

THE GOLD NUGGET

August 2021

The Prez Sez by Jim Long



We are fast reaching the height of summer and are in the monsoon season. Normally, you would think that it would be full speed ahead on all the outdoor activities that you wanted to get out for, but not quite so yet. There is danger all around this year. Forest fires, heavy rains that result in flash flooding and mudslides, high temperatures in the mid to high nineties and so on. So let me just say this, please be careful no matter where you are going or what you are doing. I had a very good friend who was caught in the recent flash flood in Poudre Canyon. He and his family escaped the danger narrowly but there were four others who lost their lives up there. Enough said, so be cautious in your endeavors.

I hear that some of the guys and gals on the western slope are working in 100 to 110 degree weather while out digging. That kind of prospecting is not for everyone. If you can't handle high heat, don't do it...! That kind of prospecting reminds me of the mid to late 1800's, and all those old timers who were wandering the deserts of Arizona, southern California, and the high desert of Nevada. Though those old boys were danged tough, they didn't all make it either. There were bones aplenty left along the way. Dry country makes for good metal detecting though and there are lots of guys who get out for that as well. That is not one bit easier either. Man cannot live long without water and neither can woman. Proper Preparation Prevents P--- Poor Performance...! Some of you former military folk will appreciate that little adage.

I have to constantly chuckle at some of the queries I see on Kevin's web site of '*Finding Gold in Colorado*'. Mostly it involves the newer folks who have an interest in learning something about prospecting but have no clue where to start. Instead of scanning the site for a little bit and reading all the prior posts, they tend to see the site and go, 'Hey, this is just what I was looking for!' Then they ask the same old questions that have been asked and answered some two thousand times at least, previously on the site by other newbies. Though I have lost some of my patience over the years, I admire Kevin and his Legion of followers who slowly and clearly take the time to cover the same answers for the two thousandth time. After the last 3 years of better, I think I am at the point where it is simply, 'Hey, buy and read the dang book completely and scan the web site for all the answers that have been given two thousand times already...!' But I don't. God Bless Kevin and the many others who do continue to patiently answer the many already asked questions for the two thousandth time. You guys are all my heroes. Long live you all...! And maybe Kevin ought to write a book containing all the questions the newbies ask with the appropriate answers....oh wait, shoot, he already did!

Anyway.... that is the view from here and I wish you all Good Luck in your endeavors, no matter what they may be! And until we meet again, keep your sunny sides up and may the bottoms of your pans turn bright with that treasured 'Yaller Gold'!

You may contact me at 303-452-6087 or at jnslong945@msn.com. Happy and safe prospecting to all.

The V.P. Corner by "Joe Fortunato"



Hello again members, another month has blown by and it's time for the next installment of the V.P. CORNER. I have been battling a kidney stone issue for over a month. So, I really don't have anything to report related to my own personal prospecting or detecting since our July newsletter. I hope to be back in prospecting shape by the time that the September newsletter is published. I have been struggling to come up with something to write about in this month's article. I haven't been able to stop thinking about the "Flying Eagle" cent that was found by fellow member, Bobby Manning, a couple of months ago. It is a perfect example of the point I was trying to make about patience and curiosity in last month's newsletter. When Bobby told us (during the June board meeting), how he had detected and recovered the small metal box that held the coin and several other items. I could not help but think to myself, I could have easily walked away from that target!!! Why was he rewarded with such a great find? I believe it was because he was patient enough to endure the frustration of detecting an area that was littered with trash targets. Then he was curious enough to dig a target that may not have sounded all that good to him. Good job, Bobby!!! What a great lesson for all of us. Slow down and take a breath once in a while, relax, have a cold drink or a snack. Then, continue on, all the while being Patient and Curious. I guess that will do it for this month. Until next time ... "MAY ALL YOUR ADVENTURES BE... GOLDEN!!!! Questions or Comments... Call or text me 303-263-7204 Joe Fortunato



Gold Prospectors of the Rockies Page 2

From the Treasurer/Secretary Ledger by Joe Kafka



Great meeting in July...! It is good to see so many of you back. The next Meeting will feature a nine (9) nugget giveaway which will include up to a 2.6 gram nugget. We have a new "Special Nugget" as well. Be sure and bring extra cash for the nugget giveaways. The Club remains in the black and members may request to see the financial report at any time, which I have at my desk in the back whenever we finally get to reconvene. Hope to see you all at the next meeting in August!

