Alchemist

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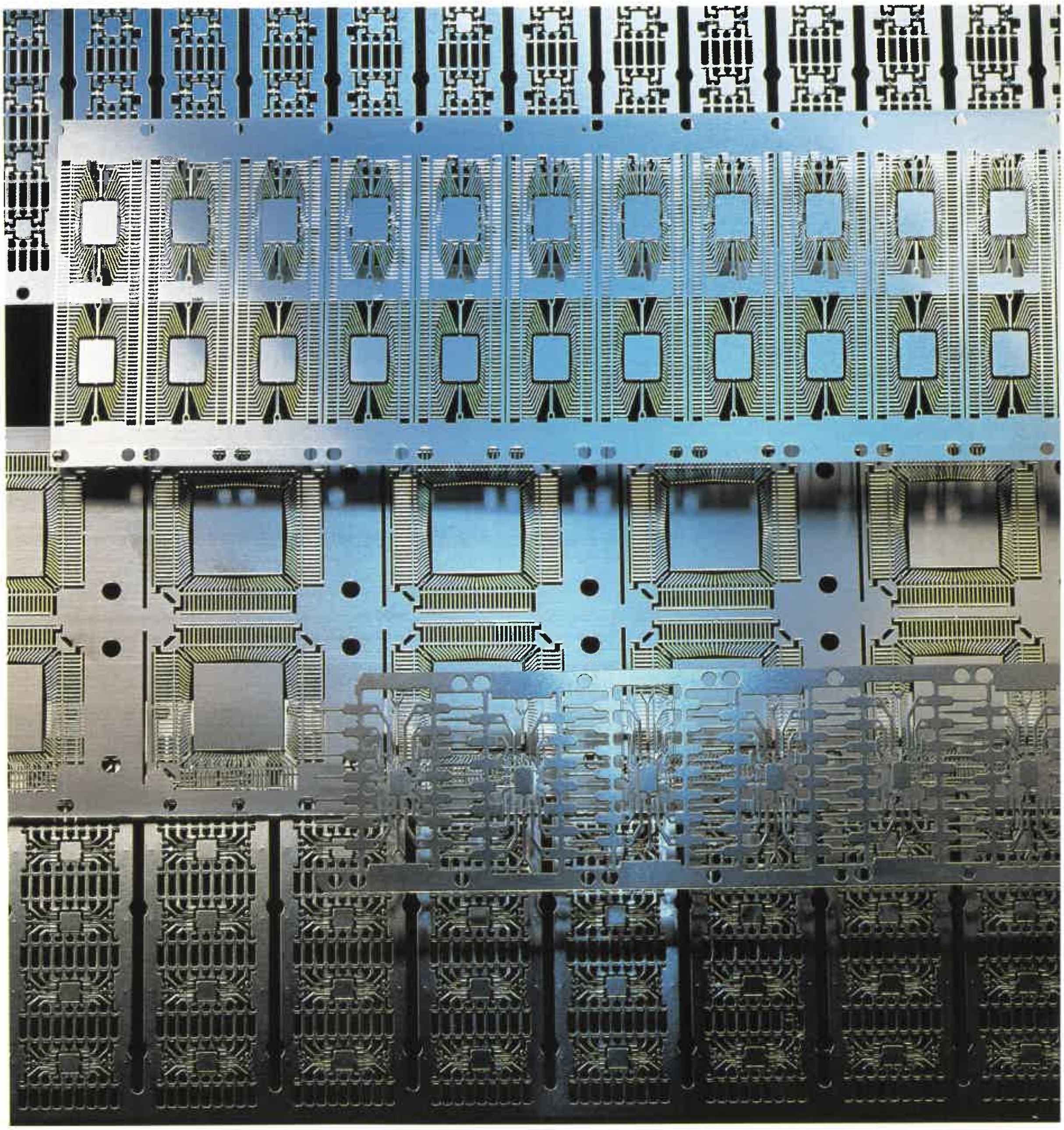
LBMA

In this issue



Palladium plated lead frames, used to mount semiconductor chips

See **Unobtanium** *on page 17*

Gold in Mali

From Timbuktu to today's high technology

by Susanne M Capano, Editor

In 1324, Mansa Kankou Moussa, ruler of the Empire of Mali and a devout Muslim, went on a pilgrimage to Mecca.

Not one to travel alone, he headed a 60,000-person caravan trekking northwest across Africa into Arabia. Of the 12,000 slaves in his caravan, 500 carried a gold staff apiece weighing six pounds and each animal in the 80-strong camel baggage train carried another 300 pounds of gold. Mansa Moussa was so generous with his gift- and alms-giving that the gold market in Cairo took more than 12 years to recover from his largesse, and prices in the region remained depressed for many years.

Timbuktu lies at the crossroads of the gold and salt trade. This increasingly important city became part of the Empire of Mali during Mansa Moussa's reign, and his pilgrimage quite literally put Mali on the map for many Europeans. In the 15th century, a number of French, Italian and Portuguese fortune seekers were attracted to the region. During the 19th century, the French governor of Senegal forged a mining partnership with inhabitants in western Mali, the heart of alluvial gold mining activity.

Below - Blasting in the open pit at Yatela mine

Morila gold mine

Yatela: The Latest Chapter

From an impressive history, Mali today shows a very promising future, thanks to some new partnerships. Mali's gold production has increased exponentially from a little over six tonnes in 1995 to 29.4 tonnes in 2000 – and is projected to reach 48.5 tonnes this year. Mali has become Africa's third largest gold producer after South Africa and Ghana and is the highest contributor to AngloGold's production outside of South Africa.

This September has seen the opening of the country's newest large-scale mine, Yatela, which is jointly owned by AngloGold (40%), IAMGOLD (40%) and the Government of Mali (20%). Yatela is located in southwestern Mali, close to the Senegal border and 500 km northwest of the capital, Bamako. The mine started life well: constructed under budget for US$73 million, it poured its first gold this past May – one month ahead of schedule.

The orebody is being mined from an open pit in three stages over six years. The ore, which is soft and friable, can be largely mined by hydraulic excavators, although 40% will need to be blasted. The ore is being processed via the heap leach method (see inset), AngloGold's first gold mine in Africa to use that process.

Yatela is scheduled to treat 2.5 million tonnes of ore annually, producing 1.4 million ounces of gold over a six-year period – at an average total cash cost of US$175 per ounce and a grade of 3.6 grams per tonne. The mine's total mineral reserves amount to 13.4 million tonnes at 3.7 grams per tonne (1.6 million ounces), with total measured and indicated resources of 28 million tonnes at 2.5 grams per tonnes (2.2 million ounces). The mine employs 472 people as either employees or contractors, of which 434 are Malians.

Contributing to Mali's Economy

AngloGold operates two other mines in Mali. Sadiola, which is only 25 km from Yatela, is a joint partnership between AngloGold (38%), IAMGOLD (38%), the Government of Mali (18%) and the International Finance Corporation (6%). In 1996 – its first year of operation – it produced 611,000 ounce of gold at a total cash cost of $114 per ounce and last year was Africa's lowest-priced producer. A third mine, Morila, is owned 40% by AngloGold, 40% by Randgold and 20% by the Malian government.

The total capital investment by the shareholders in Yatela and Sadiola has been about US$400 million, with direct contribution to the Malian Government via dividends, royalties, loan repayments and duties of around US$96 million. Some US$87 million has been spent locally on equipment purchases, services and labour.

Bobby Godsell, Chairman and CEO of AngloGold called Yatela another important step in the renaissance of African gold – one of the continent's most valuable exports. ■

Background information for this article provided by Alex Buck of AngloGold

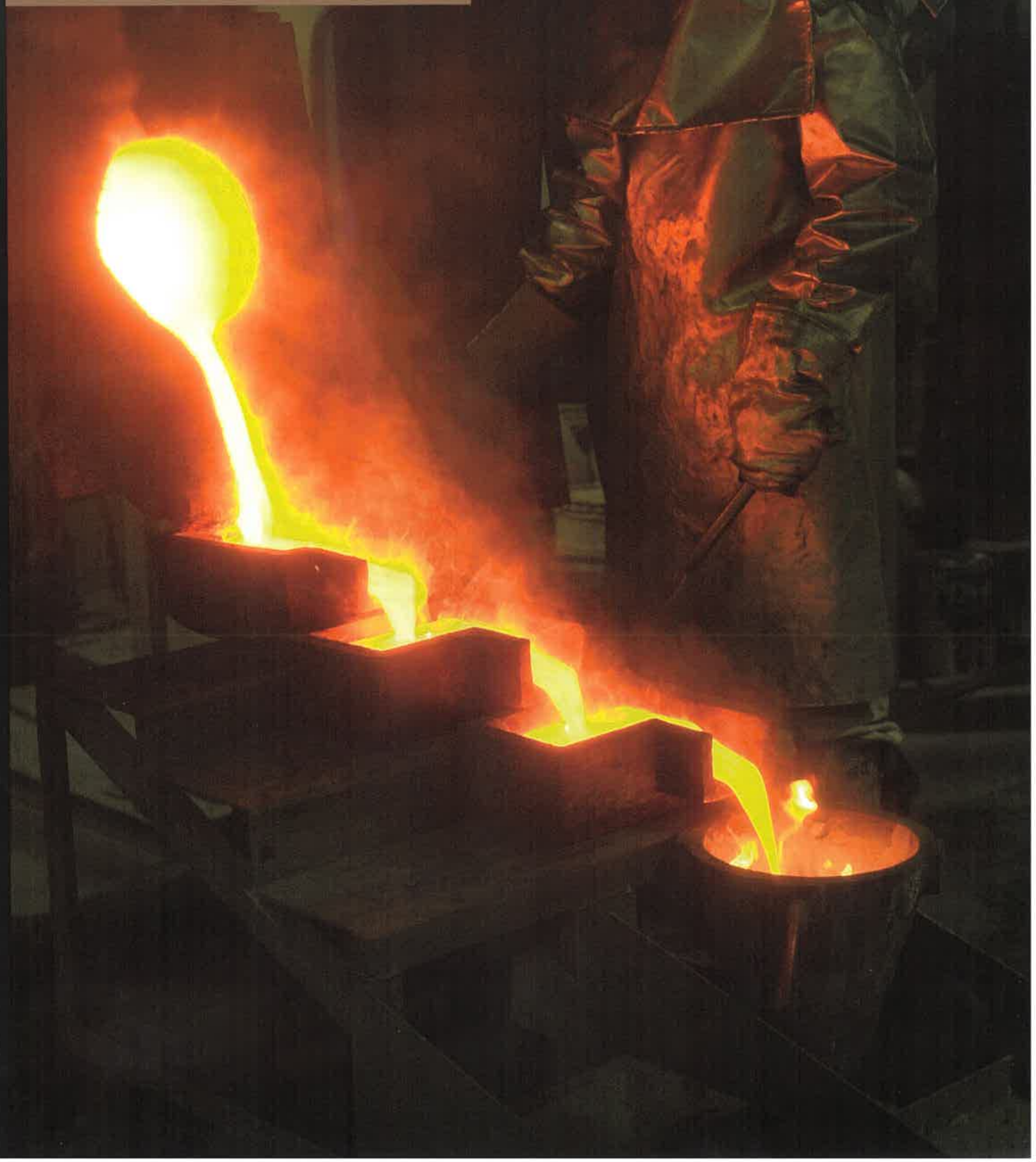
The Sadiola mine at dusk

At left, Bakary Yali, local Bamako jeweller at work and above, holding one of his handcrafted necklaces

All photos courtesy AngloGold

Right, Student putting the finishing touches to a gold tchiwara, or antelope mask, a national symbol in Mali

Below, A jeweller in Bamako at work



The Heap Leach Process

After the ore is mined, it is trucked from the pit to an ore tip and fed through sizing equipment. Cement is then added to help the crumbly ore to adhere, and the mixture goes through another sizing phase, becoming agglomerated into pebbles. The mixture then moves to plastic-lined heap leach pads, where leaching agents are applied to dissolve the gold. The resulting gold-bearing solution is collected in lined ponds, where it passes through carbon contactors, which absorb the gold. The gold-loaded carbon is then trucked to the nearby Sadiola mine for treatment on a toll basis.

