



Weekly Precious Metals News Articles: May 28, 2021

Distribution: If you no longer wish to be on this mailing list, send me a note. If others want to be added to distribution, again let me know.

Below is a cross section of relevant news article to the world of Precious Metals:

Markets, Supply & Demand, Investment, and Industrial Applications.

Printable PDF version attached. Enjoy-

Gold

- **Gold slips back from key \$1,900 level**
 - Gold prices fell from the key level of \$1,900 on Thursday, as the U.S. dollar steadied and U.S. Treasury yields moved higher, dulling the metal's investment appeal.
 - The correction in the gold prices is due to "month-end profit taking," said Chintan Karnani, director of research at Insignia Consultants. "Traders booked some profit before they leave for the first mask-less vacation" in the U.S. this year.
<https://www.msn.com/en-us/money/markets/gold-slips-back-from-key-241900-level/ar-AAKrwhw?ocid=BingNewsSearch>
- **India's gold market in April: imports steady but retail demand stifled by the second wave of the pandemic | Post by Mukesh Kumar | Gold Focus blog | World Gold Council**
 - The domestic gold price ended 5.9% higher in April at Rs46,604/10g1
 - The 2nd wave of the pandemic and a higher domestic gold price stifled retail demand in the month
 - Indian official imports were steady and the local market premium fell sharply
 - Volatility and a decline in the BSE SENSEX led to safe-haven demand through ETF inflows. Total holdings for Indian gold-backed gold ETFs reached 33.1t by the end of April; a net inflow of 1.3t
<https://www.gold.org/goldhub/gold-focus/2021/05/india-gold-market-april-21-imports-steady-retail-demand-stifled>

Semiconductor Related Articles (impacting Precious Metals electronics):

- **Taiwan triple whammy threatens global chip supply**
 - Drought, power outages and a Covid-19 outbreak will crimp TSMC's and others' ability to deliver ramped-up chip production.
<https://asiatimes.com/2021/05/taiwan-triple-whammy-threatens-global-chip-supply/>
- **World's semiconductor supply is in danger unless Taiwan gets vaccines**
<https://www.japantimes.co.jp/news/2021/05/24/business/taiwan-semiconductors-vaccines/>
- **Global 200mm Fab Capacity on Pace to Record Growth to Meet Surging Demand and Address Chip Shortage.**
 - Semiconductor manufacturers worldwide are on track to boost 200mm fab capacity by 950,000 wafers (+17%) from 2020 through 2024 to reach a record high of 6.6M wafers per month, SEMI announced today in its 200mm Fab Outlook Report. 200mm fab equipment

spending is expected to reach nearly \$4B in 2021 after passing the \$3B mark in 2020 and hovering between \$2B and \$3B from 2012 to 2019.

- “The 200mm Fab Outlook Report shows that, during the same period, wafer manufacturers will add 22 new 200mm fabs to help meet growing demand for 5G, automotive and Internet of Things (IoT) devices that rely on analog, power management and display driver integrated circuits (ICs), MOSFETs, microcontroller units (MCUs) and sensors,” said Ajit Manocha, SEMI president and CEO.

<https://www.semi.org/en/news-media-press/semi-press-releases/global-200mm-fab-capacity-record-growth>

- **Top-15 Semi Companies Log Year-Over-Year Growth of 21% in 1Q21**

- The top-15 worldwide semiconductor (IC and O S D—optoelectronic, sensor, and discrete) sales ranking for 1Q21 is shown in Figure 1 (\$101 billion USD). It includes eight suppliers headquartered in the U.S., two each in South Korea, Taiwan and Europe, and one in Japan. The ranking includes six fabless companies (Qualcomm, Broadcom, Nvidia, MediaTek, AMD, and Apple) and one pure-play foundry (TSMC).