Board Meeting Minutes From July 2021

X	James Long		Joe Shubert	X	Joe Fortunato		John Johnson
X	Mike Stevens	X	Joe Johnston	X	Chris Kafka	X	Brandon Luchtenburg
X	Joe Kafka	X	Bobby Manning	X	Andy Doll		Gary Hawley

Quorum Present: _Yes.

Call to Order by: _Pres Long_ at _6:12_pm.

Reading and Approval of Minutes: Corrections: _none_ Approved as read/corrected: _no, Pres. Long forgot to copy minutes for review.

Treasurer's Report: Questions: _none_ Approved: _yes.

Correspondence: phone calls _2_ emails _3_ mail _2_

Webmaster: Total hits __159430__ Hits in last 30 days _231_.

Committee Reports: B. Manning advised first Outing went well.

Unfinished Business: Will still need to buy more gold soon. Pres. Long will handle this issue.

New Business: JeffCo Open Spaces will be doing another trash cleanup on clear Creek from McIntyre to Wadsworth. We will be participating and a sign-up sheet will be passed along.. No further new business to report.

Planned Outings: Pres. Long added the Trash Clean up with JeffCo to the Outing Schedule. Next Outing is July 24 up in Black Hawk.

Board Members Items of Discussion: BM Stevens discussed his trip to Alaska at the Gold King Creek Mine. He and BM J. Johnson had a good time and brought back a little gold as well. There were no further.

Items discussed and the meeting was adjourned.

Tonight's General Meeting Program: We will feature a Program by member Don Bray on the Adelaide

Mine in Tasmania where they mine the mineral Carorite.

Announcements: Next Board Meeting __8/18/21__ at 6:00pm

Next General Meeting: __8/18/21__ at 7:00pm

Adjournment: Meeting stands adjourned at __6:50__ pm.

QUESTION OF THE MONTH

What are the names of the three most popular public gold panning sites in Colorado?

2021 GPR Board of Directors Members

President

James 'JJ' Long

Vice President

Joe Fortunato

Secretary/Treasurer

Joe Kafka

2 Year Board Members

Joe Johnston (2017)

Joe Shubert (2018)

1 Year Board Members

Andy Doll

Brandon Luchtenburg

John Johnson II

Bobby Manning

Chris Kafka

Mike Stevens

Past President

Gary Hawley

General Meeting Minutes From July 2021

1. Meeting was opened at 7:11 pm by Pres. Long with the Pledge of Allegiance.
2. Pres. Long then announced that the evening Program would feature a Program by member Don Bray on the Adelaide Mine in Tasmania where they mine the mineral Carorite.
3. Pres. Long then gave the Metals Report: Gold 1803.30, Silver 25.23, Platinum 1074.00, Palladium 2598.00 Rhodium 17,500.00.
4. Web hits for last month was 231.
5. Treasurer Joe Kafka reports that the Club remains in the black. Report is available for review for anyone who wishes to see it. We have a new 'Special Nugget' tonight so be sure to buy many tickets. It is a beautiful specimen from Alaska.
6. Also, don't forget to buy tickets for tonight's 9 nuggets drawing, the largest being 2.4 grams.