Asset or Commodity?

How the Argument For Gold Has Changed Since 11 September

By Matthew Keen, Director, Dresdner Bank AG London Branch

When the LBMA first asked me to write an article on investor trends in the bullion market, I leapt at the chance. I had been getting more and more into a bullish frame of mind all through the summer, with equity markets teetering and global economies slowing down to such an extent that interest rates were at their lowest levels for decades.

I formally accepted the invitation to write the article on the morning of September 11, prior to leaving for the NYMEX platinum dinner in New York. However, my flight never took off and I now feel as though our lives will be altered forever as a result of the coordinated terrorist activity that took place on that day.

What Does It Mean For Gold?

In the hours of confusion that followed the attacks, gold spiked up $20, inflicting maximum damage on the speculative shorts, which have been at the very fabric of the gold market for two decades, much as fleas are to a dog. In a rather cruel set of coincidences, the dealer market found itself particularly exposed to the short side in anticipation of the 14th Bank of England Auction, due the following day. But before looking at the bigger picture, I think it is worthwhile to first make sense of the $20 rally that occurred on September 11.

Who bought the market up and how significant a factor was the terrorist activity? Clearly the attacks provided the spark that ignited the short covering rally. As for who bought, it is likely that the run up to the $290 level was little more than dealer book squaring in thin conditions.

But the question that is rather more interesting – particularly if you fall into the camp that consider that gold has lost its place as a financial asset and is now a commodity – is why the turmoil in other financial markets should have encouraged buying in gold.

Aussies, Euros and Other Correlations

Identifying correlations between interdependent instruments is not necessarily a way to make money; however, whilst a high correlation exists, it is possible to trade one instrument based on your view in another. More importantly, it is possible to reduce your overall profit/loss swings in a portfolio by "hedging" one instrument with something else that correlates negatively.

For a considerable period gold has not had demonstrable links with the stock market or US interest rates, but after September 11 that changed. Any doubt that gold has rediscovered a linkage with the stock markets can be removed by looking at the daily correlation with the Dow Jones Industrial Average over the last few years and again after September 11th.

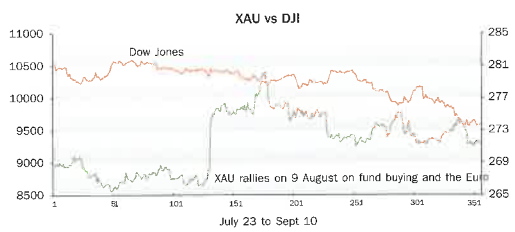
Looking at a variety of observation periods and using daily closing prices before the 11th, it is virtually impossible to find any sustained correlation in excess of 5 per cent to the DJI. However, since the normalisation of the market following September 11, the correlation has been consistently above negative 30 per cent and as high as negative 50 per cent at times – based on settlements.

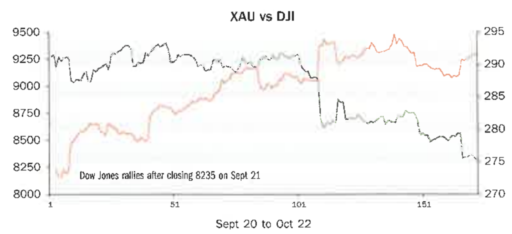
If we go into greater detail and look at 30-minute observations periods during the time when both the DJI and COMEX are open, then the correlation during the last month is almost 90 per cent negative – an incredibly strong statistic. Clearly the yellow metal is now being influenced by stock markets. (see charts at right)

Another interesting aspect is the way gold has behaved over time relative to US$ interest rates. Again, looking at data collected over the last few years, the gold price had close to zero correlation with the active Eurodollar Futures contract up until September 11, but since the markets reopened, that correlation has been 30 per cent plus. (This correlation is positive, meaning that gold has gone up when Eurodollar Futures have gone up, hence interest rates have gone down, and vice versa).

The final correlations worth examining concern the Australian dollar and the Euro. The Aussie dollar has clearly had a long-standing link to the gold price whereas the Euro has emerged perhaps surprisingly as one of the strongest correlating currencies since its inception. In the year to September 11th both currencies were approximately 40 per cent correlated, whereas in the last month or so the correlation against the Euro has halved to 20 per cent whilst the link to the Australian dollar has disappeared completely.

To go back to the question of whether gold is a commodity or a financial asset, the answer has changed since the events of the 11th. Before then, gold was a commodity. When we look at how gold is performing in local currencies, particularly in countries that have a heavy economic reliance on gold, then we





are talking about its commodity attributes. Clearly, before troubled times hit the market this was by far gold's greatest influence – but now that link has been lost. And whereas gold was completely impartial to activity in the bond or equity markets around the world prior to September 11, these two financial markets have become the greatest influence for gold by far. Since the 11th, gold has become a financial asset.

Taking a look at the less sophisticated investors who like to hold physical metal, here at Dresdner Bank we have witnessed another interesting statistic since September 11, namely, the complete reversal of activity at the coin counters throughout our branch network. For the last decade, private individuals have been dishoarding small bars and coins at an average rate of perhaps 500 ounces per day. September 11 changed all that. Small investors collectively are now net buyers again at the counter. Whilst the tonnage is not terribly significant, the change in sentiment is. Investors at all levels have made the mental shift that gold is a good thing to have when the financial markets are rocked.

The Future for Gold

If spot prices slip back below September 11 levels it is going to be hard to be overly optimistic for the market, but perhaps we should take comfort from the strong correlations that have recently developed, making gold far more attractive to a fund manager looking for a balanced portfolio.

Who knows? Maybe the time has come to take note of the infamous Sir James Goldsmith, who maintained until the day he died that gold would have its day. Alas Sir James is no longer in a position to influence the fund management industry, but is it so unthinkable that other doyens of the fund world might make more than a suggestion that going forward gold has a place in a balanced portfolio going forward?

Stepping back from historical correlations and other technically driven analysis, we could make a good argument for gold as a commodity to move higher in the coming months. The argument for where prices go from here is reasonably well balanced, but the bulls should probably have the edge.

Looking at the reasons that gold has performed so badly in recent years, few will deny that the root cause of the problem has lain at the feet of the central bankers and the producers. The very structure of the market was altered two years ago when a group of influential European central banks acted to restrict the amount of metal available for sales and lending, in a pact dubbed the "Washington Agreement". This agreement, together with the extremely low interest rate environment, has taken some pressure off the gold market.

The other major cause of disappointment for gold bulls in the past has traditionally come from producers, who were usually ready to kill the prospect of any real rally by sitting on the price. I would say that there are at least three reasons why the pressure from the producers has lifted.

- Firstly, the major producers announced shortly after the central bank agreement that they would abstain from major hedging programs, a policy which still holds today, broadly speaking.
- Secondly, is hedging really worthwhile, with five-year gold generating a premium of barely 2.50% per annum?
- And thirdly, another reason producer hedging has eased off is that banks are charging increased credit following some high-profile mining failures, particularly in Australia recently.

As a long-term bear recently turned bull, I would like to rest my argument there, but of course there is another side to the coin, that being the demand story. In a recessionary environment, demand has to suffer, particularly in the high-value luxury bracket. Since September 11 the flow of physical gold around the world has become a lot more expensive and demand has tailed off substantially around the world – most dramatically in India.

One cannot ignore the recent drop in the demand for physical gold, but it would probably be putting it too strongly to say that there has been a change in the overall dynamics of the market. If on the whole demand proves to be substantially lower over the coming months, this will of course filter through to the spot price, but at the risk to cite a well-used adage: "If even less than one percent of cash under management made its way into the gold market, we would be trading at a squillion dollars per ounce..."

In summary, while gold as a commodity faces a rather bleak outlook, gold as a financial instrument has never looked so good. Perhaps Mr Buffet could spread the word.

Matthew Keen is a Director at Dresdner Kleinwort Wasserstein in London, where he is responsible for Sales and Distribution for commodities. He started his career at Johnson Matthey Bankers in 1982, going on to specialise in PGMs at Engelhard Metals Ltd. from 1987-1991.

After leaving Engelhard, he spent 10 years working for JP Morgan, where he built up their platinum business in London, before moving out to Singapore to head up the commodity division in Asia-Pacific. Upon returning to London in 1996, he was given the responsibility to develop and risk manage the precious metal forward and derivative businesses. While working at JPM, he served on the LPPM management committee for three terms.

Matthew and the team contemplating the Eiger, which they successfully climbed on 22 August to raise money for Motor Neurone Disease Association.

'It Was the Most Beautiful Day of the Year'

by Susanne M Capano, Editor

"Where were you when Kennedy was shot?" That memory-searing question from a generation ago found its equal on a sunny September morning in New York – a day that began like any other workday, but ended like no other. Little has been the same since. When asked, "Do you remember what you were doing on 11th September?" no one hesitates. More than one New Yorker began their account of the nightmare with the words: "It was the most beautiful day of the year. It was just a perfect autumn day." What follows is a look at the events from some market participants in both the US and the UK -- their experiences on the day, getting the market up and running again afterwards, and what they see as the longer-term implications for gold. To begin with, personal recollections on, about, and in some cases from Ground Zero.

