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THE
COMING GOLD
TECHNOLOGY
BOOM OF THE
21ST CENTURY

Prepared by:
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with
Anton Wolfe



Understanding free market economics leads to exceptional investment success.



Meet Scott Smith, Editor of *Swiss Confidential*

Contributing Editor to **TheDailyBell.com**

Before his recent retirement, American-born Scott Smith spent nearly 30 years as a member of the Swiss investment banking community.

He spent most of his long career at legendary investment banking giant Credit Suisse, where he was an executive working in the foreign exchange and derivatives departments.

Over the course of his career, Scott became privy to the closely guarded, somewhat regimented, wealth building and asset-protection strategies that have made the Swiss among the wealthiest people in the world - wealthier even than Americans, according to the World Bank.

In addition to writing special reports, such as this Swiss Perspective, Scott is also a contributing editor to the TheDailyBell.com and the editor of a membership based investment newsletter called **Swiss Confidential**.

In each issue of **Swiss Confidential**, Scott shares with subscribers the valuable analytical techniques he learned while working within the fast-paced Swiss investment banking industry – techniques that often enable him to uncover investment opportunities before other mainstream financial commentators.

Scott's unique Swiss-inspired approach is to break down the propaganda and look for reasons not to invest. He was trained to humbly recognize that experts have a limited frame of reference for their so called expertise – including his own. And since he accepts full responsibility for the investment opportunities he introduces in **Swiss Confidential**, you can be assured that he performs an extensive amount of due diligence.

When analyzing the merits of a potential investment opportunity, Scott believes it is imperative to assemble a due diligence team comprised of third party experts specifically for the purposes of analyzing that particular investment. His team approach is designed to probe deeply behind the curtains of propaganda and ask the real questions - the tough ones most people don't ask – the one's that allow for an intelligent decision to be made.

Armed with common sense information, real facts and figures, Scott is able to confidently offer his premium investment analysis and conclusions to his subscribers. It's the kind of financial information and guidance that can help you protect and grow your wealth as the global financial crisis deepens over the next few years.

Swiss Confidential also reflects Scott's reverence for personal responsibility and free-market principles. And in keeping with those principles, he accepts the duty to protect your personal information.

For more information about Scott Smith's Swiss Confidential, please visit www.SwissConfidential.com

The Coming Gold Technology Boom of the 21st Century

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There are three gold price drivers: First is supply-and-demand and second is inflation. The third is an advancement in mining technology that causes prices to rise. In the 21st century, all three may come together to create the great gold boom of this century.

The purpose of this White Paper is to address the issue of inputs and the price of gold, not only from a business cycle standpoint, but from the standpoint of mining and technology—with emphasis on how advancements in mining precious metals, particularly gold, has an influence on the price of the metal.

Of course, gold has been sought after throughout human history.

Gold is inert, imperishable, and resistant to tarnish, corrosion and bacteria. It is both malleable and flexible. It reflects heat and conducts electricity superbly. It is extremely lustrous, durable—and very scarce.

According to various sources, the entire hoard of the earth's extracted gold could be shaped into a cube 60x60x60 feet in volume and transported on a single oil tanker. This cube would be worth approximately \$1.75 trillion at \$1,000 an ounce.

As valuable as it is, the price of gold tends to fluctuate based on the business cycle. For those who approach economics from a free-market perspective, it is central banking over-production of paper money that is the engine for inflation and as a result raises the price of gold and silver.

This happened during the 1930s, during the 1970s and it is happening now.

Another factor that influences the price of gold, obviously, is supply and demand. Too little gold and the price of gold rises, providing an incentive to mine more gold. Too much gold in circulation and the price goes down and mines close.

During the 1970s, the price of gold approached US\$800 per ounce reaching a record high of US\$850 an ounce on January 21, 1980. Adjusted for inflation that is equivalent to roughly US\$2,000 per ounce today. The record amount of US paper money in circulation at that time is one reason for the price surge.

The record held for almost 30 years until January 3, 2008 when a new maximum of US\$865.35 per ounce was reached. Months later on March 17, 2008 the record was shattered when gold reached its current all-time high of US\$1,023.50 per ounce.

Inflation, still is the driver which makes the 1980 price the all time record holder of value for gold. And there are many who believe that gold will go far higher in value, in part because factors of inflation haven't registered yet for a variety of reasons.

Many of these observers also believe that there is substantial manipulation of the metals markets that distort supply and demand pricing signals.