<https://www.icinsights.com/news/bulletins/Top15-Semi-Companies-Log-YearOverYear-Growth-Of-21-In-1Q21/%20>

1Q21 Top 15 Semiconductor Sales Leaders (\$M, Including Foundries)

| 1Q21 Rank | 1Q20 Rank | Company | Headquarters | 1Q20 Total IC | 1Q20 Total O-S-D | 1Q20 Total Semi | 1Q21 Total IC | 1Q21 Total O-S-D | 1Q21 Total Semi | 1Q21/1Q20 % Change |
|-----------|-----------|---------------------|--------------|---------------|------------------|-----------------|---------------|------------------|-----------------|--------------------|
| 1 | 1 | Intel | U.S. | 19,508 | 0 | 19,508 | 18,676 | 0 | 18,676 | -4% |
| 2 | 2 | Samsung | South Korea | 14,030 | 767 | 14,797 | 16,152 | 920 | 17,072 | 15% |
| 3 | 3 | TSMC (1) | Taiwan | 10,319 | 0 | 10,319 | 12,911 | 0 | 12,911 | 25% |
| 4 | 4 | SK Hynix | South Korea | 5,829 | 210 | 6,039 | 7,323 | 305 | 7,628 | 26% |
| 5 | 5 | Micron | U.S. | 5,004 | 0 | 5,004 | 6,580 | 0 | 6,580 | 31% |
| 6 | 7 | Qualcomm (2) | U.S. | 4,050 | 0 | 4,050 | 6,281 | 0 | 6,281 | 55% |
| 7 | 6 | Broadcom Inc. (2) | U.S. | 3,673 | 409 | 4,082 | 4,355 | 485 | 4,840 | 19% |
| 8 | 9 | Nvidia (2) | U.S. | 3,074 | 0 | 3,074 | 4,630 | 0 | 4,630 | 51% |
| 9 | 8 | TI | U.S. | 2,974 | 190 | 3,164 | 3,793 | 235 | 4,028 | 27% |
| 10 | 16 | MediaTek (2) | Taiwan | 2,022 | 0 | 2,022 | 3,849 | 0 | 3,849 | 90% |
| 11 | 18 | AMD (2) | U.S. | 1,786 | 0 | 1,786 | 3,445 | 0 | 3,445 | 93% |
| 12 | 11 | Infineon | Europe | 1,828 | 876 | 2,704 | 2,170 | 1,083 | 3,253 | 20% |
| 13 | 10 | Apple* (2) | U.S. | 2,770 | 0 | 2,770 | 3,080 | 0 | 3,080 | 11% |
| 14 | 14 | ST | Europe | 1,483 | 745 | 2,228 | 2,011 | 994 | 3,005 | 35% |
| 15 | 13 | Kioxia | Japan | 2,567 | 0 | 2,567 | 2,585 | 0 | 2,585 | 1% |
| — | — | Top-15 Total | | 80,917 | 3,197 | 84,114 | 97,841 | 4,022 | 101,863 | 21% |

(1) Foundry (2) Fabless

Source: Company reports, IC Insights' Strategic Reviews database

*Custom processors/devices for internal use.

Silver

- **Peak mined silver reached**

- The concept of a peak resource should be familiar to most readers and investors. It refers to the point when production is no longer growing, year after year. It reaches a peak, then declines.

<https://www.mining.com/web/peak-mined-silver-reached/>

- **Sunday read: All that glitters is HJT**

- (Solar PV) Heterojunction (HJT) technology may be a well-established pathway to beyond 24% cell efficiencies, and there is some momentum among manufacturers to build up HJT production capacities. However, the high capex costs for HJT lines, some three times higher than that required for PERC, is understood by many to have been a break on the technology's more widespread adoption – despite HJT's numerous performance advantages.

- Matt: Challenged between higher module/cell electrical efficiencies, 3x higher CapEx, and higher silver loadings. <https://www.pv-magazine-australia.com/2021/05/23/sunday-read-all-that-glitters-is-hjt/>

- **Economic clouds expose a SILVER lining**

- Silver tends to perform in sporadic bursts, as the chart of the silver price demonstrates below. Silver spent most of the period between 2017 and 2020 oscillating between approximately US\$14/oz. and

US\$20/oz., before flying above US\$25/oz. and finding a new range. It has been outperforming gold in recent months and it appears more constructive technically, and with the recent sell-off in digital assets, it appears primed for a potential new leg up in price.

