

The Introduction of the PCGS 'Coin Sniffer' to detect doctored coins

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A Weekly Column by Greg Reynolds

Last week, I covered the [FUN Convention in general](#) and, soon, I will post a review of the Platinum Night event. The primary purpose of the PCGS Luncheon on Jan. 7 was to formally introduce the **PCGS Coin Sniffer**, and this is the topic here. This sniffer is a machine that is able to detect most of the substances added by coin doctors, who modify coins for the purpose of deceiving experts and others into believing that doctored coins are of higher quality than they were before they were doctored. Generally, coin doctoring reduces the true quality and numerical grades of coins. Frequently, severe damage is done to rare coins by coin doctors.

Usually, PCGS graders are able to detect doctored coins when they are submitted to the [PCGS](#) for grading, and will refuse to assign numerical grades to doctored coins. Even the best of experts, however, will be deceived by some doctored coins.

As I, with the assistance of **John Albanese**, emphasized in my [initial analysis of the PCGS lawsuit against alleged coin doctors](#), there are a small number of advanced experts who are able to surgically change (or otherwise transform) rare coins in ways such that a significant number are erroneously assigned numerical grades by the PCGS or the [NGC](#).



My columns of [June 2nd](#) and [Sept. 8th](#), discuss coin doctoring in general and the PCGS lawsuit in particular. In the third of my three part series on natural toning, I focus on the reasons why coin doctoring is terribly harmful and poses a threat to coin collecting in general. In that series, I discuss the difference between natural and artificial toning ([Part 1](#) – [Part 2](#) – [Part 3](#)).

For the present purpose of discussing the 'Sniffer and its role in the **PCGS SecurePlus program**, it suffices to say that it is very common for coin doctors to add putty, films, waxes, gels and oils to cover or deflect attention from imperfect areas of coins and/or to give coins an artificially induced false 'attractiveness'! Consider that, as blue or green films

tend to often form naturally on some kinds of coins, it is difficult for expert graders to detect those that are added.

I. The SecurePlus Program

In March 2010, the Professional Coin Grading Service (PCGS) introduced the SecurePlus program. As I recently devoted a two part series to this program ([Part 1](#) – [Part 2](#)), and discussed it in earlier writings, I will not explain the whole SecurePlus program here.

The PCGS has two tiers of submissions for rare U.S. coins, SecurePlus and standard. In the SecurePlus program, coins are specially screened, scanned with a CoinSecure CoinAnalyzer (for identification if the same coins are ever resubmitted), and now ‘sniffed,’ before being examined by PCGS graders, who are human. Other anti-doctoring technologies are, or soon will be, employed as well, including a ‘ray gun.’



Coins sent under the standard tier are typically just examined by graders, without the use of new technologies to detect doctoring and curtail grade-inflation. The standard program is thus ‘business as usual’! Coins that are submitted under the SecurePlus program and are found to qualify for numerical grades are placed in holders that contain a printed insert (label) that is slightly different from the standard blue insert. The ‘Secure’ program insert (label) features a gold-colored eagle on the left

At the PCGS Luncheon on Jan. 7 in Tampa, I argued that, from a marketing and educational perspective, it would be beneficial for the PCGS ‘Secure’ holders to feature dramatically different inserts that would grab the attention of collectors and remind them of the features that characterize the SecurePlus program. My impression is that most collectors hardly notice the gold-colored eagles and many collectors do not know (or do not remember) that the gold colored eagle refers to the SecurePlus program.

Wayne Herndon, an extremely active and highly regarded dealer, disagrees with my view on this matter. Wayne maintains that the gold-colored eagle inserts are distinctive and noticeable. Indeed, Herndon finds that collectors recognize the gold eagle inserts and link them to the SecurePlus program.