Mike Devaney, *Chairman, Comex Governors' Committee*

Things were pretty quiet right after the opening. December gold – the active contract – was trading around $273 – then the price shot up to $280 on rumours that a bomb had hit the World Trade Center. We were watching CNBC on the 50-inch television monitors in the pits. When people realised it was a plane, not a bomb, they thought it was an accident and gold sold back off. But it snapped back when the second plane hit.

When the bomb went off in 1993, we'd been able to have a one- or two-minute close to wrap things up, but this time, we had to evacuate at once. Luckily it went very smoothly and we got everybody out.

Ed Jette, *WestLB*

It was just a normal Tuesday. And I know exactly what the guys who worked in the Trade Center were doing that morning: drinking coffee and talking about Monday Night Football.

One of our trading desks was connected with a broker at One WTC. All of a sudden, the line just went dead and the screens went blank. Then we saw the crash on TV and I knew it was no accident – that plane had hit the building dead centre. Another desk in the room was on with Two WTC – and it happened all over again. It was such a shock – one minute ago someone was talking and then there was dead silence. We evacuated our building soon afterwards – Rockefeller Center might have been another potential target, no one knew. I went into St. Patrick's Cathedral. When I came out, I looked down 5th Avenue towards the Trade Center and watched the second tower collapse.

Robert Lockwood, *The Bank of Nova-Scotia – ScotiaMocatta*

At first I heard a huge explosion and I thought a bomb had gone off in the WTC – it reminded me of what had happened in 1993. Our offices are on Liberty Plaza, immediately east of the towers, so I didn't have a view of the north tower and I couldn't see the plane. After the impact, there was a power surge. The wind was blowing towards our building, pushing across a shower of bits of paper, insulation, debris.

Most of the people here were out in five minutes. There were thousands of people on the street. It seemed like everyone was frozen to the spot, staring up at the fire overhead. I just wanted to get away. I thought it would be good to head for Greenwich Village – no tall buildings, no nearby bridges or tunnels – no targets.

The second plane hit while I was on the street, so the explosion was even louder this time. By now, I was on the north side of the towers so again, I didn't see the plane hit – there was just a huge fireball right overhead, then smoke began to pour out. It looked like an Arnold Schwarzenegger movie set, not real, with the black and white smoke pouring out against that dark blue sky. But then I heard screams and saw bodies falling and that was very real.

I got to Christopher Street and was able to catch a train to New Jersey. By the time I got out at Hoboken, the towers had fallen. Looking towards downtown Manhattan, so much smoke and dust was pouring out that it looked as though a volcano had erupted.

Rose Stoffo, *Prudential-Bache*

I came in at 5 am – just a typical day. At first we thought a bomb had hit, until we saw what happened on TV. We were watching the screen when the second plane made a U-turn and hit and that's when we decided to evacuate. We transferred everything over to London office and got ready to leave.

Everything seemed to take longer than it should. I was still in the office when the first tower fell but I was out on the street when the second one went down – it just collapsed like a house of cards. I live uptown on 94th Street and Columbus Avenue and I ended up walking nearly all the way home – there wasn't really any other way to get around, though some people caught a ride in the back of empty delivery trucks.

In the Aftermath

The after-effects of the attack rippled across all sectors of the US and UK market. In the hours, days and weeks following the attacks, the market struggled to come to terms with the event from a logistical and personal perspective.

Matthew Schwab, *Barclays London*

My mother's company has an office in the WTC and I wasn't sure where she was working that day, and my sister and brother-in-law work for Morgan Stanley. I had to make sure they were OK before I did anything else.

At first, the market just stopped, but after a while, instincts took over. This is what you do – what you do every day – and you can do it almost on autopilot. There was a lull after the first plane hit, but after the second one, the market really roared – it shot up $20 in a straight line. Initially it was basically being marked up, but then business started to flow in. We were quite busy until after the fixing.

Mike Devaney

In the days immediately following the attack, the priority at Comex was to get up and running again, despite our proximity to Ground Zero. We set up emergency headquarters in a hotel in midtown and were assigned a police boat to get back to the Exchange.

We had back-up generators for power and we tried to re-create the trading floor so we could begin inputting the trades from that morning. Some traders had dropped their cards when we evacuated, others had taken them with them – we needed to get hold of as many as possible. On the Saturday after the attacks, about 60 brokers, clerks and staff came in. It was a lot of work, but we were able to resolve 90-95% of the trades.

Bob Arcand, *-Fleet Precious Metals*

As a supplier to the jewellery trade, our biggest problem was getting metal to customers without having the usual means of transport - no air courier, and lots of difficulties getting around Manhattan. Truck routes kept changing because roads were blocked off. We couldn't even be sure when vaults would be open because of frequent evacuations.

There had already been a slowdown in the jewellery sector before the attacks and since then, the same pattern has continued. Taking seasonality into account, it's running lower than last year. What might help demand stay steady through the season is the deep discounting already going on in retail stores and the recent improvement in consumer confidence.

Rand LeShay, *A-Mark Precious Metals Inc,*

Consumer interest in coins did jump sharply, but sourcing them posed no difficulties for us. All last year and into this year, the market has been working through the overhang from the massive post-Y2K dishoarding.

Figures from the US Mint for sales of one-ounce gold Eagles speak for themselves. In August, 5,000 were sold. In September, the total jumped to 53,500 – a ten-fold increase, but still only roughly half the monthly average seen throughout 1999 in the run-up to Y2K fears. The Mint couldn't turn coins out fast enough back then.

The Implications for the Market

When the developer who holds the lease on the World Trade Center announced recently that he intends to rebuild at the site, he estimated that it would take five or six years to construct new towers – towers half as high as the original ones.

The equity markets and the US dollar took considerably less time to rebuild, and they've gone well past the halfway mark – they are now close to or above pre-11th levels. "Although newspapers are full of stories about panicked Americans, the reaction of the US investing public appears to have been more measured", says John Reade, analyst at UBS Warburg.

Investors have had some help in getting their confidence restored. "The Federal Reserve has pumped in money – relative to the demand for it – almost as fast as OPEC has oil," Mitsui's Andy Smith points out. Auto manufacturers have extended zero-interest car deals through January 2002. So it's perhaps not surprising that gold has retraced its steps. "Accusing it of underperformance after September 11 is assassinating the messenger", says Smith.

There has been some surprise – and disappointment – that gold never managed more than a $20 rally. Rand LeShay worries that the small investors need to see more follow-through: "Without that, it becomes harder and harder to attract them."

But UBS Warburg's Reade points out that Comex-trading speculators were already net long going into the 11th because of falling interest rates and concerns that the US dollar might weaken. Had they been short, the moves in gold would quite likely have been more volatile.

Kamal Naqvi of Macquarie Bank notes that the market has been in a five- to ten-year bear run. "Expectations from some were simply too high. It was always going to take time and further justification to encourage investors back to gold and this did not occur."

But Maybe It's Not Over

There are still outstanding issues. On the geopolitical front, Naqvi points out that the real threat is that the perpetrators didn't appear to operate from a centrally controlled organisation, but from a series of tight-knit cells. Osama Bin Laden is one man, and his capture would not eliminate the threat of another attack.

Simon Weeks at the Bank of Nova Scotia – ScotiaMocatta feels that on the economic front, the worst may be yet to come. "The depth and persistence of the slowdown in the US has yet to be digested. The Fed can't carry on propping up the markets forever." In fact, Greenspan himself has admitted, "Nobody has the capacity to fathom fully how the effects of the tragedy of September 11 will play out in our economy."

Naqvi sees the importance of economic developments still unfolding: "I don't think people buy gold merely because a disaster happens, but due to the economic considerations that may flow from such an event. If economic conditions don't improve quickly, equity markets may well have another look at the downside. If faced with a prolonged recession, central banks might decide that some inflation is tolerable – or that it might be good for the dollar to weaken in order to encourage US exports."

Cautious Optimism

Andy Smith's recent conversion from long-term bear to cautious bull has become a talking point in the market. He points out that consolidation amongst bullion banks – which started well before the 11th – may actually benefit potential investors. Having fewer middlemen will tend to widen spreads, thereby discouraging producer hedging, and it reduces the number of available credit-worthy counterparts for central bank lending. Gold's almost permanent contango – which tended to discourage investors – would no longer be a sure thing.

And consolidation amongst producers may be positive for the price as well. Non-hedgers Newmont and Franco-Nevada have pledged to buy back Normandy Mining's hedge book if their bid succeeds. That buying might meet others going the same way. Would they meet central bank sales going the other way? Before September 1999, perhaps. Not now, at least not from the main official gold holders.

'Why is it so difficult to buy gold?'

Any optimism in a market more used to pessimism should be tempered with realism. "I think the gold market is surprised to find that there are potential investors out there," commented Barclays' Schwab in a recent FT interview. "I don't think it really knows how to deal with them." Consolidation has also taking been place within banks, limiting their resources to market to individual investors. "So the retail investor might be pre-programmed to buy gold under certain circumstances – but can't!"

Perhaps, suggests Andy Smith, jewellers could step into the breach. "If the man-in-the-street 'gets' the notion of gold as a reputable investment, but the man-behind-the-screen can't or won't, then the business should go to the street. Most people's 'interface' with the gold market in The West is not banks or the Internet, but jewellers. Why shouldn't jewellers offer gold deposit accounts (in joint venture with banks, perhaps) redeemable after a term of years into metal or paper, as the client prefers? Who knows, a 'Tiffany Gold Account' might even become 'cool'?"

In the days following the attack, the LBMA was flooded with calls from individuals looking to buy gold and not knowing how to go about it. Often, they'd already made four or five phone calls and were disappointed to learn that they needed to make at least one more.

"Why is it so difficult to buy gold?" asked one frustrated caller. A question that should be answered – sooner rather than later. ■

EU Gold Directive – Two Years On

by Douglas Beadle, N.M. Rothschild & Sons Limited and Henry Kozlowski, Johnson Matthey Plc

The EU Gold Directive, adopted in Brussels on 12 October 1998, became effective in the UK on 1 January 2000. Since then, "investment" gold (see inset for definition) has no longer been subject to Value Added Tax across any of the 15 member states of the European Union. The LBMA worked closely with H.M. Customs and Excise to make the legislation a reality and is indebted to the VAT Policy Directorate for being the driving force behind the legislation.

The LBMA had two objectives in supporting the implementation of the EU Gold Directive.

- Establish a level playing field for investment gold across Europe and eliminate the various disadvantages faced by individual member states.
- Protect the unique requirements of the London Market as the world's main bullion clearing centre whilst recognising that such benefits should not be the exclusive prerogative of London.