The two factors of supply-and-demand and inflation have served to retard the progress of the price of gold and silver even though many throughout the world have little confidence in paper money generally and less in the dollar, the world's current reserve currency.

Technology: The third critical factor

The third factor that creates higher precious metals prices is technological innovation.

This is not merely an observation but also an economic law called Say's Law which states:

"Demand can create supply, but supply can also create demand."

For example, automobiles were not in demand before their invention, and yet once marketed, they created a vast demand. It is much the same with gold and silver. More of a particular substance can actually drive demand, and prices, higher. All it takes is a little public awareness of the role gold and silver has traditionally played in anchoring honesty to what we call "money."

The relatively unregulated medium that is the internet is spawning a "knowledge burst" that is propelling gold and silver higher as more and more people search for answers to the current problems facing the global economy.

The Technology-Driven Gold Boom of the 21st Century

It is very likely that advancements in technology will cause a gold mining boom similar to the one caused by the heap-leaching mining advances in the 1970s and 80s.

While many are familiar with the gold price of the late 1970s due in large part to an expansion of the paper money supply, the role played by technology in stimulating production is rarely noticed.

The new technology that is coming on-line now is both startling and exciting to those "in the know." It is focused on "alluvial" mining of gigantic Gold Sands-style deposits where the bulk of new gold has been discovered historically.

The new dredging and alluvial processing technology, known as GSD Technology (Gold Sands Dredging Technology), is *environmentally friendly*. What's more, it allows for the mining of much lower grades of gold typically found in Gold Sands deposits.

This means that alluvial Gold Sands deposits around the world that previously had not been economical to mine will now start to yield up their riches—and the tonnage could be most impressive indeed, kicking off the kind of boom that occurred in the 1980s as heap-leach produced exciting economies of scale.

The result could take gold to its 1980-level value. And, once again, when inflation is factored, that could mean gold prices in the near future at US\$2,000 per ounce or even greater.

One of the few to remark on the connection between expanding supply and the price of precious metals is the noted economist Thomas Sowell who wrote a treatise on Say's Law and observed,

"Deflation will only happen if the money supply does not grow fast enough as production increases. Prices will remain stable or even increase (inflation) if the money supply grows as fast or faster than production. Under the gold standard, what happened to the money supply depended on the supply of gold. As gold from California slowly ran out, there was deflation; but, after 1897, gold strikes in the Yukon and South Africa created a mild inflation until World War I." (Emphasis added).

Of course supply-and-demand will eventually even out, absent other factors, and bring prices to a certain level of stability. But mining technology can have a big effect on prices. This certainly stands to reason within the larger universe of commodities as more copper, zinc or aluminum can stimulate new kinds of use for the substance, creating more demand and eventually higher prices, especially if the demand, once created is not sustained by a steady supply.

We can see the effect that a new technology not only has on the price of a commodity but on the fortunes of the company that develops and utilizes a new technology aggressively.

The Newmont Mining Story: Profit from Technology

In the case of Newmont Mining Corporation—founded in 1921 in New York by Colonel William Boyce Thompson to invest in minerals and oil—the application of heap-leach technology was to prove most profitable.

The fortunes of Newmont were given a tremendous boost by the discovery of the Carlin Trend in Nevada in 1962. Widely heralded as the largest gold discovery in North America during the 20th century, the site (and the company) was made infinitely more valuable by the application of the brand new process of heap-leaching.

"In 1971, Newmont began using the heap leaching technology on sub-mill grade ores at Carlin. It was one of the first in the gold industry to use heap leaching. In 1986, the company's name was changed to Newmont Gold Company, and five million shares were sold publicly for US\$47.5 million. Newmont Mining held a 90 percent interest. A decade later, Newmont's assets were over US\$1.9 billion and income from continuing operations reached US\$338 million." (Wikipedia)

Mining, Technology and Gold: A Brief History

New technological advancements can drive gold production. And according to Says Law, production can actually drive prices upward.

To get a better feel for how technology, precious metals and gold prices have worked together, let's begin at the beginning—in African and European caves.

There is plenty of evidence of mining in human-inhabited caves that goes back 30,000 years.

While there are few indications of prehistoric gold-mining, it is obvious that the first sophisticated societies of the Mediterranean region, including the ancient sea-faring Minoans, used gold for trading and for aesthetic adornment. While Minoan mines are fairly unknown, it is increasingly documented that gold mines in Africa's Nubia supplied much Egyptian gold.

It may have been the Egyptians that pioneered large-scale gold mining techniques and pioneered first advances in technology. The ancient Egyptians used fire to score rock-faces and crumble away ore veins.