Gold Prospectors of the Rockies Page 3

7. **Dan McConnell** reported from the Membership Table that we had 43 members in attendance. There were 7 guests present. The total meeting attendance was 50.
8. **Pres. Long** read the 'Question of the Month', which was "...We know "Aurum" is the Latin root for the metal we call gold. What is the Anglo-Saxon origin of the English noun "Gold"? The winners will receive an extra ticket to the gold nugget drawings later during the evening program.
9. **Pres. Long** advised that there was time to enter items at the break for the 'Finds of the Month' table and that the monthly winners from tonight will need to be saved for the Finds of the Year competition in November 2021. A reminder to all that gold submissions need to be weighed dry and only one submission per person per category. Be sure to fill out the entry cards completely. Only finds found within the last 30 days may be submitted.
10. **John Olsen** announced the 'Cache Clue' # 5.
11. **Pres. Long** advised that the Club Store had numerous items for sale. Be sure to drop by at the break and support your Club by buying something. We always have a supply of gold bags for sale as well.
12. **Pres. Long** informed the membership that the next Outings are as follow:
 - July 24 Sat Prospecting Outing, Blackhawk, 9am.
 - Aug 21 Sat Prospecting Outing, Blackhawk, 9am
 - Sept. 11 Sat Panning Demo, Highlands Ranch, see sign-up sheet
 - Sept 18 Sat Prospecting Outing, Blackhawk, 9am
 - Sept 25 Sat Trash Cleanup/Panning Demo with JeffCo Open Spaces, see sign-up sheet
13. There was a reminder to be sure to vote on the Finds of the Month and to answer the Question of the Month during the break.
14. Members who check things out of the Club Library are reminded to return them promptly. Member **Roger Schlenger** Announced that there would be a second annual 'Gold Palooza' dig on Aug28/29 up at Vic's Gold Panning near Blackhawk and to check with him or Vic's for details.
15. **Pres. Long** announced the break at 8:13 pm. Meeting was called back to order at 8:37 pm.
16. **Pres. Long** announced the winners of the 'Question of the Month'. The answer was, "...The name originates from the Old English Anglo-Saxon word "geolo", meaning yellow. (The root word is "gulthan" and is from the Proto-Germanic language that Old High German, Old English and Old Saxon languages are derived from. The word 'Ghel' was also used to refer to gold.)..." !! There were only 15 winners who received their extra drawing ticket for the gold drawing.
17. **Pres. Long** announced the winners for the 'Finds of the Month'. Those were:
 - **Best Coin** – **John Olson** with an old token from the 1880 is found in Leadville, Colo. While metal detecting.
 - **Best Jewelry** – There was no entry in this category for this month.
 - **Best Mineral** – **Joe Johnston** with a rock containing quartz or calcite crystals he found in Aurora, Colo.
 - **Best Artifact** – There was no entry in this category for this month.
 - **Best Bottle** – There was no entry in this category for this month.
 - **Most Raw Gold** – **Mike Stevens** with 7.7 grams of gold he found in Alaska last week.
 - **Largest Raw Gold** – **Mike Stevens** with a .2-gram nugget he found in Alaska last week.
18. **Pres. Long** concluded the evening with drawings for the numerous door prizes donated by the **GPR, Hank Innereld** and **Pres. Long**, followed by drawings for the 11 door prizes and 10 gold nuggets. **Pres. Long** also wants to remind that holders of drawing tickets for the regular gold drawings who did not win and want to redeem those tickets may present them at the end of the Meeting and they will be reimbursed at .01 cents on the dollar, or they shall be considered to have been donated back to the Club. Those assisting in the drawings were **Joe Kafka** and **Chuck Cown**.
19. **Pres. Long** reminds the members that sometimes during the meetings, The President's time is overwhelmingly taken up by the many who wish to speak to him and he apologizes if anyone ever feels like he is unavailable. It is not his intent to be inaccessible and he encourages anyone with questions to contact him by e-mail or phone outside the meetings at any time. His e-mail and phone number are on the web site.
20. **Pres. Long** thanked **Greg and Nancy Knerl** and all those who contributed to the Refreshment Table. Any member is encouraged to chip in and add to the spread each month. Don't forget the 'tip jar' also, which helps to defray costs. This really helps the folks who run the table and those who volunteer up front each month. The Club appreciates the efforts that each and every one of you to make the refreshment table enjoyable.