Both these objectives have been achieved. In order to accommodate the longstanding special requirements of London which were covered by various pieces of historical legislation, the amending UK legislation giving effect to the EU Gold Directive was by necessity complex, but can be summarised as follows:

- Sales of investment gold to individuals in their private capacity are exempt. This brings investment gold into line with other forms of investment in the UK.
- Sales of investment gold between members of the LBMA are zero rated. This allows market members to continue trading between themselves, as before, without incurring additional costs, which are an inherent part of VAT exemption. This point is explained in greater detail below.
- Sales of investment gold between an LBMA member and a UK-taxable non-member are standard rated, but subject to the reverse charge mechanism under the provisions of the Special Accounting Scheme for Gold Transactions (introduced in the UK in April 1993 as a means of reducing VAT fraud on gold transactions). The scheme achieves this by transferring the responsibility for paying the VAT due to Customs and Excise on certain gold transactions from the seller to the buyer. Hence no VAT changes hands. The scheme is also beneficial for the purchaser as it eliminates funding of VAT.
- Special provisions were put in place to cater for transactions between an LBMA member and a non-UK counterpart. These allow the LBMA member rather than its non-UK customer to account for VAT on investment gold transactions, should it arise, thereby avoiding the cost and inconvenience to the customer of having to register for VAT in the UK.

The new legislation incorporates a provision allowing the seller in a transaction in investment gold to "opt to tax", a provision particularly important for refiners, manufacturers and bullion traders alike. This enables the supplier of investment gold to treat his supply as standard rated (currently 17.5%) rather than exempt.

Investment Gold

The exemption of VAT on gold applies to:

- Gold in the form of bar or wafer of weights accepted by the bullion markets with a fineness of at least 995. Small bars or wafers weighing less than one gram are excluded.

Note: gold grain, wire etc are not investment gold.

- Non-numismatic coins of a purity greater than 900/1000 minted post-1800 which are or have been legal tender in their country of issue or which have been admitted to the approved list of investment gold coins by a Customs Authority. The premium on the coin must not exceed 80% of the open market value of the gold content. Each year before 1 July, the EU will draw up a list of coins which meet the criteria.
- Gold-related securities and forward/future transactions.

Note: the grant of gold options whether in respect of investment gold or non-investment gold falls outside the provisions of the EU Gold Directive but remains zero rated under the provisions of the UK Terminal Markets Order. If upon exercise of the option the entitlement is to investment gold, then such gold will be subject to the provisions of the EU Gold Directive.

Why might a supplier choose to opt to tax and a UK VAT registered buyer choose to accept such an election? The advantage lies in the ability of the supplier to recover any VAT associated with the supply, whereas the purchaser would not be disadvantaged as the VAT charged would fall under the Special Scheme described above.

When an item is exempt from VAT, any VAT incurred in its processing or supply (for example, on office equipment) is not recoverable. If, however, the underlying supply is taxable (standard rated or zero rated), then the VAT on the ancillary costs becomes recoverable either in full or in part depending on the supplier's Partial Exemption (VAT recovery) rate. Without the ability to opt to tax, the competitiveness of the market would have been undermined.

As far as the market in London as a whole is concerned, the new VAT legislation achieves the LBMA objectives outlined above. ■

This article is intended to provide a brief overview of the main points of the legislation in the UK following implementation of the EU Gold Directive and is not intended to be advice. Readers are recommended to contact their own tax advisors for more specific details and advice.

Douglas Beadle is an Assistant Director of N.M.Rothschild & Sons Limited, which he joined in 1964. Dougie is a member of NMR's Treasury Management Team involved in all aspects of the business – but particularly cost control. He represents the LBMA on VAT working parties and is a member of the LBMA Physical Committee.

Henry Kozlowski is responsible for all indirect tax matters within the Johnson Matthey group. He has extensive experience of VAT, initially with Customs and Excise and, since 1989, with Johnson Matthey.

To the Editor

Rumours of the gold market's demise are greatly exaggerated!

While Mark Twain was no doubt startled to find his own obituary in a newspaper (as his oft-quoted response attests), it was perhaps less shocking to read a number of press reports suggesting that the withdrawal of CSFB from the gold market on 12 October sounded the death knell for the market as a whole – but it was disappointing nonetheless.

Nothing could be further from the truth. Yes, the market has lost the contribution of an extremely professional organisation, but their business has effectively been redistributed among a group of equally professional institutions with an even greater level of commitment to the market.

In fact, the gold market in London has been alive and well for over 300 years – as the oldest member, we ought to know. Today's market really has its basis in the five original Fixing Members, who were joined by a number of other institutions during the late 1980s and early 1990s. Change is part of any market, and today's market has undergone many transformations since then. The current crop of nine market makers has had to embrace new technology and a multitude of trading platforms in carrying out their daily business.

So whilst we say a fond farewell to those who've departed – the message from here is that the market will carry on and the LBMA and other such organisations will continue to help with future development.

Simon Weeks
Director
The Bank of Nova Scotia – ScotiaMocatta

Innovations

The Impact of Technology on Gold Supply and Demand

by Douglas Fuller, Vice President, The Gold Institute

'I remember in eighth grade walking home from my science fair I was like, "Oh wow, one day I want to submit a paper to a national competition", and that's about as far as my imagination ever got.'

For Mariangela Lisanti, a seventeen-year-old high school student from Westport, Connecticut, reality carried her somewhat further than her eighth-grade dreams.

Modern Alchemy – Turning $35 into $200,000

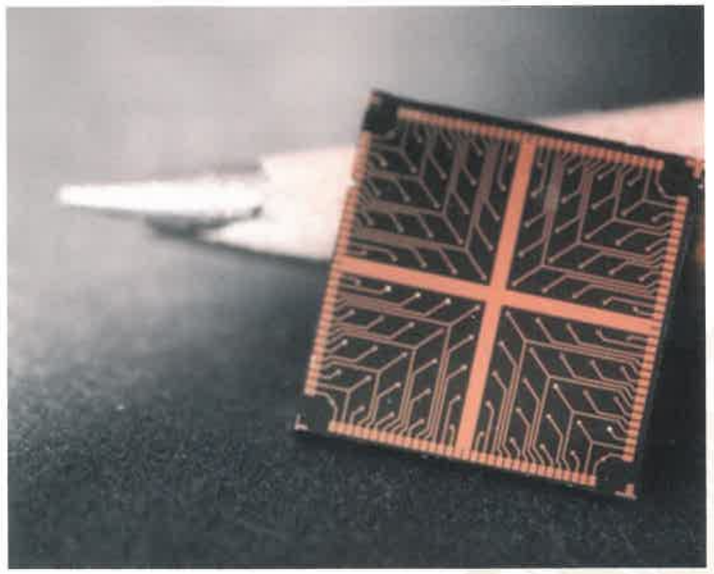
Mariangela's entry, Conductance Quantization in Gold Nanocontacts took first prize in both the 2001 Siemens Westinghouse Science and Technology Competition and the 2001 Intel Science Talent Search. Using $35 worth of equipment from a local electronics store, she built a device that accurately measures conductance quantisation – and then represents the almost infinitesimal resulting voltage with a discrete binary number. Her efforts earned her a total of $200,000 in scholarship funds.

According to the judges, Mariangela's discovery will have applications in the new and growing field of nanotechnology, where single atoms or molecules will be used to fabricate minute electronic devices with applications for microscopic motors and other devices in medicine and industry. Future applications of her discovery will, for example, help create faster and more efficient computers, medical implants that interact safely with the body, and tiny robotic systems for space exploration. And while nanotechnology only uses small amounts of gold in individual applications, this exciting technology holds great promise to consume significant quantities of gold once it evolves.

A Metal's Changing Role

Its superior malleability, conductivity and resistance to corrosion have long made gold a practical as well as an attractive metal. Today, thanks to advances in electronics, medicine and space exploration, new technological applications for gold are continually being developed.

While gold plays an important role in the world of high technology, the reverse is also true: the high-tech revolution is also important to the gold industry. Since gold mining is expensive and labour-intensive, miners have actively sought technological advances that can lower the cost of production while improving efficiency and safety, especially important in today's challenging gold market. Technology may also provide the key to addressing growing environmental concerns about the impact of mining activities on land, wildlife and local communities.



Front side of a drug delivery microchip, showing gold electrodes and reservoir caps. (Photo courtesy MicroCHIPS, Inc Carita Stubbe, photographer)

New Jewellery Technologies

Jewellery fabrication continues to consume the lion's share of the gold produced today. The challenge for manufacturers is to fashion products that will continue to appeal to consumers in today's very competitive marketplace. New innovations and technologies are allowing fabricators to design a range of products that were previously thought impossible.

In some cultures, 24-carat gold is used for jewellery, which serves both as investment and adornment. But it has been impossible to manufacture 24-carat gold items with the necessary strength and hardness for everyday wear. Recently, however, scientists have developed several microalloys of high-carat gold – alloys with a gold content of 99.5 percent or higher, but with the hardness of 18-carat gold. This is accomplished by alloying gold with tiny amounts of hardening alloys, such as calcium, beryllium, or rare earth metals.

If properly processed, the result would be gold that can be fashioned into jewellery with a 24-carat hallmark and lustre and the hardness and strength to maintain its form and finish day in and day out. Micro-alloyed 22-carat gold is already being marketed by Three-O Company in Japan, and is also being developed by Mintek in South Africa and PureGold in California.

New processes are also being developed for powder-metallurgical jewellery. Primarily used at this point for wedding rings, powder-metallurgy allows the manufacturer to pour a powderised gold alloy into a mould, press it into the shape of the mould, and then fire it into a piece of jewellery. This virtually eliminates wasted material and enables the fabricator to layer different colours and types of gold into unique patterns.

Industrial Applications

While jewellery is the mainstay of gold fabrication demand, the surge in computers and consumer electronics has resulted in a dramatic increase in use of gold in electronics and other industrial applications.

Over the eight-year period from 1992 through 1999, gold fabrication in electronics increased by more than 39 percent, from 174 million metric tonnes to 243 million metric tonnes. In fact, this sector grew by nine percent just over the 1998 – 1999 year. In the years to come, as automobiles, workplaces and homes become increasingly more computerised and automated, demand for gold connectors and fittings in electronic applications will only increase.

The U.S. Consumer Electronics Association predicts that sales of electronics equipment will grow by more than 42 percent by the year 2004. If this projected growth holds true around the world, global demand for gold in electronics could rise from 243 metric tons in 1999 to 345 metric tons in 2004.

Catalysis

Compared to other metals such as platinum and palladium, gold has always been thought to be relatively inactive as a catalyst – but this view seems to be changing. New developments may allow gold to replace or augment traditional catalysts, resulting in a wide range of potential industrial applications.

