

## THE YIRGINIA NUMISMATIST



Dedicated to the Enrichment of the Numismatic Hobby in the Commonwealth of Virginia

Fall 2020



Inside: *Grading Coins with Artificial Intelligence (AI) - Now and in the Future* 

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## THE VIRGINIA NUMISMATIST

#### VOLUME 56, NUMBER 4 FALL 2020

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VNA ONLINE: Our web site provides current information about the VNA organization, numismatic activities, events, and more information for the numismatic community. Please go to:

#### www.vnaonline.org

#### IN THIS ISSUE

Membership Application	4
List of Officers and Directors	5
President's Message	6
Editor's Corner	6
Grading Coins with Artificial	
Intelligence – Now and in the	
Future	7
Coin Show Calendar	19
Money \$tore	21
VNA Member Clubs	



#### VIRGINIA NUMISMATIC ASSOCIATION

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	3-year Membership -	\$25
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The VNA is a non-profit 501 (c) (3) organization dedicated to the educating, encouraging and promoting interest in numismatics. Founded in 1959, the VNA has a membership of over 350 individual members and member institutions with sixteen (16) member clubs. We publish the quarterly journal, The Virginia Numismatist, and host an annual three-day Convention, Stamp and Coin Show, which includes exhibits, educational presentations, distinguished guest speakers, a banquet, scouting, and youth activities.



### Virginia Numismatic Association Officers and Directors

**OFFICERS (2021)** 

OFFICE	NAME	ADDRESS	PHONE	EMAIL
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Vice-President	George Watson		703-646-4171	georgecoins@msn.com
Secretary	Dave Ellison	Herndon, VA	703-832-6492	dawayell@aol.com
Treasurer and Membership Secretary	John Kolos	P.O. Box 263, Cape Charles, VA 23310	757-331-1530	john.kolos1790@gmail.com
Past President	Chris Maniscalco	P.O. Box 6112, Virginia Beach, VA 23456	757-721-5331	mancn@cox.net
Other Positions	NAME	ADDRESS	PHONE	EMAIL
Webmaster	Judy Merz	Bridgewater, VA	540-476-3418	imjudern@comcast.net
Newsletter Editor	Tom Kays	Alexandria, VA	571-225-5750	Thomasakays@gmail.com
Data Base Manager	Judy Pollock		540-310-0279	judithapollock@aol.com
Education Director	John Philips	P.O. Box 31752 Henrico, VA 23294	804-347-7082	john.philips@comcast.net

**DIRECTORS (2021)** 

Name	Address	Phone	Email
Doug Bowers	Strasburg, VA	540-465-3952	bottles@shentel.net
Moore Gouldman III	P.O. Box 441, Culpeper, VA 22701	540-547-3730	
George Hines	Hagerstown, MD	301-791-3853	
Billy Hoovler	Virginia	540-373-0778	rubberhook1 @aol.com
Carl Hornberger	Hampton, VA	757-570-2455	
Jim lanuzzi	Amhurst, VA	434-946-2243	
Joe Riggs	Virginia Beach, VA	757-335-9750	thebeachpainter@msn.com
Richard Schornak	Yorktown, VA	757-659-0235	rschornak@cox.net
Bill Scott	P.O. Box 31752, Henrico, VA 23294	804-350-1140	woscott1@gmail.com

## President's Message

This has been an unusual and hard year for active numismatists. I hope the hardships will end soon. In the fall, VNA officers and board members made a difficult decision to suspend the September VNA Convention. We did it to preclude the loss of all moneys paid to the Fredericksburg Convention Center. I was all for continuing the show but not at the cost of bankrupting the VNA in the event of a last-minute cancellation. We are actively working on the 2021 convention.

I want to update the members about Jim Ruerhmund's status. As you all may know he suffered a stroke 10-15 years ago, paralyzing his left side. He was able to recover some motion and activity, recently suffered another stroke, and is recovering at this time. I want to congratulate him on receiving the ANA Presidents award recently.

The VNA elections for 2020 have been tabulated and the results are that the VNA membership has returned all Board members up for reelection and have added 2 new Board members: Carl Hornberger and Jim Ianuzi. I hope having a Board member from the western part of Virginia will add to our membership and bring in more positive feedback from the west. Even though there were no candidates running against each other, it is positive that we received almost 80 ballots. Thank you!