According to the Journal of Mining, the process went like this:

"Ancient Egyptian miners used ...open-cast trenches following the quartz veins from the surface and shafts sunk horizontally or diagonally into the mountainsides. A number of the shafts had stone walls reinforcing the entrances or platforms at the edge, presumably to aid in raising and lowering men, boys, baskets, tools, and ore ... "The gold-bearing earth, which is hardest, they first burn with a hot fire, and when they have crumbled it...they continue the working of it by hand; and the soft rock which can yield to moderate effort is crushed with a sledge by myriads of unfortunate wretches. And the entire operations are in charge of a skilled worker who distinguishes the stone and points it out to the labourers;...the physically strongest break the quartz-rock with iron hammers, applying no skill to the task, but only force..."

This was the first time in recorded history that mining technology had advanced to such a large scale, one so efficient as to ultimately remove tons of gold on a regular basis. This success ultimately allowed gold to spread throughout the Egyptian kingdom as a primary source of sacred and semi-sacred decoration.

It was the Romans centuries later that refined mining using a pioneering technique called "hushing."

With this new technology, water was stored in tanks and reservoirs built near the suspected veins. The water was then released from a sluice-gate onto the hillside below, scouring the soil away to reveal the bedrock and any veins occurring there. After this, fire was set over the zones of interest and the hot rock quenched with water to induce shattering. The shattered zones were subsequently worked by additional sluicing with water.

In other parts of the Roman Empire, aqueducts were constructed that transported river water to the alluvial mine sites for the sluicing of these deposits. Reverse water wheels were used for mining in conquered Roman territories and Roman overseers greatly expanded their use.

We can see from the Roman example how Say's law worked.

The Romans used gold-mining to expand their empire. The additional gold that poured into Rome, thousands of tons, did not diminish the price of gold on the open market but made gold more valuable than ever, in addition to making many wealthy.

The monopoly on coin fabrication was jealously guarded by the state, and the extent to which coins remained overvalued was supported by disciplined fiscal government. The Romans were probably the

first to obey their own monetary laws limiting the supply of coins. As a result for 178 years there is no evidence of demonetization. On the contrary, as the population and economy increased the money—strictly limited in supply—increased in value too.

Mining in the Medieval period did not change much from Roman technology, nor apparently even in early American colonial times. Likely mine sites were identified by surface finds. Ore was extracted and removed by iron hand tools, and lifted up the shaft using ropes. Miners were still using fire-setting and wooden trays. In 1600 years, mining technology progressed very little beyond the Roman technological advances.

Enter new “Gold Rush” technology

By the 1800s, new chemical technologies gave rise during a series of gold rushes around the globe.

Most notably, the MacArthur-Forrest process, developed by Scottish chemists, used potassium cyanide to extract gold from low-grade ore. This was the beginning of what would develop into full-fledged heap-leach mining 100 years later.

In America the advancing technology fueled gold rushes that drove westward expansion and changed the face of American civilization.

The California gold rush of 1849 kicked off a number of other epidemics of “gold fever” in such countries as Australia, South Africa, Wales and Scotland. There was the famous Victorian gold rush in Australia in 1851 that helped develop both Victoria and Melbourne.

The Victoria gold rush gave way to the Central Otago in New Zealand, a gold rush that expanded the New Zealand economy and put Dunedin on the map.

In South Africa, the Witwatersrand gold rush led to the founding and significant expansion of Johannesburg. Gold rushes were so pervasive that South African gold production rose from virtually nothing in 1886 to 23% of the total world output only a decade later.

Placer mining technology took the Roman techniques to a whole new level of efficiency. This hydraulic mining technique was used widely in the various gold rushes of the 1800s, especially in the Californian gold rush.

In placer mining, water is redirected into an ever-narrowing channel, through a large canvas hose, and out a giant iron nozzle, called a monitor. The extremely high pressure stream was used to literally wash entire hillsides away through enormous sluices.

The result of so many gold discoveries using new mining advances was the high-water-mark for a world-wide gold standard that enhanced the value of the metal and provided a time of nearly unparalleled monetary stability.

Unfortunately, due to various political agendas, the end of the 1800s also saw the gradual fading away of the most pervasive and stable gold and silver standards. First silver was de-monetized and then, during the Great Depression, gold was confiscated and, in America, superseded by Federal Reserve Notes.