Recent innovations and research have shown that when properly prepared, gold can actually be preferable to more conventional catalytic materials. For example, platinum and palladium require very high temperatures for catalysis to occur. After a car is started, the autocatalyst can take some time to become effective, since it must warm up along with the engine. Adding lower-temperature catalysis – gold – to the mix could dramatically shorten the warm-up period, making the apparatus more efficient in reducing carbon monoxide emissions. If successfully developed, widespread use of gold in automotive catalysis could result in an increase in demand for gold in the range of 200 to 500 tonnes per year, according to some analysts.

Gold is attractive in other industrial catalytic applications, where ambient catalysis is necessary for long periods of time, such as air filtration for large, sealed buildings such as hotels and hospitals.

Gold in High-tech Medicine

While gold has long played a role in the world of medicine, technologies are leading to new – in some cases life-saving – applications.

Surgeons use gold instruments to clear clogged coronary arteries. Injections of microscopic gold pellets helps retard prostate cancer in men. Some forms of cancer are treated with colloidal gold – gold mixed into a solution that is taken internally. Gold's superior reflectivity, conductivity and resistance to corrosion make it ideal for use in precision lasers, which literally give new life to patients with once-inoperable heart conditions and tumours

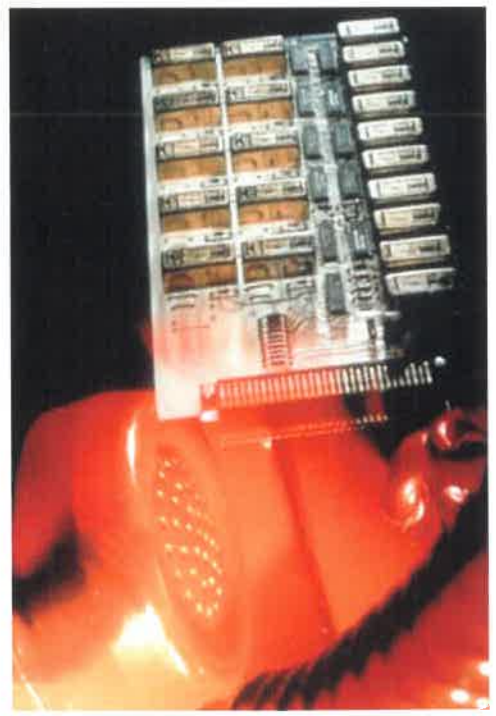
From pinpointing destruction of cancerous cells to rapid emergency surgical procedures, to delicate surgery on eyes and brain tissue that was previously not possible, these gold-reliant lasers are revolutionising medicine. Most recently, gold-coated lasers are being used to rejuvenate skin tissue damaged by burns and injuries, while leaving the surrounding healthy tissue unaffected. Because of its inert and benign nature, in most cases gold can be used inside the human body without fear of corrosion or harmful physical reactions.

Dr. John Fackler, Distinguished Professor of Chemistry and Toxicology at Texas A&M University, has discovered light emission properties of certain gold compounds, which he says react to the presence or absence of certain compounds or acids. This might lead to the development of sensors to detect and pinpoint the location of disease.

And soon doctors will be able to test patients for infections, cancer, AIDS, and other diseases and get immediate results by using genetic probes affixed with clusters of gold molecules that adhere to targeted DNA material.

Scientists at MIT – the Massachusetts Institute of Technology – recently developed a means to dispense medicine from inside the body, eliminating the need for patients to remember when to take their medicine. It is a microchip, the size of a human thumbnail, with more than 1,000 separate tiny compartments that can hold medications in solid, liquid, or gel form. A tiny electrical charge is applied to the thin gold foil cover of a silicon chip, causing the compartment to open and the precise dose of medication to be released. Micro-components such as those already in use for pacemakers will deliver the electric charge either in response to a timer – or when micro-component sensors indicate that life-saving medicines such as insulin are required in the patient's system.

Touch-tone phone containing 33 gold contacts (Photo courtesy the World Gold Council)



Making a ring from powder metallurgy
(Photo courtesy the World Gold Council)

These applications may not use much gold in any single product, but collectively they represent a major increase in demand.

Gold Supply Technologies

As important as technical innovations are to the future of demand for gold, similar breakthroughs are critical to gold's supply as well. In the face of lower prices, substantial reductions in production costs have been achieved through significant gains in productivity, more effective and wide-ranging exploration activities and the harnessing of technology.

The best example of how technology has lowered the cost of production is heap leaching, which has revolutionised the gold business over the past 20 years, allowing the retrieval of lower-grade gold that would previously have been impossible, or impractical, to mine. This technology, combined with others, such as carbon-in-pulp, has revived gold mining in the United States and elsewhere and has fostered the introduction of gold mining in other areas.

Other new technologies are allowing miners in South Africa to work productively in underground mines more than two miles deep, retrieving once inaccessible gold. South Africa's DEEPMINE program is designed to solve technical problems to allow mining at a depth of 5,000 meters (3.2 miles, or 16,368 feet).

In Australia, Brandrill has developed a non-explosive rock-breaking technology called PCF (Penetrating Cone Fracture) that is safer and cleaner. The non-explosive propellant, which is still in testing, is designed to produce less toxic fumes, flyrock and collateral damage to the mine infrastructure than conventional explosives and could extend the productive lives of many of South Africa's deep mines.

Also in Australia, miners are using computers and satellite technology to find and recover gold in the vast Australian interior. As in North America, huge open-pit mines utilise giant equipment that didn't exist a couple of decades ago. Until the 1980s, most gold mining was conducted underground. But thanks to innovations in heap-leach technology, carbon-in-pulp recovery, and computerised mine planning and operations, productive, large, open-pit, heap-leach operations are now the norm.

The RAND Report

New high-tech sensors, processing, and communications abilities are enabling the gold mining industry to achieve the type of advances being realised in other industries. According to *New Forces at Work in Mining*, a recent report by the RAND institution (a US-based non-profit research and analysis organisation), the IT revolution is having a significant impact on today's mining industry, particularly at the mine site. Some examples include:

- New technologies for computer-aided mine planning, design, and operations are enabling mine operators to use virtual reality to construct and operate the most efficient mining facility possible
- Mine equipment monitoring with Global Positioning System (GPS) satellites helps operators make optimal use of their people and equipment
- GPS equipment linked to surveying and precision drilling and ore removal helps pinpoint and evaluate ore bodies
- Interactive computers across the mine site allow integrated operations and eliminate duplication, confusion, and waste.

The report's authors surveyed mining industry executives to determine what future technological innovations offer the greatest potential for the industry. Among them:

- New sensors that will help better identify and analyse ore bodies and characteristics, while monitoring for chemical releases and equipment problems
- New GPS technologies that will help managers and dispatchers keep track of, and make most productive use of, equipment and manpower
- More advanced, more rugged computer hardware that will link mining equipment with computer systems, and still be able to withstand the rough treatment and harsh conditions in mine sites
- Software more specifically targeted at mining operations will help analyse data collected at the mines
- Better, integrated communications systems that will link underground mines with the surface, to wireless radios, cellular and electronic communications capabilities.

But the RAND Report cautions that, despite these innovations, mining companies must also concentrate on a number of factors, including employing and maintaining skilled workers, taking into account the impact on human health and the environment and maintaining the support of customers and the communities in which they operate.

Environmental Concerns and Innovations

A critical measure of the relationship between the gold mining industry and the communities it operates in is its access to resources – both mineral and financial. Increasingly, this access is being made contingent on the industry being able to demonstrate its ability to protect and improve the environment whilst carrying out its activities.

In the US alone, federal laws and regulations increasingly govern nearly every aspect of mining, helping keep the air, soil, and water as clean as possible. The only way to curtail the increasing constraints on mining operations is to proactively demonstrate a commitment to environmental protection, and to foster the long-term environmental and economic health of the communities in which gold mines operate. Again, new technologies are helping the industry face this challenge. One example is the search for alternatives to mercury and cyanide as reagents. Mintek, working with the National Steering Committee of Service Providers to the Small-scale Mining Sector, have developed and demonstrated a process based on chloride leaching, which employs relatively inexpensive and readily available reagents to replace mercury amalgamation. When the tailings have been filtered out of the chloride leach solution, a separate reducing agent is used to remove powdered gold.

This reducing reaction, which is very selective, results in gold product that is much purer than that achieved through amalgamation – 99.9 percent vs. 70 to 90 percent – at about the same cost.

In Australia, researchers at Monash University are studying the replacement of cyanide in industrial gold leaching with chloride and activated carbon. Previously, miners using the activated carbon and chloride solution process to convert gold ions to gold metal had to destroy the carbon to recover the gold – which is very expensive. Monash scientists report they have found two forms of activated carbon that do not destroy the gold chloride ion and can be stripped without destroying the carbon. Monash is working with Rand Mining of Perth on a pilot program to test the process in Kalgoorlie.

Bioleaching represents another promising innovation. At the Pering Mine in South Africa, Billiton has constructed an industrial scale thermophile bioleaching test-reactor facility. The major breakthrough is that rather than mesophile (low-temperature) bacteria, Billiton uses thermophile (high-temperature) bacteria, found around hot springs and other high-temperature environments. Because these bacteria feed on the surrounding sulphur and arsenic, there should be an increase the effectiveness of the bioleaching process.
US-based Newmont Mining has patented yet another a bioleaching process that also shows great promise. This exciting new technology could eventually help produce gold more efficiently by breaking down pyrite and exposes the gold for follow-up cyanide treatment.

Gold's Bright Future

The work of today's scientists – and students like Mariangela – holds out the promise that while gold is an ancient metal, its most exciting days may lie ahead.

As a global industry, it's up to us to meet the challenges in the market, in the environment, and in our communities, to live up to that promise. ■

Douglas Fuller is Vice President of the Gold Institute. Before joining the Institute, he spent three years as Senior Counsel to the Committee on Natural Resources of the United States House of Representatives, and two years as Counsel to the Committee on Governmental Affairs of the United States Senate.

Douglas is an attorney with extensive legislative and regulatory experience. Prior to his Committee work, he served as a senior aide to two members of the US Senate from Nevada. He also served for three years as Special Assistant to the Administrator of the Occupational Safety and Health Administration, advising the chief US worker safety official on matters of policy, communications and external relations.

Douglas earned a bachelor's degree in Economics from the University of Nevada, Reno, and a law degree from the George Washington University Law School in Washington, DC.

Market Moves

Tom Butler
Tom joined Virtual Metals Research and Consulting Limited in September as Senior Commodity Analyst. Prior to joining Virtual Metals Tom was Senior Consultant, Gold Market Analysis with the World Gold Council. His earlier experience in the precious metals markets includes Consolidated Gold Fields, where he was an analyst on the annual gold survey and Samuel Montagu and Co, where he was a manager in the bullion dealing department.