I started collecting coins in the 1960s, after meeting the requirements for the Boy Scout coin collecting merit badge. In my troop, Troop 20, about 8-10 of us were working on that badge at the same time, one of whom was Donnie Roberts. His father later became a member of the VNA and was for some time the editor of the Virginia Numismatist. Life member Donnie Roberts passed away in July of this year. My condolences to his family. I hope all of us will be able to get together some time in the next year, and that the holidays coming up soon will be happy for all. Stay safe and well.

#### Parry Bragg - VNA President

#### Editor's Corner

Please check status of all in-person Club Meetings and Coin Shows planned for 2021 with their Points of Contact and check at <a href="https://www.vnaonline.org">www.vnaonline.org</a> for new cancellations or changes in venue.

Special Note: Our author, Jonas Denenberg of the Fairfax Coin Club, is an accomplished Young Numismatist whose articles have previously appeared in The Virginia Numismatist. He is in the 9<sup>th</sup> Grade.

#### **Tom Kays - Editor**

## Grading Coins with Artificial Intelligence (AI) Now and in the Future

#### By Jonas Denenberg

For over thirty years, people have been working to digitize coin grading. Compugrade (now defunct) first did it in the late 1980s. PCGS also attempted to do it in the early 1990s and made another attempt to do it more recently. Although we know these schemes exist through patents and press releases, there isn't a single AI grading tool available to the public today, and it's uncertain if there are any in operation in private use. In this article, we'll create our own, simple AI grader (you'll even be able to test it online). We'll look at what has been done in the past and what could be done in the future. What do we mean when we say AI? For our purposes, an "AI Grader" is any tool that can determine a coin's grade without much human input. I've tried my best to write this article using the simplest technical terms possible.

- Algorithm A process or set of steps used to solve a problem.
- Function Outputs a single answer given an input.
- Operator Performs operations. Adding and subtracting are examples of some simple operations.
- Pixel a pixel is a small block on a screen that can display a single color. Screens are made up of multiple, often thousands, of pixels.
   Images are displayed on a screen using pixels.
- Resolution the size of an image. Images with higher resolution are more detailed and cover more pixels than those with lower resolutions.

#### **Starting out**

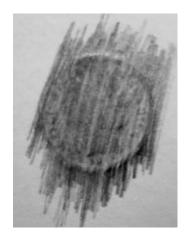
We'll need to choose an image to grade. Let's use this 1913 Barber Dime image that I took.



Original Image

Cropped Square Image

Before we begin our AI quest to find this coin's grade, we'll need to collect a small amount of input from the user about what type of coin is shown, to crop the image down to just the coin (this could be automated, but it would get messy if there were multiple coins in the photo), and we will need them to tell us the coin's series (for later use).



#### **Deciphering the Image**

The most important challenge we must solve is how a computer will understand our image. You and I can easily see that this is a fine coin, but how can a computer tell? The computer just sees a group of pixels, and it's definitely unable to decipher it from an XF-40 coin or an MS-67 coin. How can we transform our image into something that can be easily read by a computer? To answer this question, we can look back to a technique that's been used for hundreds of years. "Coin rubbing" is a technique that is used to "transfer" the likeness of a coin onto a sheet of paper without the need

for a photograph. This technique was commonly used by dealers to show off inventory before cameras became widespread. A rubbing is created by placing a coin under a sheet of paper and gently rubbing a pencil over it. This generates a greyish "heatmap" where the edges of the coin appear dark and the fields appear light. Using this technique, someone can get a pretty good idea of a coin's grade without seeing it in person. The best thing about this? It can be replicated by a computer.

#### **Processing the Image**



The Prewitt Operator is used in image processing algorithms to find an image's edges. In simple terms, it looks for gradients in an image and uses them to determine where an edge lies. When we apply this to our barber dime image it is transformed. It looks like a clean coin rubbing, however, it does not solve our original goal of creating an image that can be easily read by a computer. Although it looks great at first, as you look closer you may notice that it's a big, blocky mess with

hundreds of different colors. How can we further simplify it? Thresholding is a method for creating binary images. When you apply thresholding to an image, the image is converted into just two colors - black and white. Furthermore, a threshold can be implemented when thresholding. The higher the threshold is set, the darker a pixel needs to be in order to be drawn black.





