are actually made of crushed minerals which are glued to the surface of the coin. These appear sandy and coarse to the naked eye. The hard chocolate brown patinas seen today on some bronze coins coming through Germany are an exception. This technique, which is effective but dangerous, involves the use of arsenic. The result is beautiful, and many collectors are pleased to have this artificial patina on a coin that otherwise would probably be a corroded mess.

Patina

Patina is a naturally occurring surface accretion which may be found on virtually all metal and some nonmetallic objects. Even glass takes on a patina with age. Patina is normally the result of chemical interaction with the object and manifests itself in the form of sulfates, sulfides, chlorides, oxides and carbonates. The result can be seen in many different colors and consistencies. Although gold itself does not oxidize, surface impurities do and therefore gold coins will acquire a fragile patina if undisturbed for a long enough period. Patina is what makes a coin look old. Obviously, if counterfeiters of ancient coins are to enjoy any success whatever, they must devise a way to artificially age their work. False patinas have been applied to coins since the 16th century and some are quite believable. At the end of the 19th century, Francesco Gnecchi set about exposing modern forgeries and educating collectors about the characteristics of genuine ancient coins. One of his works, *Monete Romane* (1896) dealt specifically with the nature of patina as a clue to authenticity.

Practically any oxidizing agent can be used to patinate fresh metal, and various agents give a rainbow of different effects. One Peter Rosa reproduction which we examined even had horn silver on it. An artificially patinated or "toned" coin is not necessarily a fake—nor undesirable. Museums routinely clean and condition coins. There are times when it is unavoidable to strip the original patina and encrustations off of a coin if it is to be of any historical or aesthetic value. Repatinating is seen by many as a justifiable extension of preservation. In today's market, where virtually everything is cleaned, it is common to find coins with artificial patinas or preservatives like microcrystalline wax. The moral debate over such practices is endless—and beyond our scope. The simple fact is that uncleaned coins do not sell as well as coins that have been cleaned. Ideally, a coin can be cleaned without disturbing the natural patina. However, in the absence of a perfect world, it may be good to know or to ask whether you are looking at a coin with original or artificial patina.

Natural patina is as close as we can come to a guarantee of authenticity on an ancient coin. Keep in mind, however, that fakes produced two or three hundred years ago will have a pretty convincing natural patina today. The trick is being able to recognize a false patina. Sometimes a good magnifying glass or a binocular microscope will reveal patinas which are applied (painted) on the surface of a coin. Brush strokes or variations in depth and color may be visible. Some false patinas are so good that even experts are deceived. For example, an aging process using potato mold conditioned a Getty marble kouros so well that petrographic analysis had many experts convinced it was genuine. We should never underestimate the ability of even the crudest forger to emulate certain natural conditions—either intentionally or by accident.



Galba sestertius
Above: A modern forgery from the Bulgarian School.
Below: A genuine issue of AD 68-9

One of the most effective and at the same time most subjective ways to detect a forgery is simply by looking at it and evaluating the style. The human brain is peculiar in the way that it interprets imagery captured in our vision. We do not all see things exactly the same. This has been made obvious to me a number of times during discussions with fellow numismatists about the details of a particular coin image. Therefore, it is hard to explain to another person exactly what is wrong with the style of an image in question. We see it clearly enough ourselves, because we have a data bank of mental reference that came through those same eyes. Even though two people may agree that there is something stylistically wrong with a coin, they probably are not seeing exactly the same deviations from the perceived norm. This difference in perception, which is manifested as a difference between contemporary interpretations, is enhanced with time. One collector on the Internet posted an observation which sums this up nicely: "The ancient die cutter is making an original and is influenced by the art of his time. The forger is making a copy of an original, and is influenced by his ideas of what the art of ancient times was like." The illustration here of a Galba sestertius shows the difference between an original artwork and a copy. The interpretation by an artist of the Bulgarian School is lacking in so many ways stylistically that the copy takes on its own character—much different than the original.

Fifty years from now, all discerning numismatists will see much more clearly any stylistic anomalies that we struggle with today. Of course they will have their own set of problems with style. Take, for example, the Paduan sestertii of Cavino's time. We can spot them easily today, but there was a time when even the most educated scholars could not see the stylistic differences between them and the originals.

Even though we cannot always quantify or qualify stylistic anomalies, the human mind has an incredible ability to detect them. The first impression that a coin looks "odd" is probably the most important consideration in deciding whether it deserves further analysis. Impressions, when based on experience and exposure, should never be taken lightly.

Binocular Microscopes or Loupes

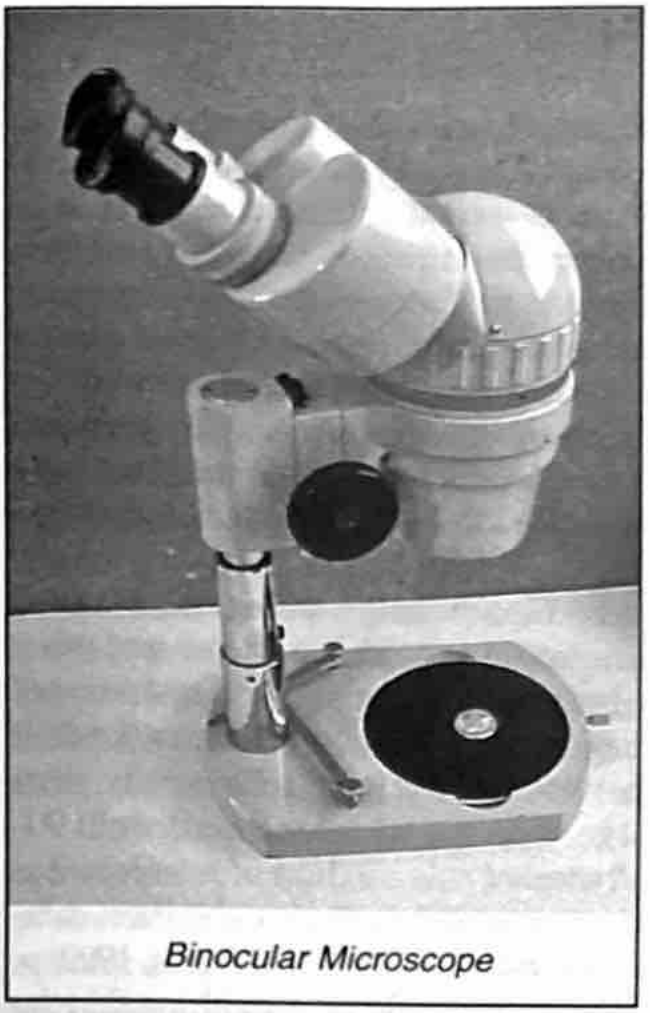
The loupe is one tool that a numismatist cannot be without. Multi-power loupes are preferred because a low power (x3) is best for examining the grade and minor details of a coin. High power (x10) is required for detecting insidious problems or for evaluating authenticity. Those who prefer a single lens will find that 7x is a reasonable compromise. The main advantage of a loupe is that it can be carried anywhere, anytime—all the time. Coins tend to show up in the oddest places, and lighting is usually poor, perhaps intentionally so in a few cases. The loupe, in addition to magnifying, concentrates light and makes a coin much easier to see in a dimly lit room.



The loupe—
a numismatist's best friend
Above: Inexpensive 3x Russian manufactured variety
Below: The author's well worn Bausch & Lomb 7x Hastings Triplet

Not long ago, the binocular microscope was a rather expensive tool that many collectors found it difficult to justify in their budgets. Fortunately, with new production methods and expanding world markets, it is now possible for every collector of ancient coins to own this useful aid. For extended viewing of coins, the binocular microscope is hard to beat. The only comparable tool available to most collectors is a good digital scan on a computer screen. The ability to produce very large images which are easy on the eyes, and to enhance contrast, makes the computer a more and more effective and practical tool. For mechanical cleaning, the binocular microscope is still the best tool available because its three-dimensional image allows a much greater sense of feel and reduces scratches and nicks from the cleaning tool. Following are some of the things that can be evaluated with the loupe or binocular microscope.

Surface: The most obvious surface condition which can be examined with the loupe or microscope is evidence of casting. This method of production usually reveals itself in the form of small bumps or pits. The former are caused by trapped air bubbles or grains of sand on the surface of the mold at the time the impression is made. The latter come from air bubbles or foreign matter that is introduced along with the molten metal at the



Binocular Microscope

time of casting. Letters tend to wash out into the surface of a cast coin and fine details which would not normally be exposed to wear will be indistinct. The microscope will also reveal alterations in legend, monograms or mint symbols. Amazing as it may seem, there have been documented cases of such devices being soldered to the surface of a coin. Lesions in the surface which reveal the copper core of a fourree can often be detected with a microscope where the naked eye has missed them.

Edges: The edges of a coin often reveal something about its method of construction. In the process of casting a coin, the liquid metal will find its way into the seam between the two halves of the mold. These can seldom be removed without leaving a trace of filing or battering. Nature may cover these telltale signs with patina, but they usually can be detected nonetheless. Keep in mind that some official issues were struck on cast planchets, and the edges will naturally reveal this condition. Razor sharp edges on a coin should also raise suspicion, as even uncirculated specimens lose that sharpness with time.

Axial protuberances: Cast globular planchets, like those used in ancient Greek Sicily, are characterized by protuberances which usually are seen at 180 degrees from each other. Somewhat similar protrusions may be seen on coins struck from strip planchets.

Chemical erosion of the surface: Wear is sometimes simulated on forgeries through induced chemical erosion. Natural wear is accompanied by random abrasions and uniform natural polishing.

Sharp fractures: The striking of a planchet, especially one that is too cool and therefore too hard, causes very fine sharp fractures. These sharp fractures will normally be worn or rounded off on a coin struck in antiquity—even if it is extremely well preserved.

Signs of retouching: The retouching of dies brings with it the signature of the artist. Few forgers have been able to retouch dies without leaving signs of their presence.

Ultraviolet Lights and Magnets

One might not think of bombarding a coin with ultraviolet light, but this form of extended visual examination has proven useful on some occasions. One form of deception practiced in the Middle East in recent years is to gather actual patina and encrustations from junk coins which are found in large quantities by sifting earth and sand. The powdered accretions are then mixed with an epoxy resin and sprayed onto the surface of a more valuable coin type which has been stripped by chemical or mechanical means (sandblasting). It may be worth noting here that a similar approach has been used on fake glass artifacts. A powerful glue bonds the new patina to glass so firmly that it is difficult to detect the subterfuge. Fortunately, many adhesives fluoresce and are detectable under ultraviolet light. In addition to altered patinas, it has become possible with modern resins to correct deficiencies like major corrosion, spade marks, holes and other unappealing detractions. If you are buying a nicely patinated sestertius of Caligula, and have agreed to eat bag lunches for a year to pay for it, it would be nice to know that what lies beneath the surface is exactly what meets the eye. The ultraviolet light may do the trick for this as well. Although the author has not personally tested this method of analysis, it is used by the British Museum and is mentioned in their exhibition catalogue *Fakes? The Art of Deception*, (University of California Press, 1990, p. 277). It would seem that ultraviolet radiation would be something that the technically oriented numismatist might be able to use with a minimum of special equipment or experience.

There is some disagreement among numismatists as to whether iron was used as a core material for silver fourrees. Michael Crawford rejects the notion of silver coins with an iron core stating that "iron and silver are virtually immiscible." On the other hand, J. Pinkerton *(Essay on Medals)* wrote "I have seen, and tried, a denarius of Antony LEG VI which flies to the magnet like iron." According to L.A. Lawrence, a hoard of Roman Republican coins found in London (published in *Numismatic Chronicle*, 1940) contained plated coins with both copper and iron cores. It appears that some ancient forgeries, even if rarely the case, were produced with iron cores. Of course, any coin with a substantial ferrous component will be attracted to a magnet. Relatively pure copper, silver, gold and lead coins will not be attracted. A simple magnet is all that is required, and even the novice can make this simple test. Of course, there will not be many positive responses because the use of iron in ancient fourrees was not all that common and the fourrees themselves constitute a small percentage of coins in circulation within the collector community.

Digital Scales

Much has been made of improper weight as an indicator of forgeries—and it is without question a cause for concern—but don't jump to any rash conclusions just because your coin does not weigh out the same as the one catalogued in the British Museum. There are myriad reasons for this to happen—and many of them are valid.