I (this writer) also maintain the coins certified under the PCGS SecurePlus program in 2011 should be openly distinguished from those so certified in 2010. Last year, the ‘sniffer’ and the ‘ray gun’ were used only to limited extent, when used at all, on coins submitted under the SecurePlus program. The SecurePlus program began in March 2010. ([Please see my article on the PCGS graded MS-68+ 1901-S quarter.](#))

A coin certified under the PCGS SecurePlus program in 2011 has been inspected by human graders AND examined with a ‘coin sniffer’! I contend that this dual review should be noted in some way on the holder. When I expressed my view on this point to **Dr. Steven Duckor**, he said, “yes, a distinction should be made, [perhaps] a dog on the label,” A dog

seems to be the informal mascot for the PCGS 'Coin Sniffer'! Duckor maintains, though, that the overall design of the "label [insert] on Secure holders is now okay because the PCGS emblem," which is PCGS on a gold colored shield, clearly refers to the SecurePlus program. Herndon agrees with Duckor in that "the big shield" on the SecurePlus insert "is easy enough to see." (The label in a PCGS or NGC holder is usually called the printed insert, or just 'the insert.')

In contrast, John Albanese strongly believes that the PCGS "should come out with a new holder, or a new insert, that says that the coin has been sniffed. How do you know that coins have been sniffed? The sniffer is coming in post-SecurePlus holders. I [John] agree with Greg [this writer] that the 2011 Secure holders should be different from the 2010 Secure holders; they should at least signify that a coin has been sniffed."

At the PCGS Luncheon, neither **David Hall** nor **Don Willis** found my arguments for a new or different insert (label) to be overwhelming. In any event, the technologies employed in the SecurePlus program are dramatically more important than the aesthetics, or overall distinctiveness, of the printed inserts in the 'Secure' holders.

II. The Sniffer

The coin 'Sniffer' directs beams of light at targeted areas of each coin that is placed in the device. It is not harmful to coins. With human guidance and computer software, the sniffer is able to determine which substances are in particular areas of each coin. If there is auto body putty in the right obverse (front) inner field, such putty can be found and located. Different substances are 'excited' by rays of light on different frequencies of the light spectrum.



The PCGS maintains a database of the 'light signatures' of substances employed by coin doctors and of many other substances. The mere presence of a wax does not prove that a coin has been doctored. A microscopic quantity of wax can 'end-up' accidentally on a coin. A century ago, a collector may have stored coins in wax paper. The amount of an unwanted substance has to be significant, above a rationally determined threshold, for the sniffer and accompanying software to flag a coin for further study.

III. The ray gun

In addition to introducing the PCGS 'Coin Sniffer' device, the PCGS revealed the existence of a 'ray gun'! It looks like a weapon that might be seen in a science fiction movie. While the sniffer is employed to identify the presence of various non-metallic substances that are deliberately or even accidentally added to coins, and materials that may cling to coins by

chance, a 'ray gun' is used to determine the metallic composition of each coin.

The 'ray gun' can detect metals that have been added by coin doctors along with traces of metals that are not part of the prescribed alloys used to manufacture the respective coin. Sometimes, a slightly different alloy was erroneously employed by Mint personnel. Other times, traces of various metals at the Mint may 'by chance' be mixed into the alloy, be present on minting equipment, or land on annealed blanks before striking.



Richard Haddock is the inventor of the **CoinSecure CoinAnalyzer**, which is used to identify specific coins and to alert PCGS officials when the same coin is re-submitted under the PCGS SecurePlus program. Haddock is also serving as a consultant to the PCGS regarding the PCGS 'Coin Sniffer' and the 'ray gun'! Richard is particularly involved in the development of software that is used by PCGS personnel with all three devices.

"The Sniffer sees the presence and characteristics of molecular bonds by the way they vibrate under light of specific wavelengths in the infrared region of the electromagnetic spectrum," Haddock explains. "As most materials commonly around us are molecules, this is the most general purpose type of analysis to do when looking for foreign materials on a coin."

On "the other end of the electromagnetic spectrum," Richard continues, "the ray gun shoots a high energy beam of electrons, like the old cathode ray tube TV sets. This is for elemental analysis that identifies almost all atoms." Haddock states that metal "contamination due to doctoring" can be found with this 'ray gun'!

At the PCGS Luncheon, I (this writer) asked about the adding of gold to gold coins by coin doctors, who frequently employ gold of the correct alloy for this purpose. Metal from a low quality, relatively common New Orleans Mint gold coin may be taken by a coin doctor and added to another New Orleans Mint gold coin to 'smooth out' contact marks or hairline scratches. Such added gold would then be of the correct alloy or nearly so. Don Willis, the president of the PCGS, conceded that the 'ray gun' may not be able to find such added gold. Willis indicated, however, that PCGS experts use other methods to identify added metal of the proper alloy on gold coins.