Look at the image with the Prewitt algorithm and you'll notice that the boldest edges on the dime have the darkest splotches in the generated image. Could there be a correlation between this and the image thresholding? Of course! We can threshold the Prewitt algorithm image at multiple different levels.



Here is a sampling of 6 different levels (out of 26 that I generated in total) - I've superimposed the original image over the black part so that you can more easily see the details of the coin. Each time that the threshold is raised, more of the Prewitt algorithm image is selected. Lower thresholds make sure that only the darkest parts are selected, while higher thresholds allow lighter parts of the image to be selected too. Now that we've created a frame for each level, we can combine them into a heatmap. Luckily this doesn't involve any complicated algorithms. A red color can be superimposed over each frame. Frames with lower thresholds are darker while frames with higher thresholds are the lightest. We can then place each of the frames over each other, starting with the last frame and ending with the first frame. Although it looks similar to the Prewitt algorithm image. It has only 26 colors, unlike the Prewitt image which can have hundreds of thousands of possible colors.

#### **Making Sense of our Image**



We've figured out how to create a digital heatmap of our image, just like a coin rubbing. Now, how can we determine a grade? Although our heatmap is pretty cool (and a nice proof of concept), we'll need to go back to looking at our 26 frames to begin the process. To begin grading, we'll need to find the frame that shows as much of the coin's details as possible without showing parts of the field. Doing this is a bit of a complicated process, but I'll try my best to

explain. First, the number of pixels in each frame is counted. Next, the percentage change between the number of pixels in each frame is calculated. We can then compare each percentage change figure to the one before to determine whether it was an increase or decrease over the previous figure. Using this, we can look for upward trends in the data. Finally, we can look for the largest upward trend and select the first frame in the upwards trend. Below is a graph to help explain:



At first, there's no intuitive reason as to why something like this would work., however when this process is repeated multiple times a trend starts to appear. For most coins, there will be a large jump in percentage change of pixels visible at the first frame. Following this, the percentage change will slowly decrease as most of the coin's edges become visible. Once the edges are all visible, parts of the field will begin quickly becoming visible, causing there to be a large increase in percentage change. At the end of this large increase, the percentage change makes a huge drop as the last few remaining pixels become visible. The algorithm described works to identify the frame that shows the most edges but has little of its field visible.



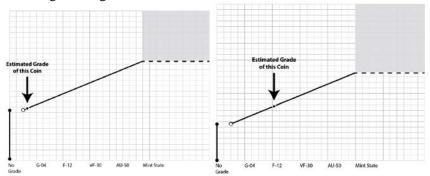
#### **Grading the Image**

We just found the best possible frame to grade. Now, how can we determine a grade? We'll want to examine the coin's edges to begin grading, edges like the ones in the frames above. The frames above do not have very high resolution, so let's quickly recreate the chosen frame, but in slightly higher resolution. First, let's count the number of black pixels showing. We arrive at 24,680; or 9.86% percent of the total pixels in the image. Now, we'll use pinpoints and graphing to help determine the grade.

Recall we asked the user to input the series that their coin belonged to. For each series we can store predefined values in a database. Knowing we are grading a Barber Dime, one value represents the expected percentage of black pixels for a Barber Dime in G-04 condition, while another represents the expected number of black pixels for a Barber Dime in AU-58 condition. These perspective values are 10.68% and 19.69%. These two numbers can now be used to create a graph of all possible grades by pixel count percentage.

Input (Grade)	F-02	G-04	VF-20	EF-40	AU-58	MS-60	MS-68
Output (Normal Number)	2	4	10	14	19	20	28

We only want to graph grades F-02 through AU-MS60. What about the grades below and above these? If a coin grades F-02 or below, we'll say that it is ungradable. For coins that grade MS-60 or higher, we'll want to apply special rules (described later). We can then graph the range of values corresponding to grades and plot the percentage of pixels that are visible in our image to be graded.



For our dime we find the value is 9.86%. We can see a problem. Our coin should be graded Fine, but our algorithm has determined that its grade should be less than AG-03. What gives?