<https://www.livewiremarkets.com/wires/economic-clouds-expose-a-silver-lining>

- **Why silver prices lag behind copper's gains, but outperform gold**

- Silver may be trading "more like a store of value asset so far this year, versus an industrial commodity," many of which are up substantially, says Michael Cuggino, president and portfolio manager of the Permanent Portfolio Family of Funds. That is "not really surprising given the gains of last year," he says. Silver futures rose 47% in 2020.
- Still, silver may "hit higher highs, and higher lows in the coming years" says Cuggino, with pent-up industrial and jewelry demand likely over the next year or so.

<https://www.msn.com/en-us/money/markets/why-silver-prices-lag-behind-copper-e2-80-99s-gains-but-outperform-gold/ar-AAKrlC8?ocid=BingNewsSearch>

Precious Metals Mining:

- **Platinum mine launched despite controversy over ownership and land**

- The Garatau Platinum Mine Project was launched on Thursday in (Western Limb) Garatouw, Limpopo. It is owned by the Zijin Mining Group, a leading Chinese gold company, through SA-focused platinum developer Nkwe Platinum Limited.
- Operations to begin the construction of the box-cut, which will make way for the decline shaft development, is due to begin at the end of May. Once fully operational, the mine will be among the top 10 platinum suppliers in the world.
- Phase 1 will result in the production of about 1.8-million tonnes a year of PGMs, which will increase to 3.6-million tonnes a year during a second phase development. The life of mine is estimated to be around 29 years.

<https://www.timeslive.co.za/news/south-africa/2021-05-14-platinum-mine-launched-despite-controversy-over-ownership-and-land/>

- **Tharisa plans a platinum metals smelter in SA and new Zimbabwe mines**

- Chrome and platinum group metals (PGMs) miner Tharisa is set to join a rarefied club as it builds a smelter to produce finished metals and expands into Zimbabwe as well as potentially other minerals in SA.

<https://www.businesslive.co.za/bd/companies/mining/2021-05-27-tharisa-plans-a-platinum-metals-smelter-in-sa-and-new-zimbabwe-mines/>

- **South African platinum rebound to push market into surplus, says Johnson Matthey**

- A wall of platinum production from South Africa coming back online following covid-19 disruptions is expected to offset demand growth this year and push the market into surplus territory, new data released by PGMs (platinum group metals) specialist Johnson Matthey shows.
- A 27% gain in autocatalyst demand, according to estimates published in the latest PGM Market Report, is not enough to stem the impact of a 40% rebound in output from South Africa as covid disruptions subside, and treatment backlogs at processing outages in 2020 are resolved.

<https://www.mining.com/south-african-platinum-rebound-to-push-market-into-surplus-says-johnson-matthey/>

E-Waste & Precious Metals Recycle Related:

- **Automating the (e-waste) sorting process**

- Georgia-based Premier Surplus automates e-scrap processing, boosting its efficiency.

<https://www.recyclingtoday.com/article/premier-surplus-automating-the-sorting-process/>

- **US EPA highlights how to transfer lithium batteries**

- During a virtual presentation, the United States Environmental Protection Agency discussed the importance of transferring used batteries safely.
<https://www.recyclingtoday.com/article/ united-states-environmental-protection-agency/>
- **Toyota to covertly mark 100k catalytic converters to catch thieves**
 - To combat the spike in thefts, dealers will use police-approved water-markings, which are invisible, so that stolen catalytic converters can be traced to a specific crime, helping police in their attempts to fight the organised gangs responsible. It also raises risks for all those handling the devices along the criminal chain, from theft to eventual disposal and recycling.
<https://www.msn.com/en-gb/cars/news/toyota-to-covertly-mark-100k-catalytic-converters-to-catch-thieves/ar-BB1gHphn?ocid=BingNewsSearch>
- **Recycling of rare elements in electronics may help environment, create jobs**
 - Analysts with the CEWASTE consortium -- a waste treatment advisory group led by the Switzerland-based World Resources Forum -- have recommended mandating the recycling and reuse of "critical raw materials," including cobalt, lithium, palladium and other rare earth elements.
https://www.upi.com/Science_News/2021/05/25/forced-recycling-electronics-environment-jobs-policy/2351621859687/
- **Sell Your Used Spark Plugs!**
<https://pgmrecovery.com/sell-your-used-spark-plugs/>