Matthew Turner
Matthew Turner has joined Virtual Metals as a commodity analyst.

His background is in economics, with degrees in the dismal science from both Oxford and London Universities (it was Thomas Carlyle who first called economics the dismal science). Prior to working at Virtual Metals he worked for a number of firms in both finance and publishing, most recently at the World Gold Council where he was involved in economic and statistical research.

Gary Mead
Gary Mead, newly appointed as Senior Commodity Analyst with Virtual Metals, was previously Head of Research with the World Gold Council in London, where during his three years in the post he launched the quarterly magazine Gold and was responsible for the publication of several reports on Switzerland and the value of gold in developing countries.
Prior to that he was a staff journalist with the Financial Times for ten years, where he was Buenos Aires correspondent, Marketing Correspondent, writer and editor of the paper's Observer column, and latterly the paper's Commodities Correspondent. He has worked as a journalist for the BBC and Granada TV, and is the author of two books - The Odyssey Guide to South Africa, and The Doughboys - America and the First World War (Penguin paperback, 2001).

Michael Bushman
Michael Bushman has joined Westdeutsche Landesbank in London as Director, Trading – Derivates Products for Gold, Energy and Commodities.

Prior to joining West LB, Michael was a director in commodities trading and sales at UBS Warburg. He was responsible for the management of derivatives risk and client relationships for each of their global centres. Michael's most recent position was as a consultant to First E Internet Bank, where he advised on business strategy and served as CFO. ■

Unobtanium

The Rise, Fall and Future of Palladium

by Susanne M Capano, Editor

On 28 May 1997, palladium set a then-record high fixing of $188, eclipsing the previous high official price of $181.50 set in 1989. "It takes really something special for palladium to be at over $180," an analyst commented in a Reuters interview.

In 1989, that something special had been cold fusion, which early experiments, using palladium as a catalyst, suggested would be a clean and cheap source of energy. But when further experiments failed to duplicate these results, the price collapsed and for the next few years traded either side of $100 an ounce.

Something even more special was yet to come in 1997. May's $188 fixing was just the start of a dizzying climb that culminated on the 26th of January this year in a high fixing of $1194. Like all market bubbles, this one burst. Within the space of eight months palladium had lost almost 70% of its value; it has since traded between $315 and $360. Unlike most bubbles, palladium's spectacular rise was not initially driven mainly by speculators – though they later played a part – but by fundamentals.

Catalytic Conversion
Catalytic converters for controlling automobile emissions have been around since 1975. But increasingly strict emission standards – especially during the past decade – have caused their usage to grow rapidly.

Both platinum and palladium can and have been used in catalytic converters – both make good catalysts and have similar chemical properties, although there are some differences. Platinum was initially the metal of choice: Johnson Matthey figures show that in 1992 gross usage in autocatalysts of platinum stood at 1,550,000 ounces, and palladium at 490,000. Palladium had a drawback versus platinum: it was susceptible to poisoning by the lead and sulphur in fuel. But by the mid-1990s, there was virtually no lead left in fuel and sulphur levels had dropped dramatically.

At the same time, automobile manufacturers were coming under pressure to reduce hydrocarbon emissions – where palladium was more efficient. So began a drive by catalytic converter manufacturers Engelhard and Johnson Matthey to develop palladium-reliant converters – technically feasible, although it was at first necessary to use nearly twice as much palladium as platinum (though in the mid-1990s palladium was less than half the price of platinum). By 1995, usage of platinum and palladium in autocatalysts was nearly equal, and the following year, palladium moved ahead.

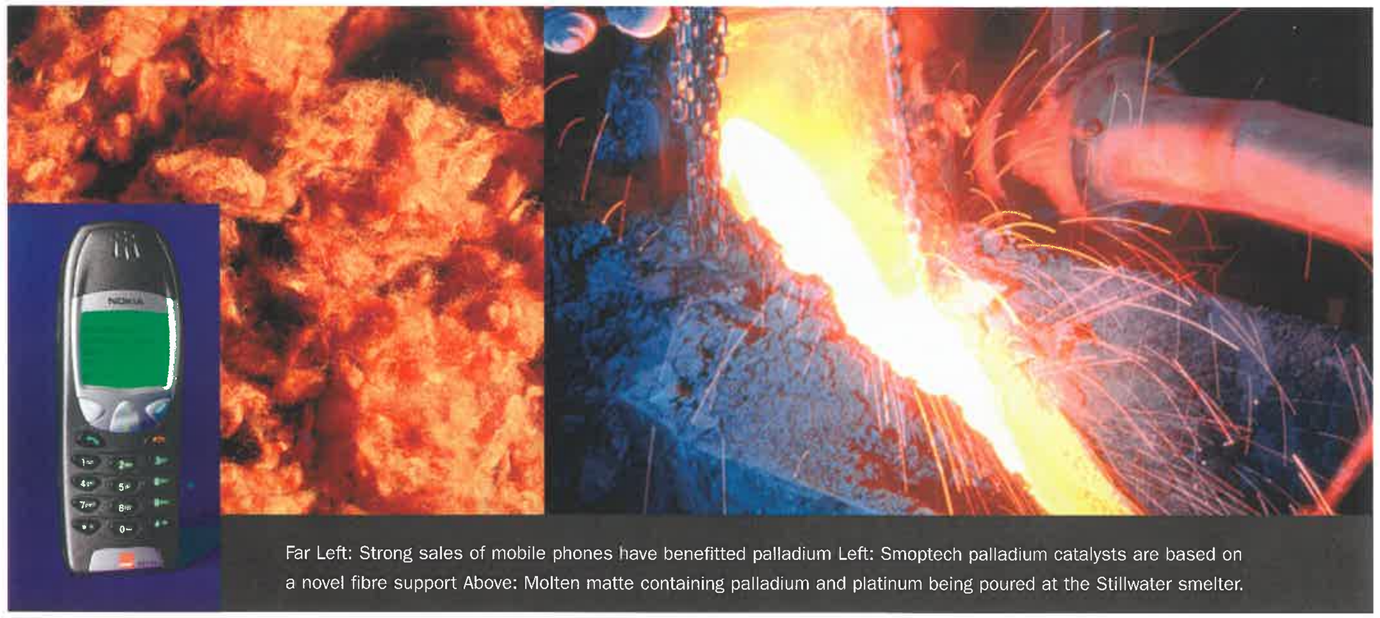
The Russians Aren't Coming
As with any commodity, the ever-present concern with using palladium was maintaining a reliable source, but this did not appear to be a problem. Most of the world's supply has come from Russia where, in addition to newly mined material, there were known stockpiles of unknown size that had been built up over a number of years as the price languished.

Palladium now became the metal of choice, not only for the automotive industry, but also in electronics, where new technologies in devices such as laptop computers and mobile phones caused demand for palladium to surge. Dental usage, where palladium replaced more costly gold in alloys, was also growing.

In Soviet days, shipments of palladium – along with other precious metals and stones – were controlled by Komdragmet, which had the power to grant temporary export quotas until the official ones were authorised, thus ensuring that there were no interruptions to supplies while the Russian bureaucracy crunched along.

But in October 1996, as part of his campaign to simplify government bureaucracy, Russian President Boris Yeltsin abolished Komdragmet. But without it, only the president had the power to grant export quotas. A three-to-four month backlog therefore developed, choking supplies to the growing market. The price soared from $120 to $200 an ounce.

Eventually the export quotas were granted and Russian metal once more flowed. While that was the first time the market faced uncertainty about Russian supplies, it was by no means the last: watching and waiting for the Russians has become an annual event.



Far Left: Strong sales of mobile phones have benefitted palladium Left: Smoptech palladium catalysts are based on a novel fibre support Above: Molten matte containing palladium and platinum being poured at the Stillwater smelter.

Enter the Hedge Funds

With demand increasing steadily and supplies uncertain, palladium quickly became an attractive investment. Among others, the metal caught the attention of hedge funds, most notably the Tiger Fund.

As the price rose during the '95 -'98 period, Russia shipped increasingly large amounts of metal. Johnson Matthey estimates that fresh production probably remained at a constant three million ounces during that period, but exports were as high as 5,800,000 ounces in 1998. It was clear that the country's palladium stockpiles were being tapped. What was still not at all clear was how large they were or therefore how long they could continue to supply the market's needs.

When the hedge funds began buying, the metal they absorbed wasn't lent to the market, thus putting pressure on lease rates. This affected both industrial users needing to borrow metal and trade houses, which had tended to lend long and borrow short to maximise returns (palladium traditionally had very low short-term rates). The resulting scramble for short-term metal pushed rates up as high as 150-200% – it was more economical to buy than to borrow. The price had nowhere to go but up.

The Thrill is Gone

Demand for palladium actually peaked in 1999, two years before the price did. According to Johnson Matthey, a record 9,370,000 ounces were consumed in 1999, of which the automotive industry – using two to three grams in each converter – absorbed the lion's share of 5,880,000 ounces gross, followed by 1,990,000 ounces in electronics and 1,110,000 ounces in the dental industry.

But industrial users were becoming disenchanted with the undependable and unpredictable metal. Dave Andres, head of commodity purchasing at GM, began to call palladium 'unobtainium' and actively sought to reduce his company's dependence on it, as did other automobile manufacturers. The dental industry partially returned to cheaper gold-based alloys.

In the electronics industry, making substitutions wasn't easy at first – the sector was growing so strongly that even when a substitute for one usage was found, demand in other applications continued to expand, forcing the industry to continue its purchasing. But more recently, the sector has begun to slow with the global economic downturn. In their recently released Interim Review, Johnson Matthey forecasts that electronics demand for 2001 will be less than half of last year's.

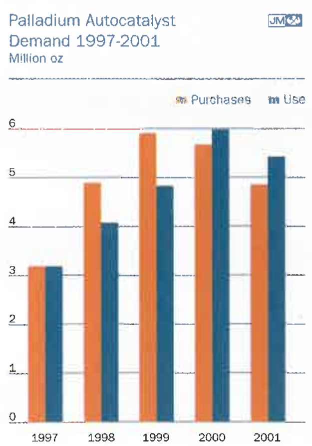
The automotive industry's usage of metal exceeded their purchases during 2000 and 2001 for the first time (see chart). The reason? During the late 1990s, in order to reduce their exposure to the market during periods of extreme tightness, they purchased additional stocks beyond their immediate needs. In 2000 and 2001, they were able to supply part of their needs from their own stockpiles.

For speculators too, palladium lost its lustre. The Tiger Fund cashed out, somewhat prematurely, and not many have been keen to take its place. Volumes remain weak on TOCOM – once a very liquid exchange where 100,000-200,000 ounces might trade in a session – and are even weaker on NYMEX, after margins were raised continually in response to the sharp volatility. And spreads in the open market widened so far that those with business to transact preferred to wait for the twice-daily fixings.