#### **Using Feedback**

In the ideal world of AI grading, every image would be of the same quality. While this is certainly possible in a controlled environment, such as a PCGS office, this is not at all possible if we want to make our grader accessible to anyone, on any device. To solve this problem, we ask for feedback from We ask them if they think that we graded their coin correctly, if we graded it too low, or if we graded it too high. If they said that we graded it too low, we can shift the graph downwards and if they say that we graded the coin too high, we can shift the graph upwards. After grading just a few coins, we get a pretty good idea of how much we must shift the graph to account for the quality of their images, and they are no longer required to provide feedback for the grader to work well. As the quality of the image that we're using to grade is slightly below professional quality, we can shift the graph downwards by three units to account for this (and for any other images we may be grading using this camera). We can then round down to the nearest grade and find that we've correctly determined the grade of this coin to be F-12. We've now figured out how we can determine the grade of circulated Barber dimes and correct for any deficiencies in a particular photo set-up, but what about Mint State coins?

#### The Problem with Mint State

So far, we've been grading coins using a method that determines the amount of edges showing and compares it to two pinpoint values for the series. A method like this can't be used for Mint State coins though. Unlike circulated coins, mint state coins don't show wear so they must be graded using other tactics, such as determining the coin's eye appeal.

#### **Looking at Eye Appeal**

If you've ever heard anything about AI grading you've likely heard that it's impossible to determine the eye appeal of a coin. They've probably told you that this *must* be done by a human. This is *somewhat* true. It's definitely hard to do but we can still get a pretty good idea of a coin's eye appeal using a computer. Let's say that we are trying to determine the eye appeal of this coin:





We can start by determining how lustrous it is by determining its brightness. We can convert the image to grayscale then determine how white or black the image is. If it's mostly white, then it is very lustrous and if it is mostly black

When it comes to luster, our coin scored an 8/10. then it is extremely dull. Using a method based on the Sunnywood Toning Classification System, we can also determine what toning there is on this coin. The Sunnywood System is used to classify a coin's toning based on the spectrum produced by thin-film interference, which is caused by the silver sulfide film found on For further reading, I recommend visiting silver and nickel coins. The system outlines 25 different colors https://coinshow.us/sunnywood. that can be found on silver and nickel coins. To determine if our coin has toning, we'll want to look for these colors in our image. We can do this by quantizing our image, which is the process of reducing the number of colors To start, we'll want to create a palette of colors that we can convert the image into. In this palette, we include each of the toning colors We also need to include colors to represent "O", which is no toning.



If we don't do this, then spots on the coin without toning will appear to have it when quantized. Since we are only using this method to grade silver and nickel coins, we can include various shades of grey to represent "O." Now that we've created our palette, we can convert each pixel in the image to its closest match in the palette. We can then determine the non-grey colors showing on the image and find that this coin has medium gold, amber, russet, orange, and dull black toning. However, there's a problem with this data. We've determined that there is dull black toning on this coin, but there doesn't appear to be any. If you haven't already noticed there are black colored shadows that appear around the coin's edges. How can we make sure that

these shadows don't register as toning on the coin? Let's think back to the barber dime that we graded earlier. You can probably recall that we generated an image of the coin's edges. Can we use edge detection to solve the problem with our toned coin? Of course! First, let's generate an image of this coin's edges.





We can do this using the same method that we used for the barber dime. We can then superimpose this image over the quantified image and erase the edges. This leaves us with a quantified version of the image without the edges.

Next, we can count the number of pixels for each color of toning in the image. We can then compare the number of pixels for each color in this image to the number of pixels for each color in the previous image. If there is a large decrease in the number of pixels for a color between the first and second images, then we know that the "toning" is actually a shadow. Using this method, we can determine that this coin has medium gold, amber, russet, and orange toning. This same method can be used to find toning on coins of other compositions and colors, we just need to change the colors in the palette. We can then determine the attractiveness of the toning on a scale from one to I made it so that coins with the most vibrant colors were considered the most attractive. Under my system, this coin scores a 4 out of 10 on toning, as the toning contributes to the coin, but it isn't very vibrant. The system that I used to determine the attractiveness of toning could definitely be subject to improvement. Finally, we can composite the attractiveness of the luster and toning together to determine the coin's overall eye appeal. another area where there could be a discrepancy. I decided to make this The way that I did this, I made it so that if a coin's toning is determined only mildly attractive, or not very attractive, and the luster is determined to be low, toning carries a smaller weight, and otherwise it carries a larger weight. Under my system, this coin scores a 7/10 for overall eye appeal as it is attractive, but the toning is not too extraordinary.