A cast copy may weigh up to ten percent less than the original due to shrinkage. The metal, when poured into the mold as a liquid, occupies more space than it does when it cools. Therefore, the final product is physically smaller than the original and consequently lighter in weight. A fourree may weigh in as much as 30% lighter. Before assuming that a coin is a cast or fourree, one must question how close the tolerance normally was at the mint where the type was struck? Has the coin survived without losing metal to poachers? Is the coin heavily worn? Has internal corrosion turned the coin into Swiss cheese? Was the coin covered with horn silver which has since been removed? All of these factors must be considered when determining whether the weight of a coin falls into an acceptable range.

One can refer to numerous statistical analyses of Greek and Roman coins which publish, from legitimate hoard evidence, the average weights of surviving specimens. However, even in these analyses, there are significant deviations from the norm. Some coins will be very light and some very heavy. That deviation, expressed as a percentage of the mean, is known as the coefficient of variation (CV). The CV in precious metal coins is generally less than in base metal coins. The digital scale is a very useful tool for such analyses because of its accuracy and ease of use.

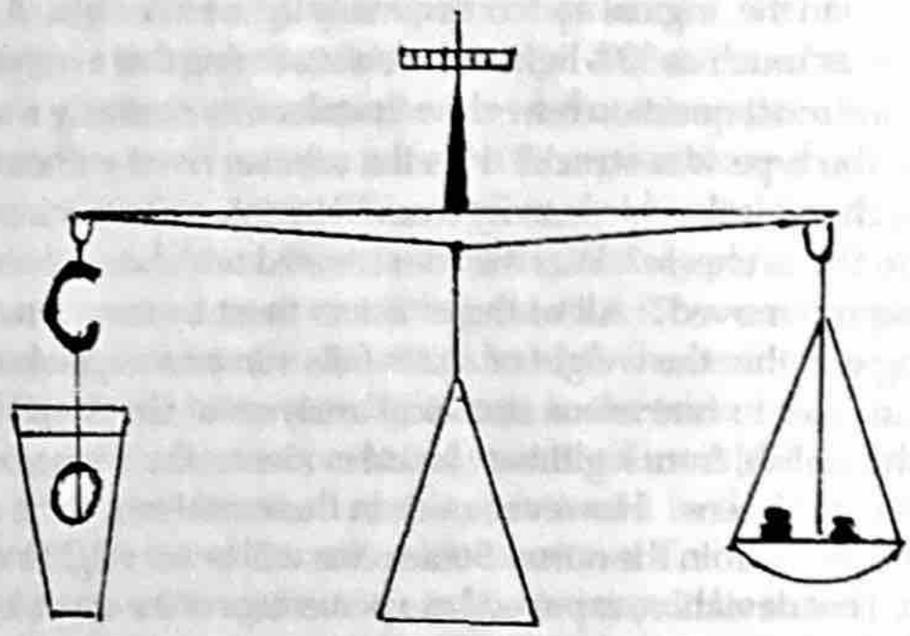
It is not unheard of for forgeries to be heavier than the originals. This is always a possible cause for concern with gold and silver coins, because few states are inclined to unnecessarily give away money. If a coin whose type is characterized by consistency of weight appears more than ten percent lighter or heavier than normal (and there are not mitigating conditions like heavy wear, metal erosion or accumulations of verdigris) the deviation should be considered a cause for further investigation. That is about as much as one can say about weight.

For the reasons mentioned above, it is not really necessary for the average collector to purchase a very sophisticated scale. The value of having a scale accurate to 0.01 gram is primarily to maintain cataloguing accuracy and consistency among numismatists. It is also handy to have precise weights if you dump over a tray of similar coins and have to sort them back out again. Greater accuracy than that is only required if one chooses to conduct specific gravity tests or some special analysis.

Like the binocular microscope, digital scales were once a luxury to collectors. Today, an adequate digital scale with 0.01 gram accuracy may be purchased for less than $150.

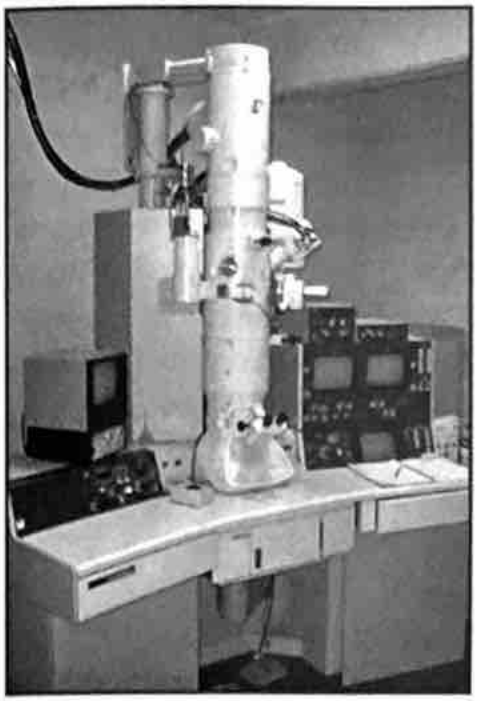
Specific Gravity

The weight of a particular coin, as compared to known weights of other like specimens, may shed some light on the material that it is made of, but a far more reliable and relatively simple test is to measure the coin's specific gravity. That is, the ratio of the density of that coin to that of a standard (usually water). In other words, this is a measurement of the coin's fineness. The specific gravity of gold, for example, is 19.3 while that of lead is 11.4. A gold plated coin with lead core will fall far short of the required ratio for a pure metal coin.



A coin is suspended by a single strand nylon thread in distilled water after initially being weighed in air. The weight pan (right) is counterbalanced by a hook of the same weight (left). To measure the specific gravity, calculate the difference between the weight in water and the weight in air. This difference, which is the weight of the displaced water, is divided into the weight of the coin in air to obtain the specific gravity. (drawing and procedure from The Celator, *Dr. C. E. Weber)*

The specific gravity of pure silver is 10.55, while copper is 8.96—although this test is more useful for gold and silver coins than those made of copper alloys. A thorough explanation of the procedure and a discussion of some of the types of analysis that may be performed by using specific gravity measurements is included in the *Celator* article by Dr. Charles E. Weber (see bibliography). The value of specific gravity tests for authentication is substantial. Many less sophisticated forgers use scrap metals of quite different fineness than were used originally at the mint from which a coin is presumed to have been issued. While many factors affect the weight of a coin, fewer affect the specific gravity.



The 'Scanning Electron Microscope' (SEM) is extremely useful in forensic numismatics, but like all scientific instruments its accuracy depends upon proper operation and interpretation by the user. In addition to its ability to provide high resolution and high magnification photographs, the SEM is the vehicle by which 'Energy Dispersive X-ray' (EDX) analysis is performed. This is a tool used by many high-tech industries including the medical and biological fields, the semiconductor industry, aerospace researchers, law enforcement and all sorts of quality assurance or investigative functions. It has also proven very useful in the fight against forgeries. For example, in the case of false patina created by induced chemical interaction many of the resulting compounds do not occur naturally. Through X-ray analysis it is possible to identify the composition of these elements. Knowing the composition and proportions of trace elements in a coin is useful in determining whether the metal is consistent with that from other measured specimens. This may confirm or question the origin of metal used to produce a particular piece, and thereby its authenticity. Of course modern forgers of significant rarities are as well versed in the process as most professional numismatists. They have learned to choose genuine ancient coins of lesser value and the proper metallurgical composition for producing planchets. A major advantage of this analytical tool is that it is nondestructive. The process can also determine the quantities of each element present, but requires some intrusion into the host to provide that level of analysis.

The theory is relatively simple. The electrons of an object bombarded by a focused electron beam (5,000-20,000 electron volts) are scattered in the process and generate X-rays with characteristics of the parent atom. These X-rays can be collected and analyzed by either an 'Energy Dispersive Spectrometer' (EDS) or a 'Wavelength Dispersive Spectrometer' (WDS). These analyzers are common accessories to the scanning electron microscope. One of the forms of X-ray analysis which has found favor with numismatists is 'X-ray Fluorescence Spectroscopy' (XRF). Equipment used for this mode of analysis is quite versatile, it is only about 20% of the cost of a wavelength spectrometer, and is operable by nontechnical personnel.

There are several centers in the U.S. and overseas that currently use scanning electron microscopes in numismatic projects. One of these is The

Probe Group of the Vienna University of Technology (Austria), operated in cooperation with the Numismatics Department of the Kunsthistorisches Museum, Vienna (http://www.iac.tuwien.ac.at/~mwadsak/coin.html). This group has analyzed hundreds of medieval silver coins, as well as Sasanian silver , bronze and gold coins by EDXRF. The British Museum has its own research lab with XRF capability. Access to this level of analysis is not necessarily limited to academicians. The University of California, Berkeley—Department of Geology and Geophysics advertises commercial EDXRF analysis of objects, including coins, at $30 per sample (http://obsidian.pahma.berkeley.edu/LABFEES.htm). Of course the interpretation of the readings is entirely the responsibility of the requesting individual. Therein lies the catch. SEM analysis is inexpensive enough, but the interpretations can be difficult. The SEM tests run by Dr. Stanley Flegler on Black Sea Hoard diobols led him to the conclusion that the diobols were authentic. His tests were not necessarily flawed, but the interpretation was inaccurate. The coins proved to be fakes.

'Neutron Activation Analysis' is another useful method of determining the metallurgical composition of a coin because it too is nondestructive. Of equal importance is the fact that analysis by this method measures the composition throughout the coin, and not just on the surface. This method is particularly good for measuring trace amounts of gold in silver, which is one of the most reliable ways of tracing source metal. The analysis is carried out by bombarding the coin with neutrons from a nuclear reactor. This causes elements present in the composition of the coin to generate radioactive forms which can be measured by a gamma-ray scintillation spectrometer. The equipment to perform these tests is not as simple nor readily available as the SEM, and except for special circumstances is not yet practical as a means of authenticating individual coins. For a technical description of the process see A. Gordus, *Neutron Activation Analysis...* in the bibliography.

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The Collector Response

Whether amateur or professional, every collector is concerned with the potential of acquiring a forgery. For this reason, there has been a strong response by the collector (and associated dealer) community. Throughout this book we have mentioned the names of some pioneers in detecting and exposing forgeries—like Sestini, Gnecchi, Svoronos and others. Today, we could certainly add names like Hurter, Sear, Walker and Kovacs. Others will be noted in the extensive bibliographies throughout our text.

A few collectors have expressed the opinion that it is not good to discuss fakes in a public forum since the forgers might learn their mistakes and correct their deficiencies. Other collectors feel that the answer to the problem of forgeries is simply to expose all the fakes in the media along with descriptions of what is wrong with them. There is some logic in each position. Even if one were to make a giant illustrated catalogue of fakes, that would not help defend against new material that comes out each year. Worse than that, many fakes are produced by making dies using genuine coins as the models. Inevitably, novices and some seasoned but naive collectors would begin matching up their genuine coins against a forgery catalogue illustration and claiming foul because they look the same.

One often expressed fear of fakes is that they will become so good that no one will be able to tell them from genuine coins—and this will destroy the hobby. This is an alarmist view that is grounded firmly in ignorance of the facts. There are skilled forgers and there are skilled numismatists. They both have had their successes, but neither is anywhere close to claiming victory. Think about it for a moment. No one ever destroys a coin—not even a penny—no matter how dirty, bent, stained, corroded or battered it might be. Coins today are worth less in terms of buying power than ever in history. Still, we will stop to pick up loose change on a street or throw our extra pocket change in a jar and save it. This is instinctive. People have always saved coins—every coin. Think about the number of coins it took to satisfy the commercial needs of a city like Rome in the first century. Certainly several million circulated at any given time. Now multiply that times the number of coin producing cities in the ancient world. True, not all were as big as Rome, but there were over 600 of them in Asia Minor alone—never mind Britain, Gaul, Spain, Africa, the Balkans, the Levant, and all those lands to the East. Now multiply that number (if you have been able to count that high) times the 2,000 or so years between early classical times and the fall of Constantinople. The number of coins struck in antiquity is simply too staggering to comprehend. Where did they all go? Nowhere. Gold and

silver coins are not very biodegradable, and most are still around somewhere. The Brescello Hoard of 80,000 gold aureii notwithstanding (most were melted down), only a small percentage of the coins produced in antiquity are likely to have been recycled. Now think about how long it takes for the average forger to produce a single coin. The problem is simply not, in terms of proportion, a threat to the hobby. It is more of a threat to the psyche of the collector, and that is a difficult concept for the new collector to grasp. As each of us matures in our collecting experience, and eventually ends up specializing in some manageable aspect of the overwhelming field, we become better able to defend ourselves against fakes. It is the knowledge of specialists which ultimately deals the crushing blow to most forgers. No forger can possibly know the intricacies of a series as well as someone who has a passion for it and spends their whole life studying it. There simply is no substitute for education, experience, and intuition.