Up in Smoke?

Prospects are mixed for the market next year. JM forecasts the market to move into a surplus in 2001, the first time since 1996. On the demand side, usage of palladium in catalytic converters has fallen sharply, under the combined pressure of substitution/thrifting and the US economic slowdown. But palladium still has a future in autocatalysts: it is the most effective catalyst for reducing hydrocarbon emissions, and limits on these pollutants continue to tighten in the US.

On the supply side, the Russians have recently reiterated that with prices weak, they have no immediate plans to return to the spot market, though they continue to deliver on long-term contracts. However, they may well find it difficult to stay away if revenues from oil sales aren't satisfactory.



The latest application for palladium may be a new cigarette, recently on sale in the US, which claims to use the metal to reduce toxins. But unless one day every cigarette produced contains palladium, the result is unlikely to match even the brief excitement cold fusion once generated. ■

Golden Gate Update

The LBMA Conference, 10-11 June 2002, San Francisco

By Kamal Naqvi, Chairman, Public Affairs Committee

Can investor interest in gold be re-awakened? What are jewellers' views on marketing precious metals? How is rationalisation and consolidation amongst both producers and bullion banks affecting other market sectors? What are the latest developments for precious metals in the electronics industry? What are the implications of falling liquidity for all market participants?

Discussions at recent meetings of the LBMA Public Affairs Committee have sought to identify topics that are provocative and relevant to all the various sectors of the market for the programme of next year's LBMA Precious Metals Conference to be held on 10 and 11 June in San Francisco. The hard work over the coming weeks will be narrowing down which topics will be included in the final programme. There seems to be no shortage of interesting topics – and only one limitation: time!

The annual LBMA Precious Metals Conference has quickly established itself as the premier international conference for our industry, and we are greatly looking forward to building on the successes of our conferences in Dubai (2000) and Istanbul (2001) at next year's conference.

Next year's conference will be held in association with the Gold & Silver Institutes. Along with providing their assistance on the conference program and organisation, the GSI will be running their annual much-enjoyed golf tournament on the Sunday before the conference. There will be more opportunities for networking at the welcome cocktail reception on Sunday evening, and the Conference Gala Dinner on Monday evening.

While we have made considerable progress on the conference programme, we still actively welcome, as always, suggestions from readers of the Alchemist for topics and/or speakers that address the issues of greatest importance to them.

Further details regarding the 2002 Conference will be announced on the LBMA website and in upcoming editions of the Alchemist. In the meantime, note 10-11 June 2002 down in your diaries in advance, as we are already looking forward to what should be a very interesting conference indeed. ■

LBMA News

By Stewart Murray, Chief Executive, LBMA

Membership Changes

Market Making Members

At the request of **Credit Suisse First Boston/Credit Suisse First Boston International**, the company's membership was transferred from the Market Making to the Ordinary category on 12 October 2001. This also meant that the company would withdraw from the London clearing arrangements. CSFB also indicated that it would withdraw from the Gold Fixing.

The Chase Manhattan Bank and Morgan Guaranty Trust Company of New York merged and became known as **JPMorgan Chase Bank** on 10 November 2001.

Ordinary Members

Sogemin (Metals) Ltd changed its name to **Natexis (Metals) Ltd** with effect from 28 June 2001.

Macquarie Bank converted from International Associateship to Ordinary Membership on 11 September 2001.

WestLB is now located at 25 Basinghall Street, London EC2V 5HA. The telephone number is +(44) 20 7020 3921

International Associates

Argor-Heraeus became an International Associate on 1 October 2001.

On 1 November 2001, two new International Associates were accepted: **The Great Wall Gold & Silver Refinery of China** and **Baden-Württembergische Bank AG.**

Good Delivery List

Name Change

China – Gold and Silver

The Gold and Silver Refinery of China changed its name to **The Great Wall Gold and Silver Refinery** with effect from 2 October 2001.

Belgium – Gold and Silver

Union Miniere sa, Business Unit Hoboken has changed its name to **nv Umicore sa**, Business Unit Precious Metals. The marks on the bars remain unchanged.

Committees

Management Committee

The last few months have been an extremely busy period for the Management Committee.

In addition to an interim meeting on 15 October to discuss the ramifications for the market and the Association of the resignation of CSFB as a Market Maker, the Committee has found time to meet for two brainstorming sessions (in September and November). These were held in order to stand back a little from the immediately pressing issues and look at the future development of the market and the ways in which the LBMA should respond.

Apart from discussing the work of the other committees described below, the Committee has made progress in developing an Arbitration Scheme. This will involve the LBMA drawing up a list of suitable arbitrators, consisting of both current and former members of the bullion business with suitable experience to allow them to undertake the role of arbitrating in disputes concerning bullion market products.

The initiative by the Chairman, Martin Stokes, for the LBMA to mark the Queen's Jubilee celebration next year, has also made progress. This involves a jewellery design competition (with a prize of 50 sovereigns), which is open to students in UK design schools. The winning design, which is to be in plain, 18-carat gold and based on a horse-racing theme, will be made up for presentation to Her Majesty. An associated reception is being organised at Goldsmiths' Hall on the evening of 25 June.

On the regulatory front, the approach of "N2" – the date of 1 December 2001 when the Financial Services and Markets Act (2000) comes into force – has a number of implications for the LBMA. In the first place, the Schedule 43 Listed Institutions document will no longer be published by the FSA, which will instead list authorised companies on its website. There are a number of changes in the membership area which may have to be made as a result. An example is that the LBMA's Articles require a Market Maker to be a "Listed Institution" – a term which will cease to have a legal meaning on 1 December. Modifications to the LBMA's membership application forms have also been made as a result of the changes. Another subject which has been discussed in the light of the approach of "N2" is the possible preparation of an LBMA Rule Book. In late-1999, several draft chapters of a rule book were considered by the Committee but it was decided to put this subject on the back burner until the new regulatory system was firmly in place. In the intervening two years, the landscape in this area has changed considerably with the publication, firstly of the FSA's Inter-Professional Chapter, secondly, of the Non-Investment Products Code (co-ordinated by the Bank of England, but in which the Management Committee played a key role) and finally, of the LBMA's own Guide to the London Bullion Market. The Committee has therefore been debating the need for, and possible content of, a rule book in the new environment.

Physical Committee

In recent months, discussion within the Physical Committee has centred on the future of the Good Delivery System and the desirability of introducing some method of monitoring the quality of bars produced by companies on the List. It is likely that a working seminar will be held in the early months of the New Year at which Members and Associates will be able to debate various ways of implementing this idea.

Membership Committee

The main role of the Membership Committee is, of course, to vet applications for membership and, as can be seen from the above list, this has involved more than an average amount of work on its part during the past few months. But as John Coley's editorial indicates, the Committee has been busy with another project, namely a comprehensive review of the structure of, and the criteria for, LBMA membership. Some initial recommendations from this review have already been considered by the Management Committee. As a result, it has been decided (subject to approval at an EGM) to modify the requirements for Associateship, so as to allow companies which provide services to the bullion market, such as assayers, to join the LBMA, regardless of location.

Public Affairs Committee

The PAC continues to devote much of its time to planning next year's Conference, but it has also been discussing the other main LBMA events on the calendar – the annual social event on 7 February (this year taking the form of a Chinese New Year party) and the Biennial Dinner which will take place in Goldsmith's Hall on 29 October 2002. The Committee has been debating the question of the LBMA's approach to public relations and the extent to which it should take a pro-active stance – by commenting on matters of current interest, as opposed to responding to requests from the media for briefings or factual information on the market.

Finance Committee

As usual at this time, the Finance Committee has been busy preparing the Budget for the coming year, which was submitted to and approved by the Management Committee at its November meeting. Drafting the budget is never an easy task, but it was made especially difficult this year given the uncertainties involved in forecasting income and expenditure for activities such as the Conference and maintenance of the Good Delivery List.

Committee Membership and Officers

The LBMA's Articles of Association specify that the elected members of the Management Committee must include representatives of five Market Makers and three Ordinary Members. As a result of the decision by CSFB to transfer to Ordinary Membership, Kevin Crisp therefore resigned as a member of the Committee and also as Vice-Chairman. Other changes stemming from CSFB's decision were the resignations of its representatives on the Public Affairs, Physical and Membership Committees (Emma Jenkins, Neal Johnson and David Corcoran respectively). The LBMA has been very well served by all of the above and their time, energy and input to our work is much appreciated. The same applies to Simon Ford, the head of CSFB's bullion business, for the untiring support he has given the LBMA since arriving in London some three years ago.

At the invitation of the Management Committee, Simon Weeks of Scotia-Mocatta agreed to be co-opted onto the Committee on 16 October. At its meeting in November, the Committee unanimously elected Clive Turner of NM Rothschild to the Vice-Chairmanship.

Following the advertising within the membership of the vacancies on the other committees, Oliver Beane of HSBC has joined the Public Affairs Committee and James Morrison has joined the Membership Committee. Our thanks to them for offering to contribute their experience and knowledge to the work of the LBMA – and our thanks also to the other candidates who put themselves forward for consideration. ■

The LBMA Christmas Party Celebrate the Year of the Horse

Following on from the successful Burns Night in January this year, next year's "Christmas party" will coincide with Chinese New Year and will take the form of a Chinese New Year party. Chinese food and entertainment -- including a lion dance, traditional folk dancing and magic - will be provided. In addition, there will be an opportunity for participants to contribute to the entertainment in the form of a karaoke competition (with a first prize of a gold sovereign).

The event will take place at the China City Restaurant in White Bear Yard, 25A Lisle Street on the evening of 7 February 2002.

Ticket prices for staff of LBMA members will be £20.00. A limited number of places will be available for non-members from organisations closely related to the bullion market.

Further details will be circulated to members in the near future. Please contact the LBMA Executive or look at the events section of the website for more information.