#### **Back to Mint State**

We just spent a while looking at Eye Appeal grading, however, we were originally trying to figure out how we can attempt to grade mint state coins. The solution to this is simple, we can take the eye appeal grade, add 60, and use it as our mint state grade. This means that our Queen Elizabeth coin receives a grade of MS-67. This method generally works because mint state grading isn't just about wear, it's also about eye appeal. A large part of it is

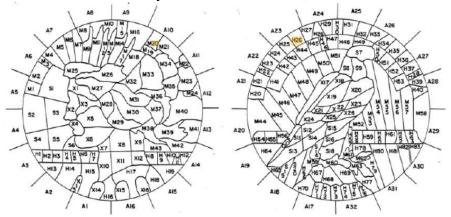
looking for small scratches on the surface of the coin but finding these scratches (especially considering the images that we are grading are of various qualities) is extremely hard to do, so we must resort to the next best thing, which is looking at eye appeal. Overall, grading like this is generally accurate, although it can often be off when it comes to exact grades. Because of this my method is experimental, rather than something that would be used in a professional setting. I've put all of this on the web so that you can try grading your own coins. Visit my site **coinshow.us/ai-grader** to begin grading.

#### **Other Grading Techniques**

We've gone in-depth on one technique that could be used to grade coins, however, this isn't the only technique. I'll quickly show some other techniques created by others. Please note that I have no proof that any of these have ever worked well - the only working, publicly accessible method that I know of is the one we just created.

#### **US Patent 4899392A**

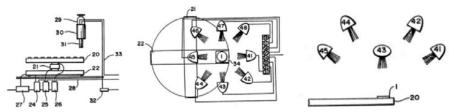
This patent was filed in 1987, invented by Henry A. Merton, and assigned to Compugrade. Compugrade was a company created with the intention of grading coins with computers, and they have since faded. I cannot confirm this, but it appears that they only slabbed Morgans, and on rare occasions Peace Dollars and Kennedy Half Dollars.



The patent proposes dividing a coin into "grading areas" based on relevancy and then looking for detracting marks in said areas. It also says that an "automatic analysis of each coin side surface to determine a mint luster value, surface wear value, strength of strike indication, and whether artificial treatment of the coin has occurred" should be conducted. This method

appears to work well for mint state coins, however, it is unclear how well it worked for circulated coins. This patent is now expired.

#### **US Patent 5220614A**



This patent was filed in 1991, invented by Louis M. Crain, and assigned to PCGS. It suggests a more mechanical way of grading coins. This patent recommends that a coin be placed on a circular rotating disk inside a lightbox. Pictures of the coin would then be taken by a camera inside the lightbox and they would be analyzed by a computer. This patent has since expired.

It should be noted that in September of 2018, PCGS announced in a now unavailable press release, the creation of a new AI Coin Grading System in conjunction with their new Gold Shield Service. It was developed to both grade coins and to detect counterfeit coins. PCGS is secretive about this system, however, in the summer of 2020, a PCGS representative stated that they had "stopped developing their AI grader" as it was "not accurate enough" for their needs.

#### Questionable "key points" per PCGS's counterfeit detection system.



#### The Future of Grading

We've looked at multiple methods that a computer can use to grade coins. There is one thing that they all have in common. They analyze a 2-dimensional image, yet our world is three dimensional. Might it be possible to grade this way? Three-dimensional (3D) scanning technology is

becoming accessible. Apple's newest iPhone technology is built with sensors that can sense depth using a Light Detection and Ranging (LIDAR) sensor. LIDAR detects depth by emitting an eye-safe laser beam and measuring differences in the light reflecting off objects. It's unclear exactly how accurate this technology will at a close range, however, if Apple's LIDAR technology proves to be extremely accurate, it might serve as a basis for coin grading. I've created a simple mockup of an iPhone pointed at a pile of coins.



AI grading is certainly possible but its wide-scale use rests on whether it can become more accurate. I created my own AI coin grader that estimates a coin's grade from any image, but it's very hard to get it correct 100% of the time. I also figured out how to determine a coin's eye appeal. Do you think that AI grading could see use in the future?