Fortunately, none of us are alone in this boat. The following pages highlight some of the many activities of collectors, dealers and institutions in the continuing fight against forgery. The numismatic press has also played an important role in this fight and the bibliographies in this book cite many pertinent articles in publications worldwide. The idea that talking about fakes will forewarn and forearm the forger is probably overrated. Most forgers learn their mistakes much faster than the media could ever teach them. It would do the hobby more harm to avoid the subject and keep the majority of collectors, especially new collectors, in the dark.

Legislation is obviously not the answer. We have sufficient laws in most countries to penalize those who perpetrate fraud through forgery. The problem is that enforcement of existing laws is extremely lax. Prosecutions for fraud in the bullion or investment markets have occasionally made the news, but we do not know of a single ancient coin forger who has ever been successfully prosecuted. Christodoulou and Orphanides came close, but managed to evade the law. Since then, forgers have had a free ride. Even if the forgers could be identified, few collectors are willing or able to undertake the personal expense of a civil suit, and consequently the only remedy left is that dealers absorb the loss of returned fakes. This has, in some cases, placed a severe burden on numismatic firms whose resources are usually committed to the maximum. It also places the dealer in the uneasy position of being the one most likely to discover a fake and also the one to suffer most from its discovery. Although the dealer community's response to the problem, and acceptance of responsibility, has been admirable there is without a doubt a conflict of interest in this scenario. A few successful prosecutions would go a long way toward bringing the issue under control.

The Hobby Protection Act

House of Representatives Bill H.R. 9448, introduced by Congressman James A. McClure (R-Idaho) on March 25, 1969 was signed into law by President Richard M. Nixon on November 29, 1973. It is better known to numismatists as the Hobby Protection Act. The stated purpose of the act is "To prohibit the manufacture or importation of coin replicas unless such replicas are manufactured in accordance with standards prescribed by the Secretary of Commerce....which standards shall be designed to prevent fraudulent practices in the manufacture of coin replicas by means of a clear and discernible marking of the reproductions or replicas." The bill goes on to define *coin replica* as "any reproduction or other replica of any coin, whether foreign or domestic, which is not in current circulation." The standards referred to include the incuse marking of each replica with the word "COPY" in specified dimensions. This measure was ostensibly designed to protect the hobby from the proliferation of unmarked copies which may unwittingly be purchased as genuine. The protection of individuals against perpetrated fraud is already legislated under other acts.

Twenty years after the law was enacted, a reporter (Paul Gilkes: "Hobby Protection Act born in '73 with specific mission", *Coin World*, August 2, 1993) asked the question: Has the Hobby Protection Act lived up to its expectations? Unfortunately, Gilkes asked the question of the wrong person. His response from Federal Trade Commission attorney Robert Easton was "Yes, definitely. From time to time, I go into jewelry stores and general merchandisers and see that any imitations offered are correctly marked as such. The fact that we haven't gotten many complaints indicates to me the Act is working very well." This is a rather ludicrous statement in view of the thousands of unmarked modern replicas of ancient coins that are advertised and sold with impunity every year in this country. The flood of Slavey replicas, for example, began in the 1980s. Before and after the Act, anyone could purchase Greek and Roman replicas from Peter Rosa (Becker Reproductions). Throughout this period, well-known numismatic firms openly advertised such items in their fixed price lists and included them as offerings at auction. In the 30 or so years that this Act has been in force, this author is not aware of a single action taken by the United States Government against a purveyor of unmarked copies of ancient coins. This pretty well speaks for itself, and what it says—quite clearly—is that the Hobby Protection Act is not protecting the hobby.

Can it protect the hobby? Probably not. It is, in fact, one of those laws that politicians like to point to as an example of their concern for constituents. But, it has very little chance of ever being seriously enforced. The penalty for infraction is minor—with a maximum of one year in prison and/or a $1,000 fine. Certainly, no first time offender would garner a maximum penalty, and it is hard to conceive of actual incarceration for a

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violation of this law. The logistics required to obtain a restraining order, much less to prosecute an individual, are significant. Only a matter of some urgency and priority would cause the necessary departmental resources to be allocated—keep in mind this is a Federal law. Since the stated purpose of the Act is to prevent fraudulent practices, it would be incumbent upon the prosecutor to prove such fraudulence. That would be very difficult to do, and most prosecutors would not waste their time trying. The fact that a private collector might be disappointed to learn that a purchase was not as ancient as presumed, would hardly be enough to set the momentous wheels of government in motion. In a true case of fraud, where a fake is knowingly advertised as genuine, it is more likely that the collector will find redress in the local state courts. Even here, it might be difficult to prove that a seller knew an item was fake and knowingly advertised it as genuine. Considering the gravity of offenses which pile up daily on the docket of most courts, the chances of an aggressive prosecution are slight.

It may not even be in the hobby's best interests to enforce the law. Robert Kokotailo, a Canadian coin dealer, raised an interesting question on the subject: "If you pass regulations to make the importation of fakes illegal, do you then need a certification of authenticity to get genuine coins into the country? If the import of genuine coins did not require certificates from recognized authorities at the point of entry, how would you administer such a law?" Anyone who has bought a carpet in Turkey will know how such laws work. You have to take your carpet (even if brand new) to the Museum of Culture, where a bureaucrat certifies (for a fee) that it is not an antiquity. Then, and only then, you can ship it.

This does not mean that the Act is useless. It does serve one very important purpose. The Hobby Protection Act gives numismatic publishers the grounds to refuse advertising which includes items in violation of that Act. In fact, it is this very point which effectively curtailed the activities of Peter Rosa in the 1970s. The refusal of the numismatic press (namely Krause Publications, *Coin World* and *The Numismatist*) to accept Rosa's ads left him without an outlet for his reproductions. We are faced today with a different scenario. Sellers of ancient coin replicas on the worldwide market of the Internet may not even be subject to the Hobby Protection Act.

There are certainly elements of legitimate controversy within the established law. For example, do Paduan or Becker reproductions require marking? Some collectors would consider it a crime to deface either of these, or a BM electrotype, by stamping the face of it. What about Rosa replicas? What about ancient counterfeits? Under the provisions of the Hobby Protection Act, these may be considered replicas of non-circulating coinage. Where does one draw the line? It has been suggested that copies of "historical significance" should be spared. The trouble with that approach is that historical significance can only be determined in retrospect. Cavino's

work would not have been deemed historically significant until well after his death. The Act is simply too ambiguous to be of much value to collectors of ancient coins. That is because it was not written with ancient coin collectors in mind. In reality, it raises more problems for us than it solves.

The dilemma we face is not that existing laws are poorly enforced—for in truth that would necessitate a level of governmental intrusion that few hobbyists would support. How, for example, would the U.S. Government enforce the prohibition against importation of replicas? The only practical way would be for U.S. Customs to intercept such objects at the point of entry. How would customs agents know whether a coin was authentic or a replica? By requiring certificates of authenticity on all imported coins. The imposition of such a mandate would add a tremendous administrative burden, significant increase in cost for even the most incidental coins, and would not in the slightest way reduce the flow of replicas. It would truly be a case of the tail wagging the dog. Realistically, none of this is going to happen—and that is why the Act is not enforced.

The real dilemma is that a healthy market exists for reproductions. If there were not any buyers for these unmarked replicas, there would not be an incentive to produce them. It is easy to blame governments, laws, agencies, dealers and the Rosas or Slaveys of the world for the proliferation of unmarked reproductions, but the blame really lies with each collector who has ever purchased one. We could mount a united appeal for enforcement of the Hobby Protection Act, but that would be a waste of good time. When popular society and association magazines boldly run ads for unmarked reproductions in direct violation of the law, there is little chance that we will ever see enforcement. A boycott of reproductions would be more effective. Still, there will always be those who insist it is their right to purchase unmarked copies if they choose. One collector recently wrote in an Internet chat session that it would be a good idea to intentionally buy a "museum copy" or two so one could get the "look and feel" of them. On the surface, that idea seems to have merit, and might be helpful if all fakes and replicas looked alike. However, if every collector of ancient coins bought a replica or two it would simply perpetuate the market. One does not need to keep a pet scorpion to know what they look like.

Since the Hobby Protection Act is apparently unenforceable, the only real defense against unmarked replicas seems to be self-insurance. It is an axiom that may seem overworked, but collectors should deal only with individuals who unconditionally warrant the authenticity of the coins they sell. Collectors with a mind to collect reproductions (and there are many who do) should refrain from buying anything but uniface examples. As Michel Prieur, a prominent French coin dealer, put it: "Copies do not have to be both sides—we never look at both sides at the same time." When there is not a viable market for two-sided unmarked reproductions, there will not be a reason for them to be produced.

Society and Institutional Research

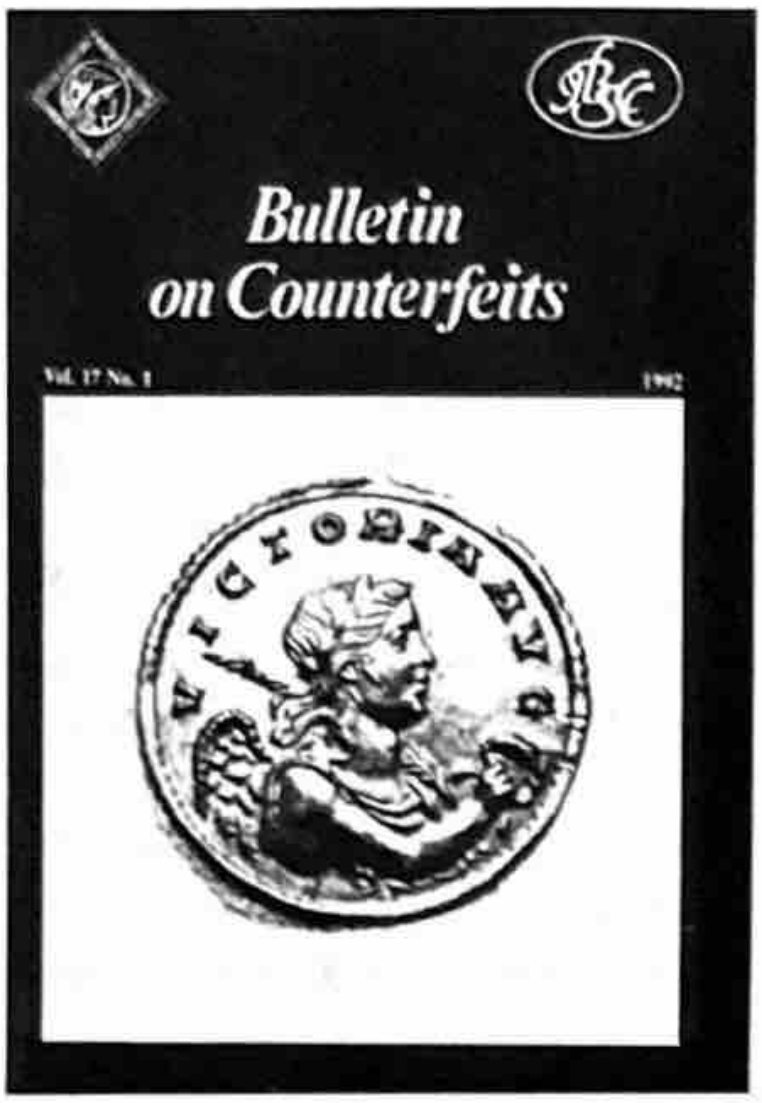
In 1965, the International Association of Professional Numismatists (IAPN) hosted the First International Congress for the Study of and the Defence Against Coin Forgery. During that meeting, the congress heard reports from a cross section of private and state institutions and agencies. In response to one of these reports, the congress president (Colin Martin) replied: "I think that by instructing collectors, by the distribution of catalogues on forgeries, by the publication of imitations, by completing the numismatic education of the general public, you will fight against the forgers much more effectively. If forgeries are so widespread, it is because numismatic societies have not yet understood that *they* should see to the instruction of their members." In the thirty-five years since Mr. Martin's remarks, there has been little education of the general public, much less the collector community, on the nature of forgeries and imitations. This is not to say that numismatists have taken an ostrich-like head-in-the-sand attitude. There have been important efforts by several institutions. The problem is that their work is not widely disseminated.