Gold Prospectors of the Rockies Page 4

21. **The August Meeting Program** will be a presentation to be determined. Having nothing further at this time, remember to prospect safely, live long and be grateful for that golden bounty from the stars, that gleaming magical miracle, called 'gold'!
22. **Meeting was adjourned at 9:07pm.**

A Miner's Laugh

An old retired miner was hired by an airline as a flight attendant. But things weren't working out so well and he got a letter from the airline telling him that this would be his last flight. So as the passengers were getting settled, he gave his last speech....' Welcome aboard Stingem Flight XXX to YYY.' We are pleased to have some of the best pilots in the industry... Unfortunately, none of them are on this flight...!' Then he progressed to the famous 'Fasten Seatbelt Routine'. What he said was: 'To operate your seatbelt, insert the metal tab into the buckle, and pull tight. It works just like every other seatbelt, and if you don't know how to operate one, you probably shouldn't be out in public unsupervised.' In the event of a sudden loss of cabin pressure, oxygen masks will descend from the ceiling. Stop screaming, grab the mask, and pull it over your face. If you have a small child travelling with you, secure your mask before assisting with theirs. If you are travelling with two or more small children, decide now which one you love the more. After the plane landed, he said: 'As you exit the plane, make sure to gather all of your belongings. Anything left behind will be distributed evenly among the flight attendants'. His final announcement was: 'Thank you for flying Stingem Airlines. We hope you enjoyed giving us the business as much as we enjoyed taking you for a ride.'



(Taken from the internet and revised just for all us 'old miners')

The finds of the Month 2021:

This Program started up after a 16 month absence at the June 16 meeting. The July 2021 winners are:

Best Coin – **John Olson** with an old 1880's token he found while metal detecting in Leadville, Colo.

Best Jewelry – There was no entry in this category this month.

Best Mineral – **Joe Johnston** with a rock containing quartz/calcite crystals that he found in Aurora, Colo.

Best Artifact – There was no entry in this category this month.

Best Bottle – There was no entry in this category this month.

Most Raw Gold – **Mike Stevens** with 7.7 grams of gold he found in Alaska on his recent trip last week.

Largest Raw Gold – **Mike Stevens** with 0.2 gram gold nugget he found in Alaska on his recent trip last week.



Be sure to bring any Finds that you have found in the last 30 days since the last meeting. Be sure to list the date that you found the item and the area you found it when you submit it. Each monthly winner must save your winning Find and submit it in November for the Find of the Year in each category.



Gold Prospectors of the Rockies Page 5

Second Outing of 2021 in July

After many months, the Club is finally back in action again. We traveled up to Black Hawk again on Saturday 24 July for a day of playing in the dirt again. Everybody had a good time digging and the diggers then retired to the lower Clear Creek Canyon where **Leaders Bobby Manning** and **Jack Meineke** set up high bankers to run everybody's material. The water is still running a little high in the Canyon but it posed no problem to our good folks. Of course, there is no running water in the gulch that we dig in. If you haven't gone on these digs, you really ought to do it. The terrain is not very difficult and it is fairly close to the vehicles so it is not too hard for pretty much anyone. And if you need assistance, there are always willing hands nearby to help when needed. Photos by Bobby Manning



Perth Mint buys King Henry, world's largest-known gold specimen, for \$3m

ABC Goldfields / By Jarrod Lucas Posted Yesterday at 2:49pm MonMonday 7 June 2021

The world's largest-known gold rock specimen, dubbed King Henry after it was unearthed at a West Australian mine three years ago, has gone on permanent display after being sold to the Perth Mint for \$3 million.

Key points:

King Henry was discovered on Father's Day 2018 about 500 metres below the surface at the Beta Hunt mine near Kambalda

The mine owners, Karora Resources, have sold the gold-covered rock to the Perth Mint for \$3 million

The metal value of the King Henry specimen is worth close to \$3.5 million at today's gold price.