With the end of the Second World War, a worldwide linkage between gold and paper money was re-

established. But by the early 1970s, it was impossible to constrain the price of gold by continuing to fix it to paper money. President Richard Nixon abrogated the Bretton Woods Treaty and gold began to float freely, as it does today.

Modern Gold Rush – And Detractors

It was, in fact, the combination of the abrogation of Bretton Woods and the discovery of yet another mining technology that drove the price of gold upwards from well under US\$100 to around US\$800 by the beginning of the 1980s.

The late 1970s would have been a tumultuous time for the price of gold no matter what, but the new heap-leaching techniques that were developed and refined during the 1970s sparked a gold boom that radically expanded the supplies of the precious metal even as the price was rising.

Despite the success of heap-leaching, the use of cyanide at the core of the process has engendered a swelling group of detractors. These are often environmentalists and community organizers who work among the world's poor in Third World countries and are most concerned about the effects that cyanide has on the environment and on the health of those exposed to it.

Here is an excerpt from an anti-heap-leaching website, RainForestInfo.org that explains the downside of heap-leach technologies:

“The glitter of gold has been driving a new gold rush around the world. ... Since the 80’s we’ve seen a new era of gold fever, with prospectors swarming to alluvial deposits in various developing countries including Brazil, Venezuela and the Philippines.”

“Much of this boom is the result of a remarkable technological revolution, the new use on gold ores of an old mining technology called “heap-leaching,” in which chemicals to remove the gold are sprayed on vast open-air piles of ore. First used on a large scale in the 1970s, cyanide heap leach mining allows miners to coax microscopic gold flecks from low-grade ore. Cyanide is now the chemical of choice in the gold industry throughout the world. More than 90 percent of the 2500 tons of annual global gold production is extracted using this chemical...”

“Cyanide is a toxic chemical – one teaspoon of two percent cyanide solution can cause death in humans. Today this dangerous chemical is used in gold extraction operations from Greece to Ghana. It has left a sorry legacy of environmental disasters in countries ranging from Guyana to Kyrgyzstan and the USA. In heap mining, the cyanide waste that’s left over is stored in ponds with thin liners that are only 1.5 mm thick and these can leak or break. It is not unusual to have spills of cyanide solution and heavy metal-laced water that can contaminate ground water, kill fish and waterfowl, and contaminate drinking water. This threatens public health and land alike...”

The website points out that in 1992, cyanide spilled from the Brewer gold mine in South Carolina and poured into the Lynches River where over 11,000 fish were killed along an 80 kilometer stretch of the river. It makes mention as well that in 1995, some 3.2 billion liters of cyanide-laden tailings flooded the Essequibo river in Guyana when a dam broke at the Omai gold mine, operated by Cambior of Canada.

Recent mining advances point to a new boom for the new century

While the mining industry reels from attacks on its most advanced processes, there is a new, green and clean technology just coming on line now that promises to counteract much recent criticism of gold mining.

Recent advances in dredging, pumping, and processing technology, known as GSD Technology, allows for the recovery of gold from unconsolidated gravels without the use of dangerous chemicals such as cyanide and mercury, and represent a paradigm shift which is starting to change the way the gold mining industry operates.

One company aggressively promoting the new GSD Technology is the Dutch-based dredge and process equipment manufacturer, IHC Merwede.

The company's own website proclaims it "a world market leader in the construction of sophisticated and specialized dredgers." And while Merwede is not the only producer of such dredgers, it is certainly one of a handful of companies leading the way. In fact, they are the largest producers of advanced dredging and processing technology and equipment in the world, boasting annual revenues of more than 1 billion euros.

"With in house expertise of ore body characteristics and process plant interfaces," the website states, "IHC Mining designs and manufactures tailor made stationary dredging equipment such as cutter suction, bucket wheel, bucket ladder and grab dredgers, as well as (onboard) screening and gravity separation systems (Jigs)."

State-of-the-art GSD Technology and equipment is the future of alluvial mining.

The company's low-key self-promotion belies breakthroughs of the sort that could spark an explosion of gold production from the far corners of the earth. Modern high capacity dredges such as these, when utilized in a coordinated capacity can perform tasks never before seen in the mining world.

Speed, efficiency and shortened lead times are all possible via the new GSD Technology—which is also less expensive despite its increased capacity and ability to allow exploitation of ever lower-grades. Various alluvial / Gold Sands deposits that were never before close to being cost-effective, may be developed into some of the largest and most profitable gold mines ever seen – potentially sparking new gold rushes that rival those of the Klondike and 49ers.