The American Numismatic Society has hosted many workshops which often include discussions of forgeries. One recent workshop on Chinese cast coins included presentations by two speakers on contemporary counterfeits, fakes and forgeries. In March of 1999, the ANS, ANA, University of Washington and others cosponsored a three-day hands-on symposium in Seattle titled "Art, the Art of Forgery and Coinage". The symposium brought together a blue-ribbon panel of experts who covered a variety of germane topics. The symposium was open to the general public and a number of ancient coin collectors attended. Reports were that the program was very educational and thought-provoking.

The Royal Numismatic Society and the Department of Coins and Medals of the British Museum organized a symposium "Counterfeiting: Ancient and Modern" on September 14-15, 2000 at The Society of Antiquaries, Burlington House, Piccadilly. The forum included various aspects of the technology and scientific investigation of the manufacture and context of unofficial issues both ancient and modern. Proceedings of the symposium are expected to be published in the RNS series *Metallurgy in Numismatics* as MIN 5. This symposium coincided with the British Museum exhibit "Illegal Tender."

The integration of effort among professional numismatists, scholars and collectors is essential for the long term health of numismatics not only as a hobby but as a science. The forger's work is just as damaging to the academic world as to the collector—perhaps more so. The collector can often survive the loss of a coin, rewriting history is more difficult.

IBSCC



The International Bureau for the Suppression of Counterfeit Coins (IBSCC), an agency of the International Association of Professional Numismatists (IAPN), was formed in 1975 with the appointment of Ernest G.V. Newman as the first director, and P.J. Seaby as the chairman of the Board of Management. The objectives of the IBSCC are: 1.) to collect, edit, publish and circulate information on forgeries, not only to members of the IAPN but also to other interested bodies and individuals. 2.) to build up a data bank of information on counterfeits... 3.) to arrange for the authentication of doubtful coins by experts... 4.) to work for changes in legislation in different countries which would make illegal the manufacture of counterfeits ...and of reproductions of coins which are not marked as such. The *Bulletin on Counterfeits,* the official publication of the IBSCC, was inaugurated in 1976. It was the IBSCC that exposed the notorious Costodoulos and his work. Their efforts have not been restricted to expensive rarities, as forgeries of many common types like the drachms of Istrus and Apollonia have also been exposed in this forum. As this book goes to press, the IBSCC is preparing a special edition of its bulletin which will publish the "Black Cabinet" of a very specialized and knowledgeable collector of coins from Central Greece. Publications like this are of great value to the numismatic community because they focus on a particular series or region rather than on a single forger's workshop.

The IAPN and the American Numismatic Association (ANA) have agreed to combine their efforts toward the detection of forgeries and will, effective this year, jointly issue the *Counterfeit Coin Bulletin.* The ANA will provide information on United States coins and the IAPN will coordinate material on world and ancient coins. The new bulletin is to be published three times a year and will be produced by the ANA Publications Department ($60/year for ANA members). Experts from both organizations will work together to produce a series of bulletins to help all numismatists, collectors, scholars, researchers and dealers learn about dangerous fakes, avoid costly mistakes, and ensure the integrity of their personal collections, museum cabinets and dealer inventories.

The Internet

The value of the Internet as a medium for making available images of forgeries in private collections cannot be overstated. There are few books on the subject, including this one, which can match the effectiveness of a full screen color illustration of a fake. One problem with listing Web site URLs is that they tend to change over time and are no longer accessible. Recognizing that this is inevitable, we nevertheless feel that a list of sites will be useful for at least the short term. If you try the link recorded here and it won't load, try just the domain name itself and follow the internal links. Webmasters often rename or reorganize their pages, but seldom delete them altogether. The Internet search engine is always a ready resource, as are the links on several dealer Web sites. For ease of access, all of these links have been included in the *Celator* Web site (http://celator.com/cws/fakes.html) where they will be updated as time and resources permit.

Doug Smith's Web site pages on fourrees & counterfeits
http://www.geocities.com/Athens/Acropolis/6193/fourreer1.html
http://www.geocities.com/Athens/Acropolis/6193/fourreer2.html
http://www.geocities.com/Athens/Acropolis/6193/fourreeg.html
http://www.geocities.com/Athens/Acropolis/6193/wild.html

Chris Hopkins' pages on counterfeits and forgeries
http://parthia.com/parthia_forgery.htm
http://parthia.com/parthia_fourree.htm

Bill Puetz' pages on fakes and forgeries
http://www.12caesars.com/Fakes___Forgeries

Art Noot's pages on forgeries
http://www.deepfield.com/anoot/forgery.htm

John Jencek's pages on forgeries
http://ancient-coins.com/forgery/

Calgary Coin's pages on forgeries
http://www.calgarycoin.com

Dennis Kroh's article on forgeries
http://members.aol.com/kroh/fakes.html

Kevin Barry's pages on forgery
http://www.ancient-times.com/newsletters/n13/n13-a.html

CGB's pages on forgeries
http://www.cgb.fr/monnaies/articles/faux/indexgb.html

Authentication Services

There are relatively few authentication services which accept submission of ancient coins. This should say something about the nature of the beast. We have listed here the ones which we know to be active. Most dealers in ancient coins will offer informal opinions about authenticity at coin shows, but these are not certifications of authenticity. The inclusion of a "certificate of authenticity" from the seller is a nice security blanket, but this is really worthless from a practical point of view. The seller who provides such a certificate has put his or her reputation on the line, and is not likely to accept a counter opinion without some resistance. A third party certification is always the best approach when it is suspected that there might be problems. The services listed here are generally regarded among ancient coin dealers as being competent and authoritative—something you will certainly need if your coin comes back NG.

Ancient Coin Certification Service



David Sear is without question the most familiar name in the field of ancient numismatic certification. His catalogues of Greek, Roman, Imperatorial, Byzantine and Greek Imperial Coins and Their Values are invaluable to the collector and virtually everyone owns at least one or more of these standard works. Sear's laurels do not rest on the fact that he is a successful author. His numismatic credentials are equally impressive. It is no wonder that his opinion is highly valued in the fraternity.

David Sear's Ancient Coin Authentication Service (ACCS) provides collectors and dealers with an authoritative opinion of authenticity as well as accurate attribution. There are two formats available—basic (currently $30.00) and detailed ($40.00). Prices are of course subject to change. Both are presented in certificate form, the principal difference being the addition of a paragraph giving comprehensive information on the historical background to the issue and the precise significance of the particular variety.

The certificates include a black and white photograph of the coin, are serial numbered, and are signed by David Sear. Turn around time is typically two to three weeks, but express service is also available. For further details and submission information write to David R. Sear, P.O. Box 5004, Chatsworth, CA 91313 or see http://davidrsear.com/certification.html on the World Wide Web.

ANA Authentication Bureau

Founded in 1891, the American Numismatic Association is the world's largest educational organization for collectors of coins, paper money, tokens and medals. As part of its world-class Money Museum, the ANA operates the ANA Authentication Bureau (ANAAB), which offers independent, unbiased, professional opinions about the attribution and authenticity of United States and world numismatic material. ANAAB maintains a database of more than two million photographs and thousands of specimens of counterfeit coins, tokens and medals from around the world. Items submitted for authentication are carefully examined and photographed; those determined to be genuine receive a black-and-white photo certificate of authenticity. For additional information, contact: ANA Museum Services, 818 North Cascade Avenue, Colorado Springs, CO 80903-3279. Telephone: 800/467-5725, Fax: 719/634-4085. Email: anamus@money.org

Independent Coin Grading Company

Collectors who may have migrated from the world of modern coinage into the world of collecting ancients now have the choice of collecting slabs if they wish. The Independent Coin Grading Company (ICG) has launched a program of grading, authenticating and encapsulating certain categories of ancient coinage. These include gold and silver coins of the Greeks, Romans and the early Romaion empire. Cost is based on the company's scale for U.S. and Canadian coins plus an additional $5.00 per coin. ICG also attributes ancient coins to include approximate date, denomination, metal, and issuing authority. There are limitations as to the types of ancients that ICG will accept for processing and they should be contacted prior to submission for details. For example, coins must be less than 4mm thick and no more than 42mm in diameter. For information as to where coins may be submitted contact James Taylor, ICG, 7900 E. Belleview Ave., Suite 50, Englewood, CO 80111. Tel: 303-321-4424 or email jamestaylor@icgcoin.com.

A Word on Expert Opinion

There is certainly no substitute for experience when evaluating the authenticity of an ancient coin, or any other work of art for that matter. However, the history of forgery is replete with tales of expert opinion gone awry. The on-off-on again debates over authenticity of the Met's bronze horse, or the Shroud of Turin illustrate easily enough that expert opinion is just that—an opinion. All of the scientific methods and sensitive equipment at our disposal ultimately rely on human interpretation for the final analysis. There simply is not an infallible machine that will blink a red light for fake and green for authentic.

Likewise, any numismatist who boldly claims infallibility in this field should be viewed with skepticism. The numismatic world was reminded of its vulnerability, and handed a dose of humility, in the early '90s as the Black Sea Hoard of fake diobols (and not very good ones at that) was proclaimed genuine by fully half of the "experts" in the field—including a principal in one of the authentication services. Still, the number of forgeries exposed each year by experts greatly exceeds the number of genuine coins which might be falsely condemned—or forgeries which remain unchallenged. One thing in favor of eventual detection is the fact that, over time, many sets of experienced eyes are visited upon each questionable coin. The corporate experience of the hobby tends to rise above the ability or experience of any one expert, but it is still possible for *everyone* to be wrong.

The Black Sea Hoard diobols mentioned above have much in common with the recent forgery of a Panticapaeum gold stater. Both were products of Bulgarian workshops. Many people immediately dismissed the Panticapaeum stater as an obvious fake, ridiculing the purchasers. In the case of both the gold stater and the debased diobols, emotional comments elevated a simple question of authenticity into a matter of personal pride. Reputations, after all, were on the line. This made any rational dialogue virtually impossible. Although the doubters, in both cases, were right—the coins were forgeries—they polarized the issue and made proving the case all the more difficult. Expert opinion should always be the starting point of an examination, but not necessarily the final word. Nothing hinders a fruitful investigation more than arrogance and egotism. In fact, these are the forger's strongest allies. Many of the really good forgeries which make it to the marketplace are removed without any fanfare. It simply is not good business to announce these kinds of problems to the world. The point, however, is that they *are* removed and that collectors are usually spared any loss. When real money is at stake, and expert opinion is going to be the deciding factor in whether a coin is good or bad, it is a foregone conclusion that the issue will receive serious deliberation.

Trade Associations

One Internet discussion list participant recently wrote: "Since no one is willing to step forward and tell me who the BAD dealers are, could some of you step forward and tell me who some of the good ones are?" It is a bit tacky, not to mention a potential conflict of interest, for dealers to list those of their colleagues who are "preferred". The closest thing that we have to such a listing is the membership roles of certain respected trade associations. These associations hold their members to agreed and published standards of ethics. The one that they all have in common, and is of greatest value to the collector, is that they must guarantee unconditionally the authenticity of coins that they sell.

IAPN: The International Association of Professional Numismatists, founded in 1951, is a nonprofit organization of leading international numismatic firms. The objects of the Association are the development of a healthy and prosperous numismatic trade conducted according to the highest standards of business ethics and commercial practice. For information contact the Secretary: Jean-Luc Van der Schueren, 14 Rue de la Bourse, B-1000 Bruxelles, Belgium.

PNG: The Professional Numismatists Guild was founded in 1955 with the motto, "Knowledge, Integrity, Responsibility". Today, the PNG comprises a membership of many leading professional numismatists across the United States and abroad. For information contact the Secretary, Professional Numismatists Guild, 3950 Concordia Lane, Fallbrook, CA 92028. Or call: (760) 728-1300. E-mail: info@pngdealers.com

ANA: The American Numismatic Association is located at 818 North Cascade Avenue, Colorado Springs, Colorado 80903-3279. Founded in 1891, the nonprofit, educational group is the largest numismatic organization of its kind in the world.

Verband Der Deutschen Münzenhandler: The German association of professional coin dealers is one of the most active in Europe. For information contact Dr. Hubert Lanz, Luitpoldblock, Maximiliansplatz 10, D-80333, München, Germany. Tel. +49 89 29 90 70.