The 94-kilogram specimen is named after air-leg miner Henry Dole, who discovered the gold-encrusted rock half a kilometre below the surface at the Beta Hunt mine in WA's Goldfields.



The government-owned mint dipped into its gold reserves to buy the rock, which contains an estimated 1,400 ounces of gold. King Henry adds to the 122-year-old mint's existing collection of rare gold specimens and its famous Australian Kangaroo One Tonne Gold Coin, estimated to be worth more than \$60 million. Chief executive Richard Hayes described the acquisition as a "great deal for the state".

He said today's gold price meant the value of the metal content was around \$3.5 million and collectors were known to pay a premium for rare specimens.

Underground miner Henry Dole found the rich patch and had the King Henry specimen named in his honour

"Typically something like this would trade for up to two, two-and-a-half



Gold Prospectors of the Rockies Page 6

times what its actual gold value is," Mr Hayes said. "Given the significance of it, being the largest in existence today, it may even have gone somewhat higher than that." Other buyers showed interest. The sale lays to rest fears the specimen would be sold offshore after the mine's owners, Canada's Karora Resources (formerly RNC Minerals), took King Henry on an overseas tour to the United States, Canada, United Kingdom and China. Karora Resources chief executive Paul Andre Huet said it was important the specimen remained in WA. "The fact that it's not melted into another doré bar and people get to see it on display for the next hundred or so years, we're thrilled," he said. "It's a timeless piece for sure. "There were a lot of people interested in something of this scale and size, but as a company we felt it was right to sell it here in WA and keep it here for everyone to enjoy." Mr Hayes said the purchase ensured the King Henry specimen was preserved for future generations, avoiding the scenario that saw WA's most famous gold nugget melted down.

Robert Woodruff the Special Nugget Winner

At the June meeting, we were finally able to award member **Robert Woodruff** with the special 15 gram Australian nugget he won in the drawing 16 months earlier in 2020. We were able to make the presentation to a grateful Robert who was very happy to be the lucky guy to get it. The nugget was very nice indeed and full of character and worth far more than its value in spot price. Glad we could get this one done and we now have a new one we are going to give away so be sure to buy your tickets for the next one as the only people in the drawing are your fellow Club members. Congratulations Robert.



The U.S. is trying to reclaim its rare-earth mantle

Sabri Ben-Achour Apr 30, 2021

The U.S. used to be a leader in mining and refining rare-earth elements into finished products. A geologist points to monazite, which contains rare-earth minerals, in a South African mine. Rodger Bosch/AFP via Getty Images

Is your right arm OK?" asks the radiology nurse as she tapes an IV to my arm. "Yes," I say through clenched teeth, bracing for the needle. I'm about to get an MRI of my brain as part of a study I volunteered for, but first they have to inject me with something.

"So we are about to give you gadolinium contrast, which kind of makes the arteries pop up better in the image so we see smaller veins and arteries as well," I'm told. Around 30 million doses of this agent are administered each year worldwide. Gadolinium is one of 17 so-called rare-earth elements. They have their own separate section in the periodic table and have names like neodymium, praseodymium, europium, promethium.

"They are so special because they have chemical and physical properties that are very useful for a very wide range of technologies," explained Rebecca Abergel, assistant professor of nuclear engineering at the University of California, Berkeley, and a faculty scientist at the Lawrence Berkeley National Lab.

