

Looking for new opportunities in high-grade gold

When the market is boring with no momentum and there is no reason to buy, share prices will drift lower (a polite way of saying "fall"). Why buy today when you can buy it cheaper next week? That is the market we are seeing at present. Motivation and enthusiasm are at low ebbs. In the absence of a new thematic to stimulate activity, we will probably drift through June and into July without much ado.

Whenever the market goes through quiet periods, especially those that come out of an extended slide like we have seen this year, the traders focus on new stories without the headwinds of stale bulls.

With this in mind we have been working on a new very-high grade gold company with three promising projects in Colombia. Andean Mining Corporation is undertaking a \$1m seed raising ahead of achieving ASX-listing in the subsequent months. What really appeals to us is the analogue with the Buritica Gold Mine that started out from a similar position back in 2010, with a 30 tpd pilot plant, then grew to be purchased by Zinjing for A\$1.5Bn. That mine is now being expanded to a capacity of 400,000 oz p.a. The opportunity to get onto a similar growth path is certainly very enticing in a speculative way. Click [here](#) to learn more.

Apart from that there is a bit more colour on Xantippe's Argentinian lithium brine project and a discussion on the greening of the concrete and steel sectors.

1. Xantippe is well-positioned in lithium

Our previous note on Xantippe (XTP) referred to the management experience but only briefly mentioned the merits of the Carachi Pampa Lithium Project, located in the Catamarca Province of Argentina. This is inside the world-renowned Lithium Triangle in South America that covers areas of Argentina, Chile and Bolivia.

Carachi comprises 21,900 ha at an altitude of around 3,000m in the region that includes the Hombre Muerto Salar, where a US\$840m lithium mine is being developed by the Korean multinational corporation POSCO. Livent Corporation has been producing lithium in the southwest part of Hombre Muerto for over 25 years. Also, Allkem Resources has a large development stage lithium project in the southern part of Hombre Muerto Salar.

Notably, Xantippe's Carachi Project covers about 30% of the same salar that saw Lake's market capitalisation lift to more than \$2bn, at its high. To date, Xantippe's share price bears no reflection to the potential re-rating that could be achieved upon the completion of successful exploration programmes.

The market wants to see technical data before embracing the story. Grades can vary significantly from one location to the next, in the same salar, so one should not assume continuity without drill data and test work to back up expectations. The dynamics of a salar need to be understood, taking into account factors such as weather,

topography and hydrology as well as recording grade distribution and the presence of contaminants.

In 2022, before the appointment of the existing technical team, XTC drilled two holes that only went to approximately 200m in vertical depth. Given that the target zone is really 200 to 750m depth, these holes were not an effective test of the brine resource potential. About all they determined was that there are fresh water aquifers. So, shareholders were none the wiser. Nevertheless, it is useful to be aware of the fresh water that may be available for a processing operation.

Proposed work program

XTC has applied for a drilling permit in the spring season that will involve drilling up to six RC and diamond drill holes, with at least two of them reaching vertical depths of 650m. The permeability of the geology will be observed and transmissivity tests will provide information on how the brines can move in the formation. By November, the Company will have a lot more information, and this will enable a concept level study by the end of the year.

Grades that are in the range of 200-700mg/L are typically seen as being commercial, but they must be assessed in conjunction with levels of contaminants. These have a significant bearing on the suitable process to be used. Low grades with low contaminant levels may be acceptable for a commercial development.

If XTC can report grades in excess of 200 mg/L, it opens the door for 80% lithium recovery using the innovative Lilac Solutions ion-exchange methodology (being used on the adjacent Kachi ground). (See below).

The Bottom Line

Xantippe is a well-positioned speculative lithium brine company at the start of the journey, hence its low market capitalisation relative to other, more advanced companies in the sector. A re-rating will be dependent upon improved information flow that will first come from a drilling program in a few months time. Like most other forward looking stories in the market place today, it is always a question of how long to waiting before taking a position. Once taken, it is then a matter of waiting, and hoping that the exploration results will reward one's patience. Momentum traders will try and fine tune their entry point, but there is no accounting for what news flow may come out of left field, independent from scheduled exploration programs.

The experience and the competency of the technical team provides a comfort factor that is also independent of news flow.

Disclosure: Interests associated with the author owns shares in Xantippe Resources

2. Lilac Solutions Lithium Recovery Process

Lilac has developed and patented a new ion exchange technology to extract lithium from brines without the need for evaporation ponds. Its technology protects the environment while accelerating project development, increasing recovery, and yielding a high-purity product.

Lilac produces its ion exchange beads and delivers these beads to brine projects. The beads are loaded into tanks, brine is flowed through the tanks, and as the brine percolates through the beads, the beads absorb lithium out of the brine. Once the beads are saturated with lithium, hydrochloric acid is used to flush out the lithium, yielding lithium chloride. The lithium chloride is then processed on-site with conventional process equipment to yield a finished product. The product – lithium carbonate or lithium hydroxide – will be sold to battery makers.