BNTA: The British Numismatic Trade Association was founded in 1973 and has grown into an organization of over 70 firms located throughout the British Isles. Contact Mrs. Carol Carter, General Secretary, BNTA, PO Box 474A, Thames Ditton, Surrey, KT7 0WJ U.K. Or email: bnta@netcollect.co.uk

Self-Regulation

What can we, as collectors and dealers, do about the problem of forgeries and reproductions of ancient coins? Aside from educating ourselves, and others, we can make sure that any coins entering our black trays have a one-way ticket. Once identified, a fake should never be allowed to deceive again. So what should we do with fakes once they are detected? Well the collector will hopefully return it to the place where it was purchased. But, if that is not possible, every numismatic museum is pleased to receive donations of fakes for their own collections. These institutions maintain trays of fakes solely for the purpose of comparison. Sometimes, these trays provide vital information in the investigation of a suspect specimen.

The main objection to the Hobby Protection Act has always been that a large incuse stamp of the word COPY not only reveals the nature of the piece, it destroys any aesthetic value that it might have had. Yes, forgeries and reproductions can be beautiful and can be appreciated for their artistry. In fact, there is something in the very existence of a forger's or copyist's work that stimulates a sense of intrigue. Many individuals, and virtually all dealers, collect fakes that come their way. Some even go out of their way to find them. This is not an unnatural inclination. In the first century AD, Pliny the Elder related in his *Natural History* how forgeries of denarii were so interesting to Roman connoisseurs that they would bring several genuine ones in exchange. Naturally, those who find these pieces interesting would not want to stamp the word COPY across the face, obliterating their charm. It is possible, however, to stamp a small "F" for Fake or "R" for Replica in some vacant spot in the field. This can be done with a small letter punch available through tool and die supply houses (don't punch it so hard that you break the coin). Those two letters have been used for centuries to designate modern creations and are understood by most numismatists when they see them. It may not meet the requirements of the Hobby Protection Act, but this relatively unobtrusive marking would lessen the chance of a fake getting back into the market unintentionally, or a replica being misunderstood.

It would be a great service to the hobby if copyists would mark their own work, like the "R" on Robert Ready electrotypes of British Museum fame, or the word "COPY" on Rosa's early issues. But pride naturally inhibits the desire of artists to deface their work. It is left then to the consumer to act. Wouldn't it be nice if every reproduction on the market had a nice clear letter R in the field because of some collector's (or dealer's) conscientiousness. In fact, wouldn't it be nice if marked replicas brought a premium in the market over the price of unmarked copies? That might encourage every purveyor of such items to keep a little punch and hammer nearby.

Few hobbies are as mindful of the need for integrity as ancient coin collecting. Dealers do not have any universal code (although there are dealer organizations with member standards) but the dealer fraternity is pretty good about self-policing. As an example, I will quote here a paragraph from an article about fakes written several years ago by Thomas P. McKenna—a now retired dealer from Fort Collins, Colorado.

"In nearly twenty years in the ancient coin business there was only one dealer I knew of who continued to intentionally sell fakes. He was disdained and ostracized by the other dealers, and is *persona non grata* at any established coin show. When he turned up with a table under a new trade name in Denver around five years ago, I went immediately to the show promoter, who told me: "You are the fifth one to come to me about him. I didn't know him. I can't kick him out now that we have a contract. I've warned him about showing or selling any fakes, and he'll never get another table at my show."

The vast majority of fakes that are withdrawn from public auction each year are identified by dealers. In spite of the obvious potential for conflict of interest, or outright skulduggery, there is seldom any problem arising from this informal "vetting". It is in the best interest of *all* dealers that collectors do not suffer the pain of buying a fake. Nothing could cool the market faster than a loss of faith and credibility.

There are some wild stories, however, when it comes to the handling of coins which might be fake. One dealer related to me a personal experience which I will pass on here—and hopefully get the details right. This individual was not really a full-time dealer, but rather a collector who did several shows a year simply for enjoyment and to enhance collecting opportunities. At one of the major shows, this fellow happened to purchase a rather rare gold coin from a fellow dealer. Proudly showing his new acquisition to friends, and a few other dealers, he was told by an apparently well-meaning, but poorly advised, colleague that the coin was a fake. Nonplussed by this revelation, he sought out the seller and not only returned the coin, but severely berated the individual for trying to pull a "fast one". As it turns out, the seller refunded the purchase price and took the coin to several other professionals for an opinion on authenticity. Not only did he determine that it was authentic, but that it was exceedingly more rare than he had realized. He ended up selling the coin to another dealer for a substantial premium above what he had originally sold the coin for. When the collector-dealer heard about this, he became enraged because he felt the profit was rightfully his! It led to a rift which never was resolved. As unlikely as this scenario seems, it supports two important axioms: (1) Always buy from a source which will unconditionally warrant authenticity; (2) Rely on competent, experienced professionals for opinions of authenticity. We might add one more axiom: (3) Never let paranoia and greed get in the way of enjoying your hobby.

Forgeries as Collectibles

Dealers and museums are not alone in their effort to purge the market of forgeries. Many collectors have accumulations of fakes, especially in their main collecting areas. These "Black Trays" offer a useful resource for the hobby in general. They also offer a certain appeal as collectibles. One prominent collector, known to most in the hobby for his serious scholarship, has shared with us the following thoughts about collecting forgeries.

"Collecting modern forgeries has always been a challenge for me. As my ancient Greek coin collection of well defined mints and areas in central and southern Greece grew, so did my collection of forgeries of the same coinages. There is a certain thrill in being able to recognize a good, almost credible, forgery and over the years it is these 'difficult cases' that became the stars of my collection.

I can still remember the 'moments of clarity' (or truth), when it finally became obvious (after much deliberation with myself) that a particular coin in my collection was, after all, a modern forgery. Such moments would almost always come about after 'comparison exercises'. The suspect would jump out from the row or rows of essentially identical coins — this was the way I was collecting, many of the same—and shout at me: I am 'wrong'! This initial verdict was enough for me; I never followed through into defining *what* made that coin a fake. For the really good ones this would be an almost impossible task anyway. But the 'feeling' had suddenly arrived. And I must say that in all my collecting years that "feeling" was very rarely wrong.

What happened though when the coin was so rare that there was no comparison material readily available? Or when there was no comparison material to be found anywhere for that matter? Then other, more subtle mechanisms of verdict would come into operation. Most of them I cannot name either because I would be conceding valuable information to would-be-forgers or because I am still unable to define them in a coherent manner. But it is important to state that even today there is a handful of so-called genuine coins in my collection with which I am not entirely happy...

But isn't this part of the 'game'? No, not part of the war between good and evil but part of the battle of wits between collector and forger. Unless a collector concedes that he will be duped in the process of his collecting and that he will buy at least some fakes, he will never be a real collector. Because collecting, like life, is not only about winning, it is about both winning *and* losing."

Epilogue

S.K. Harzfeld, an American numismatist, wrote the following words in an address to the Numismatic and Antiquarian Society of Philadelphia. "How can we protect ourselves against counterfeit ancient coins, and detect forgeries? This is, I am sorry to say, a question not easily answered; there are no absolute rules which can be laid down. Practical experience is the principal guide, which must be gained in a great measure by a careful examination of ancient coins; the comparison of undoubted genuine pieces with doubtful or forged specimens, and the exchange of opinions with experienced numismatists, will by-and-by result in giving us a positive judgment in the matter, so that we 'feel' why this coin is all right and that one is not, and are fully aware of the reasons, although we may be unable to teach or explain this positive feeling to others." This address was delivered on April 3, 1879. It is amazing, in spite of the changes in technology and all of the research of the past hundred years, how true those words remain today. Education and experience are still the most effective weapons in the fight against forgery.

In looking back, we can see that the issue of forgeries has plagued collectors of ancient coins for two millennia. It is probable that each generation viewed its own experiences with forgers as potentially disastrous for the hobby's future. Some may look at the sophistication of forgeries in our time as a daunting threat, but in the coming years there will be new methods of detection and new methods of deception that we cannot even imagine. If we could set emotion aside, we would see that the problem really is, and always has been, one of minuscule proportions—at least in terms of volume. As we have stated, the number of fakes in the market today compared to the number of genuine ancient coins is statistically insignificant. Are fakes getting better each year? Probably not better at the top end, because they have always been good. But the fakes at the low end are definitely getting better. This is in many ways a sad thing, because a mature collector will understand and accept the infiltration of a forgery into their collection much better than a novice. The sting of buying a fake can turn a blossoming young collector into a former collector.

Forgeries are a fact of life in the collecting of ancient coins, just as they are in practically every collectible field. The prudent collector will accept this simple fact and learn to minimize the risk If you do get stuck with a fake that's not returnable, set it aside with a flip insert labeled "Ancient Coin Forgery 101". Learn why you made the mistake in the first place, and consider that your purchase price was a form of tuition. Nothing is a better teacher than the gentle reminder of a mistake. However, this is one school where we would prefer not to earn too many credits.

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APPENDIX

Catalogue of Rosa Reproductions

There has never been a comprehensive catalogue of Rosa Reproductions, and our ability to construct one diminishes each year. For the benefit of future generations, we present here as complete a listing of Rosa's production of ancient coin types as information at our disposal permits. The reproductions are divided into Greek, Judaean and Roman categories—which are sorted alphabetically by issuing authority. When available, illustrations have been included (for the rationale in selecting obverse vs. reverse type, see Sayles: "The technical obverse..." in the following bibliography). The sources of these illustrations include photographs of various trial strikes from Rosa dies, photographs of finished specimens and illustrations from commercial advertisements produced by Rosa. Unillustrated listings in these flyers are also included in the catalogue, with the expectation that specimens will eventually come to light. The photographs of lead trial strikes from Rosa dies are derived from two sources. The first are photographs of strikes in Rosa's personal collection taken by the author in the late 1980s. The second source is lead strikes acquired from Rosa's estate in 1999. The obverse and reverse photos are not always from the same specimen, since the trial pieces often were struck uniface. In a few cases, the only illustration available is from a 30-year-old faded advertising flyer. It is possible that Rosa copied some of these advertising flyer photos from Head's *Principal Coins of the Greeks*. However, many of the early reproductions conform closely in shape and appearance to the originals. Photographs of dies have been used where an actual strike or advertising photograph was not available. In these cases, the photo has been reversed so that the image appears right-reading. The die itself would bear a reversed image. Where no photographs or strikes are available, we have opted to leave the space blank rather than fill it with an illustration of the prototype from some non-Rosa source. As you will see, this is a strange assortment of illustrations. Unfortunately, there are not any complete collections available for us to photograph and we are relegated to using whatever image sources remain.

Rosa himself stated that all of the dies (with the exception of the Beckers) were made from casts of originals in the British Museum. We have confirmed this in many cases, but have indicated an uncertain prototype where unconfirmed or when the possibility of a mule exists. For this same reason, when only one side of a type is recorded from a uniface strike or an advertising flyer illustration, we have indicated the missing side as uncertain. Illustrations are actual size unless indicated otherwise. The 20mm or smaller reductions were made for jewelry. Strikes from these dies normally bear circular indentations on one side to facilitate mounting. It might be presumed that full size dies of the same type were also

manufactured, but in some cases we lack specimens to confirm that as fact. It is also possible that the opposite side of uniface specimens listed here may exist. All types may exist in both cast and die-struck states. It is obvious that the listing here is far from complete, and we expect that publication of these dies will lead to the revelation of others.

Weights have not been recorded because the metallic composition and weight of Rosa's copies varies greatly. He also used bimetallic compositions, including copper and silver laminated lead for uniface strikes. Rosa's production was not limited to ancient coins. He produced over 200 colonial and territorial gold coins and a variety of commemorative medals. These are not included here as they are beyond the scope of this book. For some of these types, see the article by John Kleeberg cited in the bibliography to this section.