#### 2021 CALENDAR OF COIN CLUB SHOWS

Free Admission to All VNA Member Shows

All VNA coin shows planned in 2020 are <u>CANCELLED</u> due to prohibitions on large public gatherings. Please check status of future VNA coin shows planned for 2021 at <u>www.vnaonline.org</u> for updates, cancellations or changes in venue.

#### **February** 6 - 7,2021

Virginia Beach Coin Show/Tidewater Coin Club.

Saturday 9:00 AM - 5:00 PM and Sunday 9:00 AM - 4:00 PM 1000  $19^{th}$  Street, Virginia Beach, VA23451

Contact John Kolos, Phone 757-331-1530. Email: john.kolos1790@gmail.com See website: www.tidewatercoinclub.org.

#### March 13 - 14, 2021

#### Salem / Roanoke Valley Coin Club Show.

Saturday 9:30 AM - 5:30 PM and Sunday 9:30 AM - 3:30 PM. American Legion Hall, 710 Apperson Drive, Salem, VA. Free Admission, Free parking, Good food. Contact Will Camp, P.O. Box 283, Fishersville, VA 22939 Phone: 540-943-2267.

Plan for future Salem/Roanoke Valley shows in 2021 on May 29 - 30, August 21 - 22, and November 6 - 7, 2021.

#### April 9 - 11, 2021

#### Shenandoah Valley Coin and Stamp Show.

Friday: 12:00 AM - 5:00 PM, Saturday 9:00 AM - 5:00 PM, Sunday 9:00 AM - 4:00 PM. Weyers Cave Community Center, Weyers Cave, VA (I-81, Exit 235, two miles east on Hwy 256). Bourse Chair: Todd Olney, Phone 757 570-0013. Email: <a href="mailto:svccshow@gmail.com">svccshow@gmail.com</a>. See website: <a href="mailto:http://svccshow.info">http://svccshow.info</a>

#### April 30 - May 2, 2021

#### Richmond Annual Spring Coin & Currency Show.

Friday 10:00 AM – 6:00 PM, Saturday 10:00 AM – 6:00 PM, Sunday 10:00 AM – 3:00 PM. New Location: ACCA Shriners, 1712 Belleview Avenue, Richmond, VA 23227. Email Bill Scott at woscott1@gmail.com. Phone: 804-350-1140. See <a href="https://www.richmondcoinclub.com">www.richmondcoinclub.com</a>.

Plan for a fall Richmond Show in 2021 on October 15 – 17, 2021.

#### September 23th – 26th, 2021 Virginia Numismatic Association (VNA) 62<sup>nd</sup> Annual Convention, Coin & Currency Show.

Dealer Setup: Thursday September 23rd, 1:00 PM – 7:00 PM. Public Hours: Friday 10:00 AM – 6:00 PM, Saturday 10:00 AM – 6:00 PM, Sunday 10:00 AM – 4:00 PM. Fredericksburg Expo & Conference Center at 2371 Carl D. Silver Pkwy, Fredericksburg, VA. Featuring 150 Tables. Banquet by advanced reservation on Saturday night. Speaker to be announced. Boy Scout Merit Badge Class on Saturday. Youth exhibits,

Youth activities led by John Philips, Youth Director, Adult exhibits, prizes to be given. Contact: Richard Schornak, 372 Wythe Creek Rd., #E, Poquoson, VA 23662. Phone: 757 659-0235. Email: <a href="mailto:rschornak@cox.net">rschornak@cox.net</a>.

#### PROMOTER SHOWS

Contact the editor to list a promoter show here and online. VNA Club Shows are advertised free of charge. The cost to advertise if you are a promoter is \$15.00 per show. If you are an advertiser in the Virginia Numismatist, you may also advertise free of charge as a paid promoter. See page 3 ad rates

Please check status of Promoter shows planned for 2021 with their Points of Contact for additional cancellations or changes in venue.

#### January 24, 2021,

#### **Annapolis Coin & Currency Show**

Sunday, 9:00 AM – 4:30 PM at the Elks Lodge #622, 2 Pythian Drive, Edgewater/Annapolis, MD 21037. Contact Carl Ostiguy, CEO Coins, P.O. Box 92, Savage, MD 20763. Phone: 443-623-7025, Email: ceocoins@icloud.com or visit <a href="www.coinshows.com">www.coinshows.com</a>

Plan for future Annapolis shows in 2021 on March 7, May 16, September 12, and November 28, 2021.