How we use rare-earth elements: Some rare earths can make things glow in the dark (strontium aluminates), some are supermagnetic (neodymium), some are radioactive (promethium). They're used in cancer treatment and electric engines, telescope lenses and TVs, cellphones and fighter jets. And many are extracted and refined almost entirely in China. "Chinese mining and processing operations now control about 80% of the world's global output in processed rare-earth metals," said Eric Chewning, a partner at consulting firm McKinsey & Co. and former U.S. deputy assistant secretary of defense for industrial policy. The U.S. was 100% net import reliant on rare-earth elements in 2018, importing an estimated 11,130 metric tons of compounds and metals valued at \$160 million. Eighty percent of those imports were sourced from China, according to the U.S. Geological Survey. Ironically, rare earths aren't actually rare in most cases, they're just difficult and expensive to extract and purify. "We call them rare earth, but we produce a lot of them," said Gauthier Deblonde, a scientist at Lawrence Livermore National Laboratory in the nuclear and chemical sciences division. "Global production is about 250,000 tons, so if you compare them to something actually rare, like gold, we produce about a thousand times more rare earths than gold every year. The name is very misleading." Rare earths are chemically very similar, which is why purifying them is so difficult. "It's a very harsh process that involves a lot of separation steps," Abergel explained. The final step involves using organic compounds that can somewhat discriminate between rare earths and then attach to the elements and form a sort of cage around them to make them easier to manipulate. "You need to repeat this process many times so you can achieve good enough separation and purities." At scale, it requires large





Gold Prospectors of the Rockies Page 7

quantities of acids, bases and solvents. “The key here isn’t the access to the concentrate in the ground, it’s the processing that’s the bottleneck [that China has] been able to get scale around,” Chewning said. China has made use of its rare-earth dominance before, he said. It cut off exports of the materials to Japan in 2010 during a diplomatic disagreement. From 2010 to 2014, China restricted global exports, sending prices of rare earths surging until it lost a case challenging the practice at the World Trade Organization. The U.S. argued at the time that the export controls were to boost Chinese industries and hurt foreign competitors. And in February, the Financial Times reported China was assessing whether a rare-earth export ban would hobble U.S. production of fighter jets. “Everyone’s keenly aware of the leverage that control over this important global commodity has,” Chewning said.

U.S. was once a world leader: The U.S. used to be a leader in mining and refining rare-earth elements into finished products. “And now we produce none,” lamented Curtis Moore, referring to the finished product. Moore is vice president of marketing and corporate development at Energy Fuels, the largest uranium producer in the United States. Many reasons are given for the evaporation of the U.S. supply chain. “The U.S. does have very stringent regulations concerning human health and environment — as we should have — but that often makes our production more expensive,” Moore said. With more lax regulations, China has paid a steep environmental price for its perch atop the global supply chain. “We also have a chicken-and-egg issue,” Moore said. The U.S. hasn’t produced a great deal of rare earths because there’s not a lot of manufacturing demand, Moore argued. “There’s lots of demand in end-use consumer products — renewable energy, cellphones, cars, computers — but there’s not a whole lot of manufacturing demand for rare earths in the U.S. We’ve offshored our manufacturing base to China.” The last U.S. company making rare-earth super-magnets was Magnequench, which was controversially sold in 1995 to a consortium with close ties to the Chinese government. Its operations were moved to China and Singapore over the following decade. Molycorp, a now-defunct group that at one point owned the Mountain Pass rare-earth mine in California, went bankrupt in 2015.

China made supply chain a priority: But ultimately, in the pyramid of reasons for America’s loss of the rare-earth supply chain, one reason sits at the top. China made developing the rare-earth supply chain a strategic national priority. The U.S. did not until recently. “President Biden and this Administration recognize rare earth minerals are essential to American industry and to American’s defense base,” a National Security Council spokesperson said in an emailed statement this week. “It is why we directed an immediate 100-day review across federal agencies to address vulnerabilities in our supply chains, including for rare earths.” The White House says it’s coming up with ways to incentivize domestic production. President Donald Trump issued Executive Order 13817 directing the government to adopt a strategy for critical materials. The Department of Defense has, as a consequence, offered tens of millions of dollars in grants to help bring processing capacity to the U.S. Last year, Congress ordered the Department of Defense to eliminate all Chinese sources from the national defense supply chain of rare-earth magnets.