GREEK CATALOGUE

001 Abdera
AR tetradrachm
Becker, Hill 34
Rosa ad flyer



002 Acanthus
AR stater
Becker, Hill 38
Rosa ad flyer

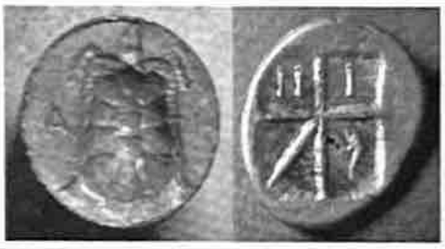


003 Acarnania
AV stater
Uncertain
Rosa ad flyer



Uncertain

004 Aegina
AR stater
Uncertain
Die



005 Aegina
AR stater
Uncertain
Die



Uncertain

006 Aenus
AR tetradrachm
Becker, Hill 35
Rosa ad flyer



007 Agrigentum; AR decadrachm; British Museum
Lead strike



008 Agrigentum ; AR decadrachm; British Museum
Rosa ad flyer



Uncertain

009 Agrigentum
AR tetradrachm
Becker, Hill 16
Rosa ad flyer



010 Agrigentum
AR tetradrachm
BMC 58
Lead strike



011 Alexander Balas
AR tetradrachm
Becker, Hill 112
Rosa ad flyer



012 Alexander III
AR tetradrachm
Uncertain
Lead strike



013 Alexander of Epirus
AV stater
Uncertain
Rosa ad flyer



Uncertain

014 Amphipolis
AR tetradrachm
BMC 1
Lead strike



014a Amphipolis
AR tetradrachm (20mm)
BMC 1
Copper/lead laminate



Uniface

015 Amphipolis
AR tetradrachm
BMC 3
Tin strike / Lead strike



016 Anactorium
AR stater
BMC 68
Lead strike



017 Anepigraphic Zeus
Uncertain
Uncertain
Struck on a U.S.
copper penny



Uniface

018 Antiochus IV
AR tetradrachm
Becker, Hill 109
Rosa ad flyer



019 Antiochus VI
AR tetradrachm
Uncertain
Lead strike



020 Antiochus VII
AR tetradrachm
Becker, Hill 114
Rosa ad flyer



021 Antiochus VIII
AR tetradrachm
Becker, Hill 118
Rosa ad flyer



022 Arsinoe II
AR decadrachm
Uncertain
Rosa ad flyer



023 Arsinoe II
AV octadrachm
Uncertain
Rosa ad flyer



024 Arsinoe III
AV octadrachm
Uncertain
Rosa ad flyer



Uncertain

025 Astacus
AR stater
BMC 1
Lead strike



026 Athens
AR tetradrachm
Uncertain
Lead strike



027 Athens
AR tetradrachm
Uncertain
Pewter strike
(reverse same
die as #026)



028 Athens
AR tetradrachm (20mm)
Uncertain
Pewter strike
(jewelry indentation)



029 Athens
AR tetradrachm
Uncertain
Lead strike



029a Athens
AR tetradrachm (25mm)
Uncertain
Lead strike



Uniface

029b Athens
AR tetradrachm (20mm)
Uncertain
Brass bracteate



030 Bactria -
Antimachus
AR tetradrachm
Uncertain
Lead strike



Uncertain

031 Bactria -
Demetrius I
AR tetradrachm
Uncertain
Lead strike



Uncertain

032 Bactria -
Eucratides
AR tetradrachm
Becker, Hill 127
Lead strike



033 Barcids, Hannibal
AR tetradrachm
British Museum
Lead strike



034 Berenike II
AV octadrachm
Uncertain
Rosa ad flyer



035 Boeotia
AR stater
Uncertain
Dies



036 Boeotia, Thebes
AR tetradrachm (20mm)
Uncertain
Pewter strike
(Jewelry indentation)



037 Camarina
AR tetradrachm
BMC 14
Lead strike



038 Carthage
AR decadrachm
Becker, Hill 134
Rosa ad flyer



039 Carthage
AR decadrachm
Uncertain
Lead strike



040 Carthage
AR distater
Uncertain
Lead strike



041 Carthage
AR tetradrachm
British Museum
Obv: Lead strike
Rev: Copper /
lead uniface



041a Carthage
AR tetradrachm (20mm)
Uncertain
Pewter obv. & rev. strikes
(each with jewelry
indentations on back)



042 Carthage
AR tetradrachm
Uncertain
Rosa ad flyer



043 Carthage
AR tetradrachm
Uncertain
Rosa ad flyer



044 Carthage
AR tetradrachm
Uncertain
Lead strike



040 Carthage
AR distater
Uncertain
Lead strike



041 Carthage
AR tetradrachm
British Museum
Obv: Lead strike
Rev: Copper /
lead uniface



041a Carthage
AR tetradrachm (20mm)
Uncertain
Pewter obv. & rev. strikes
(each with jewelry
indentations on back)



042 Carthage
AR tetradrachm
Uncertain
Rosa ad flyer



043 Carthage
AR tetradrachm
Uncertain
Rosa ad flyer



044 Carthage
AR tetradrachm
Uncertain
Lead strike



044a Carthage
AR tetradrachm (20mm)
Uncertain
Pewter strike
(Jewelry indentation)