Just like the heap leach technology that advanced and opened up lower grade gold production in the 1980s creating huge profits for shareholders of Newmont Mining, Barrack Gold and others, GSD Technology allows for the mining of lower grade ores as much as 15 times, and at least an order of magnitude more, than that which was previously possible.

Early adopters of this technology have the opportunity to rapidly appreciate in value as the technology undoubtedly becomes better understood and the methods adopted on a wide scale.

It is a technology that has arrived at a critical time in the gold mining industry. Heap leach technology has run its course. New heap leachable mines are a rare discovery, depressing investor's appetites for companies exploring for such deposits. And furthermore, the world is no longer accepting the use of chemicals that can cause damage to the environment.

What will be the result?

Over time, just as in the 1970s and 1980s, there may be a good deal of increased supply as GSD Technology takes hold and is adopted first by adventurous juniors and then by the majors as well.

The low-impact mining provided by this technology eschews cyanide and other invasive chemicals that have been attacked by environmentalists. The additional gold will not only provide generous additional amounts to manufacturers started for supply, it may also drive renewed uses and interest from the jewelry industry and generally stimulate demand and ever-higher prices as today's precious metals' mania continues to expand.

There are numerous precious metals alluvial deposits around the world that have long been seen as cost-ineffective. They are called Gold Sands deposits.

Brazil, Colombia and Peru, in particular, are known to host some of the largest Gold Sands-style deposits in the world. In fact today, in the jungles of Colombia, GSD Technology is being used by a private Colombian company to produce gold from a Gold Sands-style deposit with grades as low as 90 milligrams per cubic meter!

Never before have gold grades anywhere close to that been able to be mined – let alone at a profit. And because GSD Technology uses no chemicals whatsoever to extract the gold, there are no environmental concerns related to contamination.

The low-grade gold contained in Gold Sands deposits offers extremely powerful potential for early adopters of GSD Technology. These giant alluvial fields, especially those in the northern regions of Peru, are estimated to contain as much as 150 million ounces of alluvial gold in the host sands and gravels. And with the GSD Technology now available it appears as if the gold mining industry is once again going to go through another paradigm shift.

Exploration companies that utilize this new GSD Technology may derive great benefits, along with their shareholders. Will it spawn another Barrack Gold or revitalize a mining giant like Newmont? We aren't certain.

But we will make a fairly modest Prediction: The current boom in gold prices is going to pay huge rewards over the next several years to those savvy enough to identify companies with exposure to giant Gold Sands properties with high enough grades and sufficient tonnage to be exploited using GSD Technology.



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Welcome to the Intersection of Free-Market Economics and Investment Profitability

My name is Albert Kessler and I am proud to be the chairman of one of the most unique publishing houses in all the world, Appenzeller Business Press AG (ARBP). ARBP is located in the scenic Swiss region of Appenzell - one of the last bastions of free market thinking, culture and tradition. Appenzell is renowned for its free market traditions, respect for personal liberty, rejection of government intervention and reverence for Austrian economic principles.

Still to this day, Appenzellers gather each year in the village square to take part in one of the world's oldest and purest forms of direct democracy, the Landsgemeinde. It's a centuries old tradition that happens just minutes from our offices. Eligible citizens meet openly in the village square to decide on laws and expenditures by the council. Everyone can debate a question. And those in favor of an issue signify their vote by simply raising their arm in the air for all to see.

In that same tradition, ARBP is dedicated to supporting savvy and hardworking people who fully realize the danger of blindly entrusting their own welfare to government. We do this with publications and tools we create to help support investors and entrepreneurs who still believe in privacy, personal responsibility and personal freedom.

Each service we offer is based on Austrian economic principles. These principles, developed by Ludwig von Mises and Frederich Hayek, have proven over time to reflect human nature, the real world and economic progress.

For investors, these free market principles help us understand the business cycle, the investment and economic results of government involvement in the economy and how investment and cash flows react to geopolitical events. This results in an investment advantage, an early forecasting and early warning system for investors. Ultimately, investors find greater profitability and safety.

By creating products designed to support liberty and economic freedom, we like to think ARBP is offering people around the world an opportunity to have a voice in their own Landsgemeinde—just as their like-minded friends in Appenzell.

Freedom works in all cultures and countries. Free market economics can help all people prosper. That is why we try hard to support freedom and free enterprise around the world.

Sincerely,



Albert Kessler
Chairman, Appenzeller Business Press AG

P.S. Thank you for taking the time to read through this Special Report. We are confident you find many practical ideas and useful solutions that can help empower you to a make better-informed social, political and financial decisions.