Platinum

- **Platinum's myriad applications gaining further prominence in China**
 - The World Platinum Investment Council says that, against the backdrop of the worldwide economic turmoil caused by the Covid-19 pandemic, purchases of platinum from the Shanghai Gold Exchange grew significantly in the first quarter of 2020, rising from an average of 171 000 oz a quarter in 2019 to 455 000 oz, as manufacturers in the jewellery and industrial sectors responded to global supply uncertainty and the low platinum price and took the opportunity to increase their stock levels.
<https://www.miningweekly.com/article/platinums-myriad-applications-gaining-further-prominence-in-china-2021-05-25>
- **Daimler's new 15L heavy-duty engine: Primed to meet upcoming low NOx and GHG regulations**
 - This is a 15L 6-cylinder inline engine, delivering > 48% BTE over a wide region of the engine map. The combination of engine measures, control systems and after-treatment enables it to already meet the 2024 GHG standards, while significantly reducing NOx emissions.
 - Matt: Technology could extend the viability of HDV diesel PGM based emission control systems.
<https://mobilitynotes.com/daimlers-new-15l-heavy-duty-engine/>
- **WPIC: Shanghai Platinum Week**
 - Platinum's myriad applications – industrial, precious and investment asset – are gaining further prominence in China.
https://platinuminvestment.com/files/sixtysecs/WPIC_60seconds_Shanghai_Platinum_Week_05242021.pdf
- **Fuel Cells/Hydrogen Economy Related Articles:**
 - **Hyundai hydrogen-electric semi to hit US roads in 2021**
 - In North America, Hyundai said the Xcient Fuel Cell will be available on the market in 2021. The automaker is in talks with several local governments and transport companies in the United States in particular to establish potential partnerships involving the trucks. One of those companies is truck powertrain expert Cummins.
https://www.motorauthority.com/news/1132404_hyundai-hydrogen-electric-semi-to-hit-us-roads-in-2021
 - **JM and Plug Power Inc. partner to accelerate delivery of advanced materials for next-generation electrolyser technology for green hydrogen**

- Plug Power is a leading manufacturer of electrolyzers used to manufacture green hydrogen. Recently they solidified their global leadership position in green hydrogen solutions and built the foundation to lead the emerging \$10T hydrogen economy. They are the largest user of liquid hydrogen and have made a significant commitment to be a major player in the generation of green hydrogen with plans to achieve 500T of capacity daily in the US by 2025, 1,000T globally by 2028. This combination of capabilities will enable Plug Power to deliver world-class systems to the market and build a sustainable value chain for the future.
<https://matthey.com/-/media/files/press-releases/plug-power-partnership-final.pdf>
- **New Nevada hydrogen fuel plant to begin operations in early 2022**
 - The goal of the Nevada hydrogen fuel plant slated to begin operations in early 2022 is to help to fill the expected H2 supply shortage that is occurring as California pushes for the use of hydrogen-powered transportation vehicle fleets.
<https://www.hydrogenfuelnews.com/nevada-hydrogen-fuel-plant/8545920/>
- **Daimler Disagrees With Tesla's Elon Musk, Volkswagen's Diess on Battery EV Focus**
 - Truck chief says fuel cells are needed to reach climate goals
 - CEOs Musk and Diess have argued hydrogen is a lost cause
<https://www.bloomberg.com/news/articles/2021-05-21/daimler-disagrees-with-tesla-and-vw-s-batteries-or-bust-view>
- **Hyundai charts hydrogen road map beyond autos**
 - Fuel cells for power plants and drones aim to bring down cost of budding tech.
<https://asia.nikkei.com/Business/Automobiles/Hyundai-charts-hydrogen-road-map-beyond-autos>
- **Hyundai raises hydrogen game as new trucks roll into Europe**
 - Hyundai Motor plans to ship a new series of fuel-cell trucks to Europe later this year, turning up the heat on rivals in a battle to test the viability of hydrogen-powered heavy goods transport.
 - A new class of the Xcient Hyundai truck, equipped with more efficient fuel cells with longer life-span, is due to arrive in Europe in the fourth quarter, said Mark Freymueller, CEO of Hyundai Hydrogen Mobility (HHM).
 - <https://news.yahoo.com/hyundai-raises-hydrogen-game-trucks-060628274.html>
- **Italian Steel Plant First to Use Hydrogen-Gas Blend**
 - A blend of 30% hydrogen and 70% natural gas was used at a trial project at a plant in Milan province. Led by energy infrastructure developer Snam, engineering consultancy RINA and steelmaker GIVA Group, the blend required no plant modifications, had no impact on plant equipment and did nothing to alter the characteristics of the end product.
<https://www.naturalgasworld.com/in-a-first-italy-uses-hydrogen-blend-in-steelmaking-process-88392?>