In April 2023, Lilac announced that it had produced 2,500 kg of lithium product at Kachi, adjacent to XTC's ground. This was the first successful use of ion-exchange in South American salar lithium projects, thereby unlocking the commercial development of a new, large supply of lithium.

3. Carbon capture, utilisation and storage (CCUS)

While many industries and sectors are looking to reduce CO₂ emissions, some will find the task to be technologically challenging and only a partial solution. CCUS has been quoted as a possible method of achieving clean energy transitions but this has its own raft of challenges. So far there are only 20 commercial CCUS operations worldwide and another 30 being planned.

Costs of CCUS applications can vary considerably, from US\$15-25/t where industrial processes produce concentrated CO₂ streams, to US\$40-120/t for processes emitting dilute gas streams e.g. cement production and power generation. Direct air capture is the most expensive, at US\$140-\$190/t. Add US\$2-14/t for transport and storage costs.

The cement sector creates CO₂ emissions from two main sources. About 30% comes from energy of the heating of the materials. Use of alternative green heat sources is a straight forward affair, but two thirds of the CO₂ comes from the chemical reactions related to the heating of limestone. Addressing this source of emissions is more problematic because of the fundamental dependence on clinker in the cement product. Some sort of capture methodology could be used, but that could add at least 10% to the production costs of cement. You also need to add capital costs for plant modifications, which could be prohibitive and take considerable time to implement.

Judicious use of graphene, as proposed by First Graphene, could be a faster, low cost route to reducing emissions with the benefit of virtually no capital cost. Technological advancements may eventually lead to CCUS being viable, but in the meantime the cement industry can start the journey with graphene. Its benefits will likely be compatible with any progress on the CCUS front.

Disclosure: Interests associated with the author owns shares in First Graphene and the author is a director. Capital raising fees have been received, historically.

4. Greening of concrete will be easier than steel

Both concrete and steel manufacturers around the world are reported to be responsible for approximately 8% of global CO₂ emissions. We know that the addition of graphene can reduce emissions by up to 20% through increased strength and the ability to use less clinker, from the test work being done by First Graphene. June is shaping up as an important month for the company, with a large-scale test being planned alongside the largest cement manufacturer in the UK, producing approximately 2,000 tonnes of graphene-enhanced cement, which will be incorporated into concrete for "real-world" demonstrators. This represents the largest single test application of this wonder material. If it matches expectations, this test could be the door opener for FGR to sell hundreds of tonnes, and eventually thousands of tonnes of graphene each year.

What about recycling cement?

A recent article in The Economist "Back in the Mix" April 29th 2023, referred to a six tonne test of recycled concrete by UK's Material Processing Institute, about to be undertaken. This is claimed to be a zero-emissions product, but it relies on the availability of pre-used concrete to be recycled. Graphene is understood to enhance the quality of this product as well.

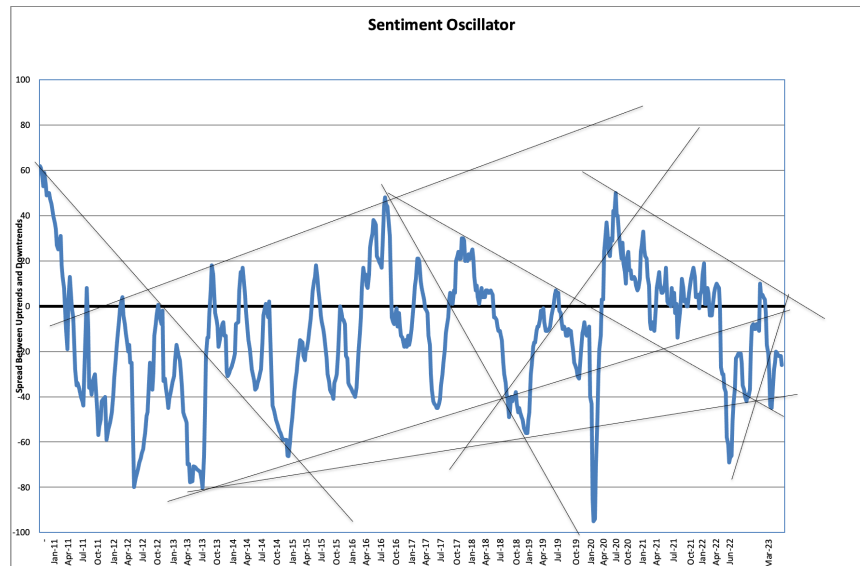
When you consider the benefits, adding graphene to cement and concrete is a sensible, low cost method of cutting carbon emissions. It doesn't require subsidies from governments to make it economic. It will not be the only perfect solution, but it will definitely be an improvement.