045 Carthage
EL stater
Uncertain
Rosa ad flyer



046 Carthage
EL tristater
British Museum
(Jenkins 372-1)
Lead strike



047 Catana
AR tetradrachm
Becker, Hill 17
Lead strike



048 Catana
AR tetradrachm
BMC 19
Lead strike



049 Catana
AR tetradrachm
BMC 24
Lead strike



050 Catana
AR tetradrachm
BMC 32
Rosa ad flyer



051 Catana
AR tetradrachm
BMC 33
Lead strike



052 Catana
AR tetradrachm
BMC 35
Lead strike



053 Caulonia
AR stater
Uncertain
Die

Photo
not
available



054 Clazomenae
AR tetradrachm
BMC 19
Rosa ad flyer



055 Clazomenae
Oversize, 35mm
Hill 94
Pewter cast



Uniface

056 Cleopatra VII
AR tetradrachm
Uncertain
Rosa ad flyer



057 Cleopatra and Antony
AR tetradrachm
Uncertain
Rosa ad flyer



058 Cleopatra & Antiochus VIII
AR tetradrachm
Becker, Hill 117
Rosa ad flyer



059 Corinth
AR stater
BMC 24
Lead strike



060 Corinth
AR stater
Uncertain
Lead strike



061 Cyrene
AR tetradrachm
BMC 163
Lead strike



062 Cyrene
AR tetradrachm
BMC 77
Lead strike



063 Cyzicus
AR tetradrachm
Becker, Hill 89
Rosa ad flyer



064 Demetrius II
AR tetradrachm
Becker, Hill 115
Rosa ad flyer



065 Epirus, Pyrrhus
AV stater
BMC
Pewter strike
(Jewelry indentation)



066 Eumenes I
AR tetradrachm
Becker, Hill 90
Rosa ad flyer



067 Gaza
AR drachm
Uncertain
Struck on U.S.
copper penny

Uniface



068 Gela
AR tetradrachm
Becker, Hill 18
Rosa ad flyer



069 Gela
AR tetradrachm
BMC 54
Lead strike



070 Gela
AR tetradrachm
BMC 6
Lead strike



071 Hannibal
AE medallion
Uncertain
Copper/lead laminate



Uniface

072 Heraclea Minoa
AR tetradrachm
BMC 6
Lead strike



073 Heracleia
ad Latmon
AR tetradrachm
Uncertain
Lead strike



074 Heracleia, Lucania
AR didrachm (20mm)
Uncertain
Dies



075 Larissa
AR tetradrachm
Uncertain
Obv: Lead strike
Rev: Silver/lead
laminate



075a Larissa
AR tetradrachm
(20mm bracteate)
Uncertain
Copper bracteate



076 Lebedus
AR tetradrachm
Hill 95
Lead strike



077 Leontini
AR tetradrachm
BMC 55
Lead strike



078 Leucas
AR stater
BMC 102
Lead strike



079 Leucas
AR stater
BMC 103
Lead strike



080 Leucas
AR stater
BMC 31
Lead strike



081 Leucas
AR stater
BMC 64
Lead strike



082 Leucas
AR stater
BMC 77
Lead strike



083 Leucas
AR stater
BMC 83
Lead strike



084 Leucas
AR stater
BMC 84
Lead strike



085 Leucas
AR stater
BMC 98
Lead strike



086 Leucas
AR stater
Uncertain
Lead strike



087 Leucas
AR stater
Uncertain
Rosa, Leucas uncertain



088 Locris
AR tetradrachm (20mm)
Uncertain
Dies



089 Lysimachus
AR tetradrachm
Uncertain
Lead strike



090 Macedon
AR tetradrachm
Uncertain
Obv: Silver/lead laminate
Rev: Lead strike



091 Macedon
AR tetradrachm
Becker, Hill 50
Rosa ad flyer



092 Macedon - Antigonus Doson
AR tetradrachm
Uncertain
Lead strike



093 Macedon - Perseus
AR tetradrachm
Uncertain
Lead strike



094 Macedon -
Philip V
AR tetradrachm
British Museum
Lead strike



095 Macedon -
Philip V
AR tetradrachm
Uncertain
Lead strike



096 Magnesia
AR tetradrachm
Becker, Hill 96
Obv: Silver/lead
Laminate (untrimmed)
Rev: Lead strike



097 Mausolus
AR tetradrachm
Uncertain
Obv: Copper/lead
laminate
Rev: Lead strike



098 Messana
AR tetradrachm
Becker, Hill 20
Rosa ad flyer



099 Messana
AR tetradrachm
BMC 48
Lead strike



100 Messana
AR tetradrachm
BMC 51
Lead strike



101 Messana
AR tetradrachm
BMC 56
Lead strike



102 Metapontum
AR stater
Uncertain
Tin strike



Uniface

103 Metapontum
AR stater
Uncertain
Dies



104 Metropolis
AR stater
BMC 1
Lead strike



105 Mithradates III
AR tetradrachm
Becker, Hill 72
Rosa ad flyer



106 Mithradates VI
AR tetradrachm
Uncertain
Lead strike



107 Naxus
AR tetradrachm
BMC 18
Lead strike



108 Naxus
AR tetradrachm
BMC 7
Silver strike
(unmarked)



108a Naxus
AR tetradrachm (20mm)
BMC 7
Brass bracteate



108b Naxus
AR tetradrachm (12mm)
BMC 7
Struck on U.S. copper penny



109 Nicomedes II
AR tetradrachm
Becker, Hill 85
Rosa ad flyer



110 Olympia, Elis
AR stater
BMC 3
Dies

Uncertain



111 Olympia, Elis
AR stater
BMC 5
Dies

Uncertain



112 Olympia, Elis
AR stater (20mm)
Uncertain
Pewter strike
(Jewelry indentation)



113 Olympia, Elis
AR stater (20mm)
Uncertain
Die

Uncertain



114 Orophernes
AR tetradrachm
BMC 1
Obv: Tin bracteate
Rev: Rosa ad flyer



115 Panormus
AR tetradrachm
BMC 1
Lead strike



116 Panticapaeum
AV stater (20mm)
Uncertain
Pewter strike
(Jewelry indentation)



117 Pergamum
AR cistophoric tetradrachm
Uncertain
Pewter strike



Uniface

118 Poseidonia
AR stater
Uncertain
Copper strike



119 Prusias I
AR tetradrachm
Becker, Hill 82
Rosa ad flyer



120 Prusias II
AR tetradrachm
Becker, Hill 83
Rosa ad flyer



121 Ptolemy I
AR tetradrachm
Uncertain
Lead strike



122 Ptolemy II and Arsinoe
AV octadrachm
Uncertain
Rosa ad flyer



123 Ptolemy III
AV octadrachm
Uncertain
Rosa ad flyer



124 Ptolemy IV
AV octadrachm
Uncertain
Rosa ad flyer



125 Ptolemy V
AV octadrachm
Uncertain
Rosa ad flyer



126 Rhegium
AR stater
Uncertain
Copper strike



Uniface

127 Rhegium
AR tetradrachm
Becker, Hill 13
Rosa ad flyer



128 Rhodes
AR tetradrachm
BMC 11
Silver strike (unmarked)



128a Rhodes
AR tetradrachm (20mm)
BMC 11
Lead strike



Uniface

129 Rhodes
AR tetradrachm
BMC 120
Lead strike



130 Segesta
AR tetradrachm
BMC 32
Lead strike



131 Selinus
AR tetradrachm
BMC 44
Lead strike



132 Siculo Punic
Uncertain (20mm)
Die
(probably for jewelry)



Uncertain

133 Siculo-Punic
AR tetradrachm
Becker, Hill 131
Lead strike



134 Siculo-Punic
AR tetradrachm
Becker, Hill 130
Rosa ad flyer



135 Sidon
AR tetradrachm
Becker, Hill 123
Rosa ad flyer



136 Sidon
AR tetradrachm
Becker, Hill 123 (retouched)
Lead strike



137 Siris and Pyxos
AR stater
Becker, Hill 11
Pewter strike



138 Stymphalus
AR tetradrachm
Becker, Hill 66
Rosa ad flyer



139 Syracuse
AR decadrachm
Becker, Hill 25
Lead strike



140 Syracuse
AR decadrachm
Becker, Hill 26
Rosa ad flyer



141 Syracuse; AR decadrachm
BMC 63
Pewter strike



142 Syracuse; AR decadrachm
BMC 63
Lead strike
with collar
engraved
into die



Uniface

143 Syracuse
AR decadrachm
British Museum
Lead strike



144 Syracuse
AR decadrachm
Uncertain
Rosa ad flyer



Uncertain

145 Syracuse
AR tetradrachm
Becker, Hill 23
Rosa ad flyer



146 Syracuse
AR tetradrachm
BMC 100
Lead strike



147 Syracuse
AR tetradrachm
BMC 110
Lead strike



148 Syracuse
AR tetradrachm
BMC 111
Lead strike



149 Syracuse
AR tetradrachm
BMC 113
Lead strike



150 Syracuse
AR tetradrachm
BMC 121
Lead strike



151 Syracuse
AR tetradrachm
BMC 124
Lead strike



152 Syracuse
AR tetradrachm
BMC 125
Lead strike



153 Syracuse
AR tetradrachm
BMC 140
Lead strike



154 Syracuse
AR tetradrachm
BMC 148
Lead strike



155 Syracuse
AR tetradrachm
BMC 152
Lead strike



156 Syracuse
AR tetradrachm
BMC 155
Lead strike



157 Syracuse
AR tetradrachm
BMC 158
Lead strike



158 Syracuse
AR tetradrachm
BMC 164
Lead strike



159 Syracuse
AR tetradrachm
BMC 188
Lead strike



160 Syracuse
AR tetradrachm
BMC 190
Lead strike



161 Syracuse
AR tetradrachm
BMC 193
Lead strike



162 Syracuse
AR tetradrachm
BMC 195
Lead strike



163 Syracuse
AR tetradrachm
BMC 199
Lead strike



164 Syracuse
AR tetradrachm
BMC 207
Pewter uniface
obverse and reverse



164a Syracuse
AR tetradrachm (20mm)
BMC 207
Brass bracteate



165 Syracuse
AR tetradrachm
BMC 208
Lead strike



166 Syracuse
AR tetradrachm
BMC 214
Lead strike



167 Syracuse
AR tetradrachm
BMC 223
Lead strike



168 Syracuse
AR tetradrachm
BMC 346
Lead strike



169 Syracuse
AR tetradrachm
BMC 378
Lead strike



170 Syracuse
AR tetradrachm
BMC 4
Lead strike



171 Syracuse
AR tetradrachm
BMC 414
Lead strike



172 Syracuse
AR tetradrachm
BMC 638
Lead strike



173 Syracuse
AR tetradrachm
BMC 71
Lead strike



174 Syracuse
AR tetradrachm
BMC 88
Lead strike



175 Syracuse, Philistis
AR tetradrachm
BMC 553
Lead strike



176 Syros
AR tetradrachm
Becker, Hill 71
Rosa ad flyer



177 Tarentum
AV stater
Uncertain
Obv: Pewter strike
(Jewelry indentation on back)
Rev: Die



178 Tenedos
AR tetradrachm
Uncertain
Silver strike (unmarked)



179 Thasos
AR stater
Uncertain
Lead strike



179a Thasos
AR stater (17mm)
Uncertain
Pewter strike



Uniface

180 Thasos
AR tetradrachm
Becker, Hill 37
Lead strike



181 Tigranes
AR tetradrachm
Becker, Hill 121
Lead strike



182 Tryphon
AR tetradrachm
Becker, Hill 113
Rosa ad flyer



183 Tyre
AR shekel
Uncertain
Rosa ad flyer



184 Zacynthus
AR stater
BMC 22
Die



Uncertain

Judaean and Roman Reproductions
on following pages

185 Herod the Great
AE 8 prutot
Uncertain
Pewter strike



186 First Jewish War
AR 1/4 shekel, year 3
Uncertain
Rosa ad flyer



Uncertain

187 First Jewish War
AR 1/2 shekel, year 3
Uncertain
Silver/lead laminate

Uncertain



188 First Jewish War
AR shekel, year 2
Uncertain
Rosa ad flyer



Uncertain

189 Bar Kochba Revolt
AE 29mm, year 1
Uncertain
Copper strike



190 Bar Kochba Revolt
AR sela, year 2
Uncertain
Lead strike; Rosa ad flyer





191 Bar Kochba Revolt
AR zuz, year 3
Uncertain
Lead strike of reverse

Uncertain



ROMAN CATALOGUE

Many of the precious metal types listed here were produced by Rosa in both gold electroplate and full silver (in addition to lead trial strikes). Consequently, the same type may (for example) appear to be either an aureus or denarius. These are listed here simply as PM, for Precious Metal, rather than by denomination of the prototype. The originals are mainly aureii or solidii from the British Museum Collection. Advertising flyers issued by Becker Reproductions would suggest that there were a good number of types produced which are not illustrated here—particularly of the large bronzes. We have included catalogue numbers and line entries for those Rosa catalogue offerings which we are confident do exist, even though we do not have illustrations. Readers who can provide illustrations of confirmed Rosa issues not included here (Greek, Judaean or Roman) are encouraged to contact the author for purposes of updating the database. Let us reiterate, the pieces shown here were struck or cast in several different metals and may be fairly deceptive in silver or pewter.

192 Aelius
PM
Aelius / Pietas
Lead strike



193 Aelius, AE sestertius, *photo not available,* Rosa ad flyer, S58

194 Aemilian
PM
Aemilian / Apollo
Gold electroplate



195 Agrippa
PM
Augustus / Agrippa
Lead strike



196 Agrippa, AE dupondius, *photo not available,* Rosa ad flyer, S15

197 Agrippina Senior
AE sestertius
BMC 36
Rosa ad flyer



198 Agrippina II / Claudius
PM
BMC 72
White metal strike



199 Antinoüs, AE sestertius, *photo not available,* Rosa ad flyer, S56

200 Antonia
PM
BMC 109
White metal strike



201 Antonia, AE dupondius, *photo not available,* Rosa ad flyer, S21

202 Antoninus Pius
PM
Pius / Statue in temple
Lead strike



203 Antoninus Pius
AE sestertius
Pius / Uncertain
Obv: Rosa ad flyer, S59
Rev: Uncertain



Uncertain

204 Aquilia Severa
PM
BMC 185
Lead strike



205 Augustus
PM
Augustus / Bull
Gold electroplate



206 Augustus
PM
Augustus / Sphinx
Rosa ad flyer / Copper strike



207 Augustus
PM
Augustus / Comet
Pewter strike



208 Augustus
PM
Augustus / Victory
Gold electroplate
Uniface obv. & rev.



209 Augustus
PM
Augustus / Diana
White metal strike



210 Augustus
PM
Augustus / Caius and Lucius
Copper uniface obv. & rev.



211 Augustus
PM
Augustus / Victory in biga
Brass strike



212 Augustus, Antioch
AR tetradrachm
Augustus / Tyche
Pewter strike



213 Augustus, Asia
AR tetradrachm
Augustus / Pax
Pewter strike



214 Augustus, Asia
AR tetradrachm
Augustus / Temple
Obv: Photo not available
Rev: Copper/lead laminate



215 Augustus, Asia, AE sestertius, *photo not available*, Rosa ad flyer, S13

216 Balbinus
PM
Balbinus / Providentia
Gold electroplate



217 Britannicus, AE sestertius, *photo not available*, Rosa ad flyer, S31

218 Brutus
PM
Brutus / EID MAR
Pewter strike



218a Brutus
Oversize
Brutus / EID MAR
Pewter cast
Uniface obv. & rev.



219 Brutus
PM
Obv: Uncertain
Rev: Trophy and captives
Lead strike, rev.

Uncertain



220 Caius Antonius
PM
Macedonia / Simpula and axe
Rosa ad flyer



221 Caligula
PM
Caligula / Augustus
White metal strike



222 Caligula
PM
Caligula / SPQR
Silver strike



223 Caligula
AE As
Caligula / Vesta
Brass strike



224 Caligula
AE sestertius
BMC 36
Rosa ad flyer



225 Caracalla
PM
Caracalla / Pax
(Jewelry indentation)
Pewter strike



226 Caracalla
PM
Caracalla /Fides
Lead strike



227 Caracalla, AE sestertius, *photo not available,* Rosa ad flyer, S78

228 Cassius et.al.
PM
Liberty /Aplustre
Pewter strike



228a Cassius et al.
Oversize
Liberty / Aplustre
Pewter cast obv. & rev.



229 Cassius et al.
PM
Liberty / Crab & Aplustre
Obv: Rosa ad flyer
Rev: Copper strike



230 Claudius
PM
Claudius / SPQR
(Same rev. as Caligula #227)
White metal strike



231 Claudius, AE sestertius, *photo not available,* Rosa ad flyer, S28

232 Claudius II
PM
Claudius II / Pax
White metal strike



233 Cleopatra
PM
Cleopatra / Antony
Pewter cast



233a Cleopatra
Oversize
Cleopatra / Antony
Pewter cast obv. & rev.



234 Clodius Albinus
PM
Clodius Albinus / Galley
White metal strike



235 Clodius Albinus, AE sestertius, *photo not available,* Rosa ad flyer, S75

236 Commodus
PM
Commodus / Victory
Gold electroplate



237 Commodus, AE sestertius, *photo not available,* Rosa ad flyer, S67

238 Cornelia Supera
PM
Cornelia Supera /Vesta
Lead strike



239 Crispina
PM
Crispina / Venus
Gold electroplate



240 Crispina, AE sestertius, *photo not available,* Rosa ad flyer, S68

241 Diadumenian
PM
Diadumenian /Fides
Gold electroplate



242 Diadumenian, AE sestertius, *photo not available,* Rosa ad flyer, S82

243 Didia Clara
PM
Didia Clara / Hilaritas
Gold electroplate



244 Didia Clara, AE sestertius, *photo not available,* Rosa ad flyer

245 Didius Julianus
PM
Julianus /RECTOR ORBIS
Gold electroplate



246 Didius Julianus, AE sestertius, *photo not available,* Rosa ad flyer, S71

247 Diocletian
Hybrid Ant./AE
Diocletian /Libertas
Rev. of Constantine I
(RIC Cons. 18)



248 Domitia
PM
Domitia /Peacock
Lead strike



249 Domitia, AE sestertius, *photo not available,* Rosa ad flyer, S48

250 Domitian
PM
Domitian / Altar
Gold electroplate



251 Domitian, AE sestertius, *photo not available,* Rosa ad flyer, S47

252 Domitilla
PM
Vespasian / Domitilla
Lead strike



253 Domitilla
PM
Domitilla / Fortuna
Lead strike



254 Domitilla, AE sestertius, *photo not available,* Rosa ad flyer, S44

255 Drusus
PM
Drusus / Tiberius
Lead strike



256 Drusus Jr., AE sestertius, *photo not available,* Rosa ad flyer, S19

257 Dryantilla
Antoninianus
Dryantilla / Aequitas
Lead strike



258 Elagabalus
PM
Elagabalus / Roma
Lead strike



259 Elagabalus, AE sestertius, *photo not available,* Rosa ad flyer, S83

260 Faustina I
PM
Faustina / Concordia
Lead strike



261 Faustina I, AE sestertius, *photo not available,* Rosa ad flyer, S64

262 Faustina II
PM
Faustina / Magna Mater
Lead strike



263 Faustina II, AE sestertius, *photo not available,* Rosa ad flyer, S61

264 Galba
PM
Galba / Livia
Silver strike



265 Galba
AE sestertius
Galba / Victory
Copper strike



266 Gallienus
PM
Gallienus / Standards
Lead strike



267 Germanicus
PM
Caligula / Germanicus
Gold electroplate



268 Germanicus, AE dupondius, *photo not available,* Rosa ad flyer, S22

269 Geta
PM
Geta / Nobilitas
Lead strike



270 Geta, AE sestertius, *photo not available,* Rosa ad flyer, S80

271 Hadrian,
PM
Hadrian /DISCIPLINA AVG
White metal strike



272 Hadrian, AE sestertius, *photo not available,* Rosa ad flyer, S55

273 Herennius Etruscus
PM
Herennius /Pietas
Lead strike



274 Hostilian
PM
Hostilian /Principi Iuventutis
Gold electroplate



275 Jotapian
Antoninianus
Jotapian / Victory
Lead strike



276 Julia Domna
PM
Domna /Magna Mater
Lead strike



277 Julia Domna
PM
Domna / MAT AVGG
MAT SEN M PATR
Lead strike



278 Julia Domna, AE sestertius, Photo not available, Rosa ad flyer, S77

279 Julia Maesa
PM
Maesa / Vesta
Pewter cast



280 Julia Maesa
PM
Maesa / Juno
Lead strike



281 Julia Mamaea
PM
Mamaea / Felicitas
Gold electroplate



282 Julia Paula
PM
Paula / Vesta
Pewter strike



283 Julia Paula
AR denarius
Paula / Venus
Lead strike



284 Julia Soaemias
PM
Soaemias / Juno
Lead strike



285 Julia Titi
PM
Titi / Peacock
White metal strike



286 Julia Titi, AE dupondius, *photo not available,* Rosa ad flyer, S46

287 Julian of Pannonia
PM
Julian / Libertas
Gold electroplate



288 Julius Caesar
PM
Uncertain (Venus) / Aeneas
Copper strike on U.S. penny

Uncertain



289 Julius Caesar
PM
Caesar / Venus
Rosa ad flyer



290 Julius Caesar
PM
(Venus) / Trophy
Rev: Copper strike on
U.S. penney

Uncertain



291 Julius Caesar
PM
Caesar / L. BUCA
Pewter cast



291a Julius Caesar
Oversize
Caesar / L. BUCA
Pewter cast uniface

Presumably
the same as
#298 obv.