IV. Secure vs. Standard Submissions

As I emphasized in the column that I devoted to advocating reform of the PCGS SecurePlus program, the program is not the tremendous success that it could be due to the ability of coin doctors and others to avoid the special screening and anti-doctoring technologies by

submitting coins under the standard PCGS program. ([Please read Part 2: Reform.](#))

At the PCGS Luncheon, **Stewart Blay** asked if the \$100,000 threshold would be lowered in 2011. Currently, all coins valued under \$100,000 each may be submitted to the PCGS under either the SecurePlus program or the standard tier. In another words, only coins valued at more than \$100,000 must be submitted under the SecurePlus program.

Blay is an exceptionally accomplished collector and is a widely recognized grading expert. He has formed the all-time best collections of early Lincoln Cents and of Indian Cents. His collections of Barber coins are amazing as well.

“All coins with of value of \$2,000 and higher should mandatorily go through SecurePlus,” Blay declares. “There is a loophole so big that a freight train can be driven through it, unless PCGS does the right thing and lowers the \$100,000 minimum value.”

Wayne Herndon agrees, “the value threshold for SecurePlus should be much lower. I would like to see the threshold lowered from \$100k to \$5k, for now. Eventually, it even needs to be lower, but at \$5k it will start to be a lot more difficult to make money” doctoring coins,” Herndon argues.

Dr. Steven Duckor would like for PCGS to require that “ALL coins that are submitted” be under the SecurePlus program. The PCGS “should raise the fee of coins submitted by let’s say \$10 to \$15 to cover the” additional costs of the SecurePlus program, including the possible loss of submission “volume.” If the PCGS requires all scarce or rare coin submissions to be under the SecurePlus program, Duckor asserts, “it will be great for the hobby!”

IV. Importance of Such Technology

How important are the coin sniffer and related technologies? Dr. Duckor, a famous and highly respected collector, declares that the “use of sniffer technology is extremely important, and will clean up to a large degree ‘coin doctoring.’ I [Duckor] rely on PCGS and CAC to help me” avoid buying doctored coins. Moreover, Dr. Duckor maintains that “collectors need to pay a premium for this great technology. It will save them \$\$\$ in the future.”

Wayne Herndon remarks that, “if the sniffer does all that PCGS says it does, then it is a wonderful tool for the hobby. However, its role is limited if it is only used on a small subset of coins. For it to really have an impact, it needs to be used on a much larger pool of coins. Ideally, it would also be great if PCGS would license the technology to other grading services,” Wayne concludes.

John Albanese founded the NGC in 1987 and the [CAC](#) in 2007. He has seen large numbers of doctored coins that have ‘turned’ while residing in PCGS or NGC holders. “The CAC buys back coins every month that have turned in their holders.” Albanese reveals, “there is no

way that they looked the same when we approved them. If the sniffer could catch those before they turn, it would be good for collectors.”

Doctored coins often ‘turn’ while residing in their respective holders. After-effects of a coin doctoring procedure may occur days, weeks, months, or even years from the time a coin is doctored. There is much discussion of this point in [part 3 of my series on collecting naturally toned coins](#). Consider that the ‘turning’ of doctored coins may involve unsightly colors, substances moving on a coin’s surfaces, the revealing of areas that have been nicked or damaged, the spawning of powders, and/or weird chemical reactions that would almost never occur on coins that were properly stored. I (this writer) am confident that sniffer technology can and will be employed to detect doctored coins that human graders may miss, and will provide scientific evidence to document that specific rare coins have been doctored.

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1. [Coin Rarities & Related Topics: The PCGS SecurePlus Program, Part 1: An Explanation](#)
2. [Coin Rarities & Related Topics: The PCGS SecurePlus Program, Part 2: Reform](#)
3. [Coin Rarities & Related Topics: O’Neal Collection of Indian Head \\$5 Gold Coins](#)
4. [Coin Rarities & Related Topics: The Ten Leading Topics of 2010](#)
5. [Coin Rarities & Related Topics: Stack’s auction of the W. L. Carson Collection of Proof Coins](#)
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