Funding U.S. research: The Department of Energy is funding research to make separating rare earths easier and more efficient, and to promote recycling. Its office of Basic Energy Sciences is adding five new national laboratory-led projects focusing on separation science totaling \$6.7 million per year. The DOE is investing \$25 million per year in the Critical Materials Institute, focusing on securing supply chains for critical materials, largely focusing on rare earths and lithium. BES is also announcing \$10 million per year in grants for basic research beginning this summer. The government is investing in new capability trying to establish every element of the supply chain,” said Jeff Green, president of lobbying firm J.A. Green & Co. “The question is whether we can do this economically.” Several private producers are trying to do so. “Our mission as a company is to restore the full supply chain,” said James Litinsky, CEO of MP Materials, the new owner of the U.S.’s only rare-earth mine, located in Mountain Pass, in California’s Mojave Desert. “We are probably further ahead than people realize.” MP Materials restarted the mine in 2017; the previous owner, Molycorp had declared bankruptcy a few years prior.

“It was mismanaged for some time,” Litinsky said. Mountain Pass’ reserves are particularly rich in rare earths and now supply, in unpurified form, 15% of the rare earths consumed globally each year. “We have a sustainable site, we operate proudly in the state of California, 95% of the water is recycled, we have dry tailings, which is unique in the mining materials industry,” Litinsky said. “We actually do have the means to lead economically and environmentally.”

Supplying the green economy: Litinsky said the mine can cover all of the U.S. military’s rare-earth needs, and they’re developing a processing plant to purify the most important rare earths for electric vehicles — a looming source of demand. “The military demand is single digit. The bigger demand is gonna be the electrification of the global economy as we focus on climate change,” he said. Energy Fuels, the uranium miner, is also building a refining facility in Utah. “The industry has come a long way,” said Moore, the company’s vice president. Energy Fuels extracts radioactive uranium and



Gold Prospectors of the Rockies Page 8

thorium from a mineral called monazite, which also contains rare earths. “We are producing a clean rare-earth product that we are selling to a separation facility in Europe.” Eric Chewning at McKinsey said there are still two things he sees as threats to this resurgent American rare-earths industry. One is its small size, compared to the scale of Chinese production. “The second challenge is the Chinese control the global price through export quotas, so if they wanted to, they could just flood the market with additional rare-earth metals and then wait for you to exit,” he said. Litinsky with the Mountain Pass mine is adamant the U.S. can compete with China no matter what. “This idea that we cannot compete with China is just flawed,” he said. There is a clock ticking in the background of this race for a rare-earth supply chain. There is a danger that the electric vehicle market, which will demand large quantities of critical minerals including rare earths, may move faster than the rare-earth supply chain, which would feed it. “Look at EVs, and globally you’re looking at more than 10, 15% growth year on year throughout the whole of the next decade,” said Andrew Miller, product director at Benchmark Mineral Intelligence. “You can build a new electric vehicle factory in a couple years, you introduce new models in three or four years in the timeline of most automotive companies. To fund, to start and to refine the processing from a new raw material facility, you’re looking at five to seven years.” The raw materials side of the supply chain will have to work especially quickly, Miller said, to catch up to the trajectory of demand if a domestic supply chain is going to work. And thus the race is on to assemble a supply chain upon which national fortunes and the green economy will be built.

Notice: The Board of Directors has approved the following for 2021: Any member who paid their dues for 2020 are paid up for 2021 and they do not have to repay. If you did not pay your dues in 2020, you will need to pay for 2021. 2020 was pretty much a bust so let’s hope that we can have a much better 2021.... The Membership Desk has a list of who owe dues and will help you with that when you arrive.....keep in mind, your dues are what we buy the gold with that we give away each month in the drawings!!