292 Julius Caesar, AE sestertius, *photo not available,* Rosa ad flyer, S2

293 Labienus
PM
Labienus /Horse
Pewter strike



294 Laelianus
PM
Laelianus /Hispania?
Pewter cast



295 Lepidus
PM
Lepidus /Cornucopia
White metal strike



296 Livia
AE dupondius
Livia as Justitia /SC
Copper cast



297 Lucilla
PM
Lucilla /Pietas
Lead strike



298 Lucilla, AE sestertius, *photo not available,* Rosa ad flyer, S66

299 Lucius Antonius
PM
Marc Antony / L. Antonius
Rosa ad flyer



300 Lucius Verus
PM
Verus / Victory
Lead strike



301 Lucius Verus, AE sestertius, *photo not available,* Rosa ad flyer, S65

302 Macrianus
Antoninianus
Macrianus /Spes
Lead strike



303 Macrinus
PM
Macrinus /Salus
Gold electroplate



304 Macrinus, AE sestertius, *photo not available,* Rosa ad flyer, S81

305 Magnia Urbica
PM
Magnia Urbica /Pyre
(mispaired obv. & rev.)
Gold electroplate



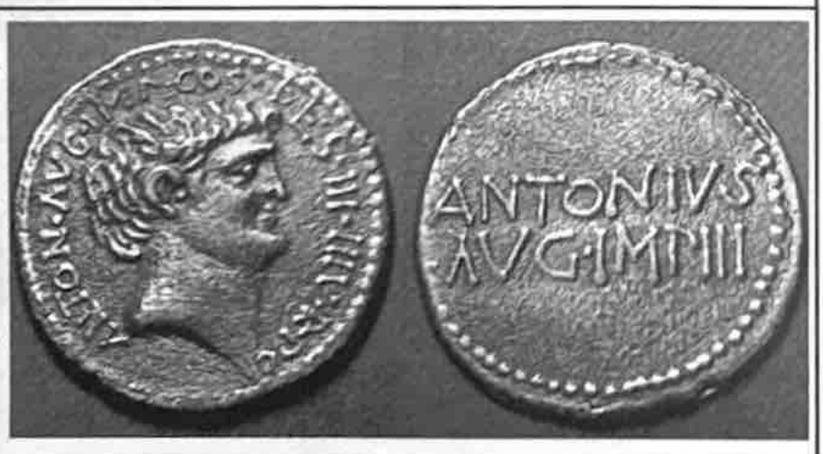
306 Manlia Scantilla
PM
Manlia Scantilla / Juno
Gold electroplate



307 Marc Antony
PM
Antony /
ANTONIVS AVG IMP III
Pewter cast



307a Marc Antony
Oversize
Antony /
ANTONIVS AVG
IMP III
Pewter cast
Uniface obv. & rev.



308 Marc Antony
PM
Antony / M SILANVS AVG
Q PRO COS
Rosa ad flyer



309 Marc Antony
PM
Antony / Octavia
Rosa ad flyer



310 Marc Antony, PM, Legionary denarius, *photo not available*
Rosa ad flyer, part of set RI 10 (not illustrated)

311 Marciana
PM
Marciana / Eagle
Lead strike



312 Marciana, AE sestertius, *photo not available,* Rosa ad flyer, S53

313 Marcus Aurelius
PM
Aurelius / Altar
Lead strike



314 Marcus Aurelius, AE sestertius, *photo not available,* Rosa ad flyer, S63

315 Mariniana
PM
Mariniana / Peacock
Gold electroplate



316 Marius
PM
Marius / Clasped hands
Gold electroplate



317 Matidia
PM
Matidia / Eagle
Lead strike



318 Matidia, AE sestertius, *photo not available,* Rosa ad flyer, S54

319 Maximian
Antoninianus
Maximian / Jupiter
Lead strike



320 Nero
PM
Nero / Jupiter
White metal strike



321 Nero
PM
Nero / Salus
Silver strike



322 Nero
AE sestertius
Nero /
Annona & Ceres
Bronze cast
(Rosa ad flyer,
S32)



323 Nero
AE sestertius
(Nero) / Port of Ostia
Obv: Uncertain
Rev:Copper/lead
laminate (uniface)

Uncertain



324 Nero
AE sestertius
(Nero) / Roma
Obv: Uncertain
Rev: Pewter cast
(Uniface)

Uncertain



325 Nero Claudius Drusus
AE sestertius
Nero Claudius Drusus /
Claudius seated
Rosa ad flyer, S20



326 Nerva
PM
Nerva / Diana
Lead strike



327 Nerva
AE sestertius
Nerva / Palm
Copper cast



328 Nigrinian
PM
Nigrinian / Venus
(mispaired)
Gold electroplate



329 Orbiana
PM
Orbiana / Concordia
Lead strike



330 Otho
PM
Otho / Pax
Gold electroplate



331 Otho
AE sestertius
(Enlargement of
#339)
Otho / Pax
Bronze strike



332 Pacatian
Antoninianus
Pacatian / Pax
Lead strike



333 Paulina
PM
Paulina / CONSECRATIO
Lead strike



334 Pertinax
PM
Pertinax / Providentia
Gold electroplate



335 Pertinax
AE sestertius
Pertinax / Aequitas
Bronze cast
(Rosa ad flyer, S69)



336 Pescennius Niger
PM
Niger / Concordia
Gold electroplate



337 Philip I
PM
Philip I / Annona
Lead strike



338 Philip I
Antoninianus
Philip I / Aequitas
(Jewelry attachment)
Silver strike



339 Plautilla
PM
Plautilla /Plautilla & Caracalla
Gold electroplate



340 Plotina
PM
Plotina / Vesta
White metal strike



341 Plotina, AE sestertius, *photo not available,* Rosa ad flyer, S51

342 Postumus
PM
Postumus / Postumus
Lead strike



343 Probus
Antoninianus
Postumus / Uncertain
Obv: Lead strike (uniface)



Uncertain

344 Pupienus
PM
Pupienus / Victory
Lead strike



345 Quietus
Antoninianus
Quietus / Jupiter
Lead strike



346 Regalianus
Antoninianus
Regalianus / Sol
Lead strike



347 Republic: A. Hirtius, PM, Uncertain, *photo not available,* Rosa ad flyer, set RR10 (not illustrated)

348 Republic: Albinus Bruti F.
PM
CR 450/1a
Pewter strike obv. & rev.



349 Republic: C. Considi Noniani
PM
Crawford 424/1
Lead strike



350 Republic: C. Hosidi
C.F. Geta III VIR
PM
CR 407/1
Lead strike



351 Republic: C. Norbanus, PM, Uncertain, *photo not available,* Rosa ad flyer, set RR10 (not illustrated)

352 Republic: C. Numonius Vaala, PM, Uncertain, *photo not available,* Rosa ad flyer, set RR10 (not illustrated)

353 Republic: C. Vibius Pansa, PM, Uncertain, *photo not available,* Rosa ad flyer, set RR10 (not illustrated)

354 Republic: L. Caesi
PM
Crawford 298/1 (altered)
Obv: Uncertain
Rev: Copper strike on U.S. penny

Uncertain



355 Republic: L. Cestius Norbanus, PM, Uncertain, *photo not available,* Rosa ad flyer, set RR10 (not illustrated)

356 Republic: L. Plancus, PM, Uncertain, *photo not available,* Rosa ad flyer, set RR10 (not illustrated)

357 Republic: L. Savf
PM
CR 204/1
Lead strike



358 Republic: M. Herreni
PM
Crawford 308/1b
Lead strike



359 Republic: M. Porcius Lacae, PM, Uncertain, *photo not available,* Rosa ad flyer, set RR10 (not illustrated)

360 Republic: M. Tulli
PM
CR 280/1
Lead strike



361 Republic: P. Clodius Turrinus, PM, Uncertain, *photo not available,* Rosa ad flyer, set RR10 (not illustrated)

362 Republic: Petillius Capitolinus
PM
CR 487/2a
White metal strike



363 Republic: Q. Caecilius Metellius, PM, Uncertain, *photo not available,* Rosa ad flyer, set RR10 (not illustrated)

364 Republic: Q. Creperei M. F. Rocus
PM
Obv: Uncertain
Rev: Crawford 399/1b (altered)
Copper strike on U.S. penny

Uncertain



365 Republic: Uncertain
Incuse brockage trial
Head of Roma / Uncertain
Lead strike



366 Republic: Vibius Varus, PM, Uncertain, *photo not available,* Rosa ad flyer, set RR10 (not illustrated)

367 Sabina
PM
Sabina / Juno
Lead strike



368 Sabina, AE sestertius, *photo not available,* Rosa ad flyer, S57

369 Saloninus
Antoninianus
Saloninus / Spes
Lead strike



370 Septimius Severus
PM
Severus / Victory
Pewter strike



371 Septimius Severus, AE sestertius, *photo not available,* Rosa ad flyer, S76

372 Severus Alexander
PM
Severus Alexander /
Emperor standing
Pewter strike



373 Sextus Pompey
PM
Pompey the Great /
Pompey and S. Pompey
Gold electroplate obv. & rev.



374 Sextus Pompey
PM
Neptune / Naval trophy
Silver strike



375 Sextus Pompey
PM
Pompey the Great /
Catanean brothers
Silver strike



376 Sextus Pompey
PM
Pompey the Great /
Naval trophy (mispaired)
White metal strike



377 Sextus Pompey
PM
Neptune /
Catanean brothers (mispaired)
White metal strike



378 Tetricus I
PM
Tetricus I / Pax
Lead strike



379 Tetricus II
PM
Tetricus I I / Spes
Lead strike



380 Tiberius
PM
Tiberius / Quadriga
Lead strike



381 Tiberius
PM
Tiberius / Livia
Pewter strike



382 Tiberius, AE dupondius, *photo not available,* Rosa ad flyer, S18

383 Titus
PM
Titus / Caduceus
Pewter cast



384 Titus
PM
Titus / Venus
White metal strike



385 Titus
AE sestertius
Copper strike
Rosa ad flyer, S45



386 Trajan
PM
Trajan / Forum
Pewter cast



387 Trajan
PM
Trajan /
REGNA AD SIGNATA
Lead strike



388 Trajan
AE sestertius
Trajan / Uncertain
Rev. photo not available
Rosa ad flyer, S50



Uncertain

389 Trajan Decius
PM
Trajan Decius / Dacia
Lead strike



390 Trajan Pater
PM
Trajan / Trajan Pater
Lead strike



391 Tranquillina
PM
Tranquillina /
Gordian & Tranquillina
Lead strike



392 Trebonianus Gallus
PM
Gallus / Spes
Gold electroplate



393 Uncertain (Ravenna mint)
Uncertain obverse
Rev: VICTORIA AVGGG
Lead strike (uniface)

Uncertain



394 Uranius Antoninus
PM
Uranius Antoninus /
Stone of Emesa
Lead strike



395 Valerian
PM
Valerian / Virtus
Lead strike



396 Valerian II
PM
Valerian II /
PRINCIPI IVVENTVTIS
Lead strike



397 Vespasian
PM
Vespasian / Felicitas
White metal strike



398 Vespasian, AE sestertius, *photo not available*, Rosa ad flyer, S42

399 Vespasian
AE sestertius
Vespasian /
JUDAEA CAPTA
Copper strike



400 Vitellius
PM
Vitellius / Concordia
Silver strike



401 Vitellius
PM
Vitellius /
Lucius Vitellius seated
White metal strike



402 Vitellius
PM
Vitellius /
children of Vitellius
White metal strike



403 Vitellius, AE sestertius, *photo not available*, Rosa ad flyer, S39

404 Volusian
PM
Volusian / Pietas
Lead strike



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