#### February 27 - 28, 2021

#### Frederick Coin and Currency Show.

Saturday: 10:00 AM - 6:00 PM, Sun: 9:00 AM - 4:00 PM. The Frederick Elks Lodge #684, 289 Willowdale Drive, Frederick, MD 21702. Contact Carl Ostiguy, CEO Coins, P.O. Box 92, Savage, MD 20763. Phone: 443-623-7025, Email: ceocoins@icloud.com or visit www.coinshows.com

Plan for future Frederick shows in 2021 on April 17 - 18, June 5 - 6, and November 20 - 21, 2021.

#### March 25 - 27, 2021

#### Whitman Coin & Collectibles Baltimore Expo.

Thursday 12:00 Noon - 6:00 PM, Friday and Saturday  $10:\overline{00}$  AM - 6:30 PM, Sunday 10:00 AM - 3:00 PM. One West Pratt Street, Baltimore, MD 21021. Contact 404 214-4373.

#### July 24 & 25, 2021

#### **Annandale Coin Show.**

Saturday: 10:00 AM – 5:00 PM, Sunday 10:00 AM – 4:00 PM. Northern Virginia Community College, Ernst Cultural Center, 8333 Little River Turnpike, Annandale, VA 22003 (I-495, Exit 52 West). Contact: Wayne Herndon, P.O. Box 221601, Chantilly, VA 20151. Phone (703) 385-0058. www.annandalecoinshow.com

Plan for a future Annandale show next year, in 2021 on December 11 - 12, 2021. In 2022 plan for shows on July 23 - 24, 2022 and December 10 - 11, 2022.

#### October 1-3, 2021

#### Ocean City Maryland Coin and Currency Show.

(Dealer Set Up Friday 9:00 AM – 6:00 PM). Show hours: Friday: 12:00 – 5:00 PM, Saturday 9:00 AM – 6:00 PM. Sunday 9:00 AM – 4:00 PM. Ocean City (Roland E. Powell) Convention Center, 4001 Coastal Highway& 40th Street. 21842. Carl Ostiguy, CEO Coins, P.O. Box 92, Savage, MD 20763. Phone: 410-379-5646. Email: ceocoins@comcast.net

#### THE MONEY STORE

WANTED: Military medals pertaining to the Civil War, Spanish-American War and Indian Wars. Need Federal, State, Local and Society medals. Charles Pfeiffer, 1401 Druid Road, Maitland, FL 32751 (407) 644-0085

\$50 REWARD: I am doing a DVD on the history of paper currency. I'm offering a \$50 reward for the first good, clear scan and permission to use the image of the \$20 Denomination note from the Bank of Pittsylvania, Chatham, VA. These notes are pictured in Obsolete Paper Money of Virginia, by Charles J. Affleck, Volume 2, Page 50. Do you have this note or know someone who does? Call Wesley Smith at (501) 472-3800.

**VNA MEMBERS**: Please provide your free Money \$tore ad (up to 30 words) to thomasakays@gmail.com or call (571) 225-5750 to reserve ad space in the next edition.

#### VNA MEMBER CLUBS

All in-person VNA Coin Club meetings through December 2020 are <u>CANCELLED</u> due to prohibitions on public gatherings. Please contact the Club Point of Contact for when in-person meetings will begin again in 2021.

**ALEXANDRIA COIN CLUB.** Contact: Brandon Guilliams at brandon.guilliams@alexandriacoinclub.org, Website: alexandriacoinclub.org

**CENTRAL VIRGINIA COIN CLUB**. Contact: Bob Hicks, Phone 804 520-8292, Email: hicksrg@aol.com. Website: centralvirginiacoinclub.org

**COVINGTON COIN CLUB.** Contact: Ken Headley, 830 White Oak Dr., Covington, VA 24426, 540-962-9491 Email: <a href="mailto:kheadley@ntelos.net">kheadley@ntelos.net</a>

CULPEPER COIN CLUB. Contact: Gregg Coburn, (540) 272-1524.