Palladium

- **Global palladium deficit to widen in 2021 - Nornickel**
 - Russian metals miner Nornickel expects the deficit in the global palladium market to widen in 2021 due to flooding at its mines and an accident at its plant earlier this year, it said on Thursday. Nornickel currently expects a global palladium deficit at 0.9 million troy ounces in 2021, up from 0.3 million ounces in 2020.
<https://www.nasdaq.com/articles/global-palladium-deficit-to-widen-in-2021-nornickel-2021-05-27-0>
- **Million-ounce palladium deficit will drive record prices, says Metals Focus**
 - The roughly 10 million ounce-a-year palladium market will be undersupplied by around a million ounces in 2021 and the price will average \$3,000 an ounce, up 37% from 2020 and the highest on record, consultants Metals Focus said on Tuesday.
<https://www.nasdaq.com/articles/million-ounce-palladium-deficit-will-drive-record-prices-says-metals-focus-2021-05-18>

PGM Minor Metals (Rhodium, Iridium, Ruthenium, Osmium)

- **Is iridium demand a potential bottleneck in the realization of large-scale PEM water electrolysis?**
 - First feasibility-study on iridium supply and demand for hydrogen economy.
 - Considering the historic and current market development of PGMs indicates that the iridium demand for PEMWE cells is a bottleneck in the realization of a mature market. The analysis reveals that a significant proportion of global iridium mine production would be required to meet the demand for the PEMWE market alone.
<https://www.sciencedirect.com/science/article/pii/S0360319921016219>
- **Rhodium: Sibanye-Stillwater – Time To Cash In**
 - The Rhodium structural deficit emerged in 2019 and the situation was even worse in 2020 due to supply disruption resulting from COVID-19. However, Johnson Matthey estimates that liquidity should improve in the near future as supply normalizes. The company expects the deficit in the market to shrink to just 31k troy ounces in 2021.
 - I think that we could see rhodium prices of less than \$5,000 per ounce in 2021 and Sibanye-Stillwater itself doesn't seem bullish on the metal. For example, the 2021 rhodium price assumption the company uses for its K4 project at the moment is \$8,500 per ounce. This drops to \$5,650 per ounce over the following years.
<https://seekingalpha.com/article/4429678-sibanye-stillwater-time-to-cash-in>

BEV / LiB Battery Market News

- **Reinforcing the issue with China LiB Mineral Processing: China's CO2 emissions 9 per cent higher than pre-pandemic levels in 2021 first quarter: research**
 - About 70% of the CO2 surge in the first quarter was because of increased coal consumption, CREA lead analyst says. Rhodium Group study shows China's total 2019 greenhouse gas emissions exceeded those from the whole of the OECD for the first time
<https://www.scmp.com/news/china/science/article/3134322/chinas-co2-emissions-9-cent-higher-pre-pandemic-levels-2021>
- **Electric car US tax credit proposed to \$12,500, less for Tesla vehicles**
 - The bill proposes a removal of the 200,000 electric car deliveries per manufacturer cap as expected and replaces it by a three-year phase-out period that is going to be triggered by electric cars reaching a 50% market share of new passenger car sales in the US.
 - It also increases the value of the rebate to up to \$12,500, but that's not for everyone. The \$7,500 incentive would stay, but it would be increased to \$10,000 for EVs produced in the US and to \$12,500 for EVs produced in the US by union workers.
<https://electrek.co/2021/05/27/electric-car-us-tax-credit-up-less-tesla-vehicles/>
- **Visualizing the size of mine tailings**
 - Mining of metal has grown on average by 2.7% a year since the 1970s, and will continue to grow. The importance of the size of tailings is critical to address proactively, before it comes rushing through the front door, as it did in Brazil.
 - Matt: My calculations through 2050 to support clean energy minerals will require a mining CAGR acceleration to 3.5% CAGR to hit the copper, nickel, lithium, cobalt, PGM, REE, aluminum and other metal needs. By 2050, a land mass equivalent to Manhattan would be covered 6km deep with global mine tailings. ~1% of global tailing of tailings have been disposed in Deep Sea Ocean dumping.
<https://www.mining.com/web/visualizing-the-size-of-mine-tailings/>
- **LG Chem to Supply 90%-Nickel NCMA Cathode Materials to Tesla**
 - The NCMA cathode materials' nickel content is 90 percent. They will be used for cylindrical batteries that LG Energy Solution supplies to Tesla's SUV Model Y.