Contact lenses with gold nanoparticles can help correct color blindness

By Helen Albert 12 March 2021

Source: © Salih *et al*, 2021 *ACS Nano*, *American Chemistry Society*

Different types of color vision deficiencies affect the range of colors people are able to see

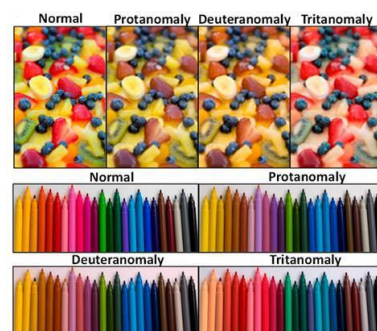
Contact lenses embedded with gold nanoparticles have been used to help correct red–green color vision deficiency. The researchers believe the lenses will be more comfortable, effective and safer for wearers than the options currently available.

Although many variations exist, the most common kind of color vision deficiency or ‘blindness’ is when people have difficulty differentiating red from green. People with color blindness, which mostly affects men, are able to live perfectly normal lives day-to-day. However, not being able to differentiate certain colors can make some tasks difficult and can exclude people from certain jobs, for example, some types of driving. It can also make daily life harder in small ways, for example, not being able to tell if fruit is ripe, pick out clothes of the right color or appreciate art in the same way as everyone else.

The first glasses to help people with color blindness were created by James Clerk Maxwell in 1854. The idea of using contact lenses to correct color vision is also not new, but previous lenses, such as the Chromagen lenses, are not as effective as the glasses.

‘For the color vision deficient, the spectacle lenses are the most helpful, being darker tints, but the contact lenses are relatively undetectable,’ says Stephen Dain, an emeritus professor specializing in optometry and the science of vision at the University of New South Wales, who wasn’t involved in this study.

Adding gold chloride to molten glass has long been known to create ‘cranberry’ glass, which gives the glass a red tint. Ahmed Salih and colleagues from Khalifa University in Abu Dhabi drew inspiration from this ancient technique and





Gold Prospectors of the Rockies Page 9

added gold nanoparticles to soft contact lenses to give them a red tint that can help people with red-green color blindness to better discriminate colors in this spectrum.

Salih says that they focused on using gold nanoparticles because they absorb light in the desired region for filtering, as well as being non-toxic and non-reactive. 'The main challenges were in the fabrication stage,' he says. 'We tried to optimize the proportions of the nanoparticles to the material of the lenses to get the optimum material properties, while trying to avoid agglomeration or aggregation of the nanoparticles.'

A key benefit of the new lenses is that they are very similar to modern soft contact lenses, with good water content, making them less likely to dry out. When the team compared the transmission of light through their lenses with that of other color correcting glasses and lenses, they found their lenses were just as good.

The biocompatibility of the gold nanoparticles also makes the lenses attractive, according to Dain. Although he says 'the only color vision advantage would be if the tint could be made darker than the current ones... One of the problems with the Chromagen was getting enough dye into the soft contact lens to make it dark enough to be really effective.'

Salih and colleagues still need to test their lenses in a wider group of people and carry out further tests to assess how oxygen permeable the lenses are. But the results are promising. 'I believe that there is, and there will be, a high demand for such lenses, because from a comfort point-of-view, many people would rather wear tinted lenses like ours than tinted glasses,' he says.



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Contact the GPR President

(Layout Design Subject To Additional Cost)



Coming Announcements and Special Events for Sept 2021

(WMMI - Western Museum of Mining & Industry, 225 North Gate Blvd. Colorado Springs, CO 80921
[\(https://www.wmmi.org/\)](https://www.wmmi.org/) (Free to GPR Member with badge)

SUN	MON	TUE	WED	THU	FRI	SAT
			1	2	3	4
5	6 <u>Labor Day</u>	7	8	9	10	11 Panning Demo, Highlands Ranch Festival <u>Patriot Day</u>
12 <u>National Grandparents Day</u>	13	14	15 <u>GPR Club Meeting</u>	16	17 <u>Constitution Day and Citizenship Day</u>	18 Prospecting Outing Lake Gulch #4
19	20	21	22	23	24	25 <u>Trash Cleanup</u> with JeffCo Open Spaces
26	27	28	29	30		