**FAIRFAX COIN CLUB.** Meetings are "virtual" using the Zoom application. Club members receive access information to virtual events by email. Contact: Pat Flynn at <a href="mailto:fairfaxcoinclub@gmail.com">fairfaxcoinclub@gmail.com</a> Website: www.fairfaxcoinclub.com

**LYNCHBURG COIN CLUB.** Contact Thomas Wood, (434) 528-0488, <a href="mailto:coindink@hotmail.com">coindink@hotmail.com</a>

**MONTICELLO COIN CLUB**. Contact: Jackie Dean, (540) 832-0024, Email: Debomb14.aol.com

**PIEDMONT COIN CLUB**. Contact: Ralph Brammer, P.O. Box 418, Collinsville, VA 24078. (276)-647-7411

**RAPPAHANNOCK AREA COIN CLUB**. Phone: (540) 891-1341. Contact: Billy Hoovler, rubberhook1@aol.com, 540-785-7188. Website: www.racceteer.com

**RICHMOND COIN CLUB.** Contact: William Scott, P.O. Box 31752, Henrico, VA 23294, 804-350-1140, woscott1@verizon.net, Website: richmondcoinclub.com

**SALEM COIN CLUB**. Contact Emmett Yonce, P.O. Box 512, Daleville, VA 24083, 540-992-5331.

**SHENANDOAH VALLEY COIN CLUB.** Contact is Mark Rathke at 540 478-2105. Email: <a href="mailto:svccshow@gmail.com">svccshow@gmail.com</a> See us on Facebook.

**TIDEWATER COIN CLUB.** Contact Fran Ryan, P.O. Box 5247, Virginia Beach, VA 23471. Website: www.tidewatercoinclub.org or

#### webmaster@tidewatercoinclub.org

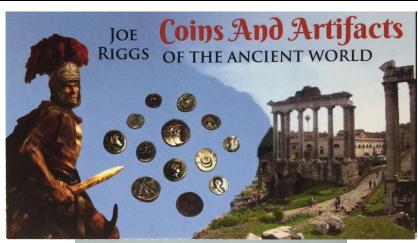
**VIRGINIA PENINSULA COIN CLUB**. Contact David Kurtz, 102 Spinnaker Way, Williamsburg, VA 23185. Phone: 757-345-5559

**WARRENTON STAMP & COIN CLUB**. Contact: Tony Tripi, 540-347-2567, Email: <a href="mailto:tripi@earthlink.net">tripi@earthlink.net</a>.

**WASHINGTON NUMISMATIC SOCIETY**. Contact: Simcha Kuritzky, P.O. Box 13504, Silver Spring, MD 20911 Phone: (301) 585-1029, Website: wns.anaclubs.org

**WINCHESTER COIN CLUB.** Contact Doug & Ginny Bowers, (540) 335-7287. Email: <a href="mailto:bottles@shentel.net">bottles@shentel.net</a>

Not affiliated with VNA: **Ancient Numismatic Society of Washington D.C.** Contact Michael Mehalick, Phone: 301 552-2214, and Email: <a href="mailto:genioavgvsti@comcast.net">genioavgvsti@comcast.net</a> Website: <a href="http://answ.ancients.info">http://answ.ancients.info</a>



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EMAIL: ceocoins@icloud.com

#### **ANNAPOLIS COIN & CURRENCY SHOWS**

Sunday, January 24, 2021, 9:00 AM – 4:30 PM

Elks Lodge #622, 2 Pythian Drive, Edgewater/Annapolis, MD 21037

Plan for future Annapolis shows in 2021 on March 7, May 16, September 12, and November 28, 2021

#### **2021** OCEAN CITY COIN & CURRENCY SHOW

Friday/Saturday/Sunday October 1 - 3, 2021, (Dealer Set-up Friday, from 9:00 AM – 12:00 PM) – Open to Public Friday 12:00 – 5:00 PM, Saturday 9:00 AM – 6:00 PM and Sunday 9:00 AM – 4:00 PM

Ocean City (Roland E. Powell) Convention Center, 4001 Coastal Hwy, Ocean City, Maryland 21842 (at 40<sup>th</sup> Street)

#### FREDERICK COIN & CURRENCY SHOW

Saturday / Sunday, February 27th - 28th, 2021 Saturday 9:00 AM - 6:00 PM and Sunday 9:00 AM - 4:00 PM

Frederick Elks Lodge #684, 289 Willowdale Drive, Frederick, Maryland 21702

Plan for future Frederick shows in 2021 on April 17 – 18, June 5 – 6, and November 20 – 21, 2021

For updates see: http://www.coinshows.com/maryland.html





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