- LG Chem reduced the cobalt content of its NCMA cathode materials to around 5 percent. Cobalt boosts battery safety. The company enhanced battery safety by adding aluminum while reducing expensive cobalt.
<http://www.businesskorea.co.kr/news/articleView.html?idxno=67529>
- **Another dirty little secret about green energy: It needs more mining to support Biden's plan**
 - Potential cobalt deposits on the line in Utah
<https://www.deseret.com/2021/5/23/22425399/biden-clean-energy-plan-requires-digging-up-earth-with-new-mines-cobalt-lithium-copper-solar>
- **Exclusive: Biden looks abroad for electric vehicle metals, in blow to U.S. miners**
 - "It's not that hard to dig a hole," said one of the sources. "What's hard is getting that stuff out and getting it to processing facilities. That's what the U.S. government is focused on."
 - Under the approach, the United States would rely on Canada, Australia and Brazil - among others - to produce most of the critical raw materials needed, while it competes for higher-value jobs turning those minerals into computer chips and batteries, according to the two sources.
<https://www.reuters.com/business/energy/biden-looks-abroad-electric-vehicle-metals-blow-us-miners-2021-05-25/>
- **Move to net zero 'inevitably means more mining' - BBC News**
<https://www.bbc.com/news/science-environment-57234610>
- **Copper cupboard remains bare as discoveries dwindle — S&P study**
 - The copper industry's continued investment in mostly brownfields exploration opportunities, combined with generally longer timeframes from discovery hole to reserve statement contribute to the continued low rates of major discoveries that can move market fundamentals, an analysis by S&P Global Market Intelligence found.
 - An analysis of significant copper discoveries between 1990 and 2020 shows that of the 229 deposits discovered in the period, only three were found in the past three years.
<https://www.mining.com/copper-cupboard-remains-bare-as-discoveries-dwindle-sp-study/>
- **Copper to surge at least seven-fold before this bull market is over - Goehring & Rozencwajg**
 - Matt: I am very bullish on Cu, but 7-fold is too much. More pressures on getting aluminum alloys to match copper conductivity can relieve some of the long-term copper mining gaps. See IEA critical minerals paper for more on same.
 - <https://www.kitco.com/news/2021-05-11/Copper-to-surge-at-least-seven-fold-before-this-bull-market-is-over-Goehring-Rozencwajg.html>
- **Ford to Build Two U.S. Battery Plants With Korea's SK Innovation**
 - Factories' location, unionization status still undetermined
 - Automaker sees need by 2030 for 10 new battery-making plants
<https://www.bloomberg.com/news/articles/2021-05-19/ford-aims-to-build-batteries-in-u-s-with-korea-s-sk-innovation>
- **Crazy metal prices inflate miners' capex conundrum**
 - Soaring commodity prices should be a green light for global miners. At \$10,000 and \$200 a tonne, copper and iron ore are both way above the levels at which it makes commercial sense for BHP, Rio Tinto and others to start digging new holes. Yet the sector's investment plans remain stubbornly short of what's needed to decarbonise the global economy.
<https://www.reuters.com/breakingviews/crazy-metal-prices-inflate-miners-capex-conundrum-2021-05-14/>

Regards –