DIARY OF EVENTS

NOVEMBER 2001

November 25-26
New Opportunities Conference
San Francisco, CA, USA
Tel: +1 305 669 1963
Fax: +1 305 669 7350
E-mail: johnpanaro@iiconf.com
Web: www.iiconf.com

November 26-27
NewGenGold 2001 – Case Histories of Discovery
Perth, Western Australia
Tel: + 61 8 8130 6307
Fax: +61 8 8379 4634
E-mail: newgengold@amf.com.au
Web: www.newgengold.com

November 27-29
10th Shanghai Metal Expo
Shanghai, China
Tel: +852 2511 7427
Fax: +852 2511 9692
E-mail: cp@cpexhibition.com

DECEMBER 2001

December 3-7
NorthWest Mining Association 107th Annual Meeting and Convention
Spokane, WA, USA
Tel: +1 509 624 1158
E-mail: patb@nwma.org
Web: www.nwma.org

FEBRUARY 2002

February 12-14
Investing in African Mining, Indaba 2002
Cape Town, South Africa
Tel: +1 305 669 1963
Fax: +1 305 669 7350
E-mail: johnpanaro@iiconf.com
Web: www.iiconf.com

February 24-27
SME Annual Meeting & Exhibit
Phoenix, AZ, USA
Tel: +1 303 973 9550
Fax: +1 303 979 3461
E-mail: sme@smenet.org

MARCH 2002

March 4-9
18th Biennial Alaska Miners Conference
Fairbanks Alaska, USA
Tel: +1 907 458-8951
Fax +1 907 458-8511
E-mail: bundtzen@mosquitonet.com

March 10-13
Prospectors & Developers Association of Canada Annual Convention
Toronto, Ontario, Canada
Tel: +1 416 362 1969
Fax: +1 416 362 0101
E-mail: hsklarz@pdac.ca.

March 25-28
MinTEK 2002
Moscow - Russia
Tel: +44 (0) 20 7596 5213
Fax: +44 (0) 20 7596 5128
E-mail: oleg.netchaev@ite-exhibitions.com
Web: www.ite-exhibitions.com/ind

APRIL 2002

14-16 April
Australian Gold Conference
Melbourne Convention Centre
Melbourne, Victoria
Tel: +08 9226 3280
Fax: +08 9226 1544
Email: enquiry@conference.australiangold.org.au

28 April-1 May
CIM Annual Conference & Tradex Mining Exhibition
Vancouver, Canada
Tel: +1 514 939 2710
Fax: +1 514 939 2714
E-mail: smajor@cim.org

Editorial

Editorial Comment by John Coley, Chairman, Membership Committee

As it has been some time now since the categories and criteria for membership in the LBMA were set up, the Management Committee earlier this year asked the Membership Committee to review the subject.

While the market has evolved in many ways over the years, the number of members in the LBMA has generally remained stable: some have stepped down, but others have stepped up to the plate. Furthermore, with a steady increase in the number of International Associates since the category was introduced last year, the LBMA now represents the whole spectrum of gold and silver business worldwide.

While recognising the need to be as inclusive as possible in admitting new companies to the membership, it is nonetheless vital to ensure that those companies admitted have the appropriate experience and capacity to contribute to the strength of the market.

International Associates

A primary area of discussion has focussed on the increasing internationalisation of the market and the role of London and the LBMA within the global market.

Many houses have been centralising their operations, and as the world's clearing centre, London has been the location of choice for many headquarters. As a result of this centralisation, an increasing volume of offshore business is actually controlled through London members, even though the physical metal may never come anywhere near London.

Perhaps having the word International in the International Associate category has implied that the LBMA is not an international organisation itself. To re-style that category simply as *Associate* would not be playing with semantics. It would allow companies within the UK to join the Association – companies which otherwise not be eligible to apply as Ordinary Members.

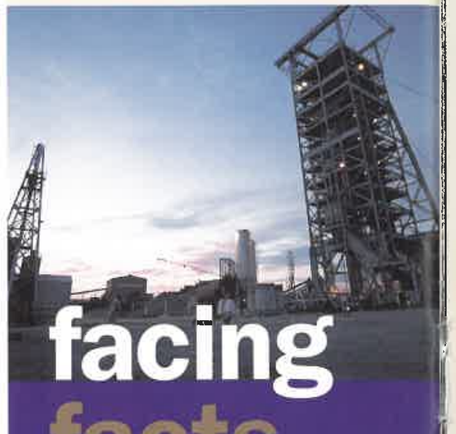
Market Makers

Another important area for discussion has been the criteria for inclusion and retention of Market Making status. The health of the market depends on having a group of active and committed Market Makers who are willing to quote each other and their customers promptly for the full range of metals and products involved in the London bullion market. Their role as the providers of liquidity is an essential element in the market.

The question of setting down some of these criteria in a rulebook has also been discussed at length. The toughest aspect is finding a balance that covers the important points ... is not overly restrictive ...and does not make unreasonable demands on existing or potential members. Among the subjects that might be included are:

- Can a Market Maker be located outside London – perhaps even on the other side of the world – as long as it meets other criteria, including regulatory recognition, the ability to provide a senior representative in London on demand and market making during recognised London hours?
- Should Market Makers adhere to set trading hours?
- Should a Market Maker be required to quote gold and silver in all three disciplines of spot, forwards and options?
- Should there be a probationary period for new applicants of all categories?
- How should the LBMA police any requirements and what sanctions should the LBMA have with regard to continued participation in any category if rules are not followed?

All these subjects are currently under discussion by the Management Committee, and part of this process includes consultation with existing Members and International Associates, whose views on these questions would be welcomed. Any substantive new recommendations will of course be presented to the Members, either at next year's AGM or at an EGM. But whatever is finally adopted will be done with one thing only in mind – to further strengthen the role of the LBMA in this increasingly international market. ■



facing facts

By Paul Burton
Editorial Director,
World Gold

In the last issue of the Alchemist, this column noted that consolidation of the gold industry had taken a major step forward with the proposed merger of Barrick Gold and Homestake Mining. Well, since August, the rate of consolidation has accelerated and the face of the industry is changing rapidly.

But in any review of the past few months it is difficult not to dwell on the tragic events of September 11, despite the fact that the gold market was only minimally affected. The gold price reaction was rather disappointing and, although the price has seemingly established a higher trading range, there has been some decay from the levels touched in the immediate aftermath of the terrorist attacks.

The US tragedy threatened the industry's premier investment conference, the Denver Gold Group Forum, which was in doubt up until a few days before the early October date. However, all concerned elected to go ahead and, in the event, there was a mood of cautious optimism radiating right through the proceedings.

It was in Denver that the gold producers unveiled plans for a major marketing campaign, the scale of which the gold market has never witnessed before. With the majority of the world's miners set to contribute in an unprecedented way, the level of marketing spend will rival that of the diamond industry – perhaps the most comparable competitor.

Another feature of the Denver gathering was the impact of consolidation within the industry. Much of the corporate activity in play at the moment is focused on the Australian goldfields, although there are new alignments seeking to revive the fortunes of South Africa's Free State mining region.

Following hot on the heels of Barrick's bid for US producer Homestake, AngloGold, the world's largest gold producer, announced that it had made an offer for Normandy Mining, Australia's largest producer.

AngloGold's proposed A$3.2 billion (US$1.6 billion) all-share takeover offer for Normandy will, if successful, increase AngloGold's output by almost one third to 9.1 Moz/y, giving it control of around 11% of worldwide gold mine production.

More importantly, perhaps, a successful acquisition will reduce AngloGold's dependence on its domestic reserve and resource base in South Africa from around 67% of the group's total production to nearer 50%. It would also make it the largest producer in both Australia and Africa, while significantly enhancing the group's presence in North and South America.

At the beginning of 2001 the biggest producers in Australia were Normandy, Homestake and WMC. By the end of the year the first two are almost certain to be replaced by AngloGold and Barrick (who will be joint owners of the Superpit) WMC will have exited the gold business and two new majors will have been formed as a result of mergers.

WMC put its gold assets on the market some months ago and most major gold producers conducted due diligence on them. In the end, South Africa's Gold Fields outbid Placer Dome for the St. Ives and Agnew gold operations, in Western Australia, in a cash and share deal worth US$232 million, plus a contingent royalty. The St Ives operation, 80 km south of Kalgoorlie, produced more than 408,000 oz of gold in the year to December 2000. Agnew, meanwhile, was WMC's second largest producer with almost 210,000 oz of gold in 2000.

As flagged in the previous Alchemist, Delta Gold and Goldfields have agreed terms for an all-share merger of their companies. Such a move will create one of Australia's largest gold producing companies, with a market capitalisation of around A$825 million (based on prices immediately prior to the announcement) and output of just over one Moz/y.

It will also establish the merged company as the major player in the greater Kalgoorlie area, after the Superpit owners. Reinforcing this is the fact that Goldfields has just completed the purchase of the old Centaur Mining operations from its receivers, further consolidating the near-Kalgoorlie operations. (Centaur's Mt Pleasant produced around 145,000 oz/y of gold before it closed).

Also in Western Australia, Sons of Gwalia has reaffirmed its interest in the gold sector with the acquisition of fellow gold miner PacMin Mining, a subsidiary of TeckCominco. This combination will create another large gold producer with an estimated output of 650,000-700,000 oz in the 2001/02 financial year.

Smaller deals are also rationalising the gold scene in Australia, with Croesus Mining proposing to buy WMC's 50.5% interest in Central Norseman and Normandy NFM making a bid to take over New Zealand-based Otter Mines.

The South African involvement in all this activity is not restricted to AngloGold and Gold Field. Harmony is an active participant: it has held a strategic interest in Goldfields for almost two years and earlier this year bought New Hampton Goldfields. Harmony recently decided to take a 31.1% interest in Victorian miner Bendigo Mining – with an option to increase this to 50.1%.

Harmony's 23% stake in Goldfields, which would dilute to just under 10% given the Delta move, is now regarded as non-core, but it is emerging as a central bargaining chip in a restructuring of South Africa's Free State goldfields, where AngloGold and Gold Fields are also involved in plans to redraw the corporate boundaries.

Harmony's roots lie in its eponymous Free State mine, whereas AngloGold and Gold Fields are looking to divest themselves of a number of their problematical operations in the area.

At the moment there is significant activity as Harmony tries once more to establish a dominant position in the Free State by seeking to acquire four AngloGold mines, with opposition coming from a black-led consortium. The consortium, which has mischievously also made a bid for Harmony, includes JCI Gold, whose global masterplan was thwarted by Harmony in 2000. In a different approach to its mid-2001 overture to AngloGold, Harmony has teamed up with independent black producer African Rainbow Minerals in a 50/50 joint venture.

Meanwhile, Harmony has secured an undertaking from Gold Fields that gives it an exclusive option to bid on the latter's St Helena and Oryx gold mines. In return, Harmony has given Gold Fields exclusive rights to negotiate for 19% of the 23% interest that it holds in the Australian Goldfields.

If that wasn't complicated enough, surprise entrant Thistle Mining, from Canada, has just reached agreement with President Steyn Gold Mines to acquire its operations just to the north of the Harmony/AngloGold block.

So, in both Australia and South Africa, there are initiatives designed to bring about much-needed consolidation of mining camps. ■

The *Alchemist* is published quarterly by the LBMA. For further information please call Susanne M. Capano, Editor, Stewart Murray or Andrea Smith
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