Decarbonising steel production is a completely different matter. In the German city of Salzgitter, steel makers are planning to use hydrogen in a direct reduction process that will replace the use of coke in lower temperature furnaces. However, this process consumes 15 times more electricity than coking. Unsurprisingly, it will be much more expensive to use this process and the commerciality depends on government subsidies. Salzgitter's transformation costs will be aided by handouts totalling €1bn. The German Government has announced plans to subsidise 80% of the electricity cost for energy-intensive firms, including for steelmakers, if they pledge to be net zero by 2045.

In Sweden, H2 Green Steel's and Hybrid's new steel plants will between them need nearly as much power as the entire country generates today. They also need purer iron because it doesn't melt fully in hydrogen-powered furnaces. Green is starting to sound horribly expensive. No wonder Morgan Stanley expects the new green steel will cost 20% more, even with subsidies. How is this going affect inflationary trends? It is obvious.

Footnote: Both BHP and RIO spent billions of dollars more than 20 years ago to develop direct reduction processes for making iron, as part of their obligations to the WA Government. Neither company achieved satisfactory outcomes, though the lessons learnt may be relevant to the latest push for green steel.

We have added Jindalee Resources (JRL) and West Cobar (WC1) to our chart coverage.



Sentiment Oscillator: Sentiment was a little softer last week. There were 23% (24%) of the charts in uptrend, and 49% (46%) in downtrend.

Detailed Chart Comments

NB. Only the bold comments have been updated. Comments in grey type are from previous weeks and will be less relevant. Please note that this list is a cross section of the market. It IS NOT a list of recommendations.

Indices	Code	Trend Comment	
All Ordinaries	XAO	falling in a broad triangle	
Metals and Mining	XMM	down	
Energy	XEJ	down	
Information Technology	XIJ	strongly higher	
Stocks	Code	Trend Comment (updated comments in bold)	Main Interest
5EA Advanced Materials	5EA	down	boron
92 Energy	92E	testing downtrend	uranium
A-Cap Energy	ACB	new low	uranium
Alpha HPA	A4N	new high	HPA
Adriatic Resources	ADT	new high	zinc, polymetallic
Advance Metals (was Pacific American)	AVM	back to lows	coal, gold exploration
Alkane Resources	ALK	off its high	gold
Alicanto Minerals	AQI	sideways at lows	base metals, silver, gold
Almonty Industries	All	sideways	tungsten
Altech Chemical	ATC	failing at resistance line	HPA, anodes
Anteotech	ADO	breached downtrend	silicon anodes, biotech
Alto Metals	AME	at lows	gold exploration
American Rare Earths	ARR	breached support line	rare earths
Antilles Gold	AAU	trying to breach downtrend	gold
Anax Metals	ANX	sideways below 8c	copper

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Aratura Resources	ARU	down	rare earths
Ardea Resources	ARL	new low	nickel
Aurelia Metals	AMI	back to lows	gold + base metals
Australian Rare Earths	AR3	heavy correction on placement	rare earths
Arizona Lithium	AZL	new low	lithium
Azure Minerals	AZS	rising again	nickel exploration
BHP	BHP	down	diversified, iron ore
Barton Gold	BGD	resuming uptrend	gold exploration
Beach Energy	BPT	testing resistance line	oil and gas
Bellevue Gold	BGL	off its highs	gold exploration
Benz Mining	BNZ	down again	gold
Black Cat Syndicate	BC8	recapturing uptrend	gold
BMG Resources	BMG	down	gold exploration
Boab Metals	BML	at resistance line	silver/lead
Buru Energy	BRU	sideways	oil
Calidus Resources	CAI	new low	gold
Caravel Minerals	CVV	slump	copper
Carnaby Resources	CNB	testing support line	copper
Castile Resources	CST	still in downtrend	gold/copper/cobalt
Celsius Resources	CLA	rising on takeover bid	copper
Cobalt Blue	COB	down	cobalt
Cyprium Metals	CYM	suspended	copper
Dateline	DTR	back to lows	rare earths
Ecograf	EGR	new low	graphite
Emerald Resources	EMR	rising, new high	gold
Empire Energy	EEG	new low	gas
EQ Resources	EQR	rising	tungsten
Euro Manganese	EMN	down	manganese
Evolution Energy	EV1	softer	graphite
Evolution Mining	EVN	rising	gold
First Graphene	FGR	down	graphene
Fortescue Metals	FMG	testing downtrend	iron ore
FYI Resources	FYI	recovered to meet resistance line	HPA
Galena Mining	G1A	breached uptrend	lead
Genesis Minerals	GMD	down	gold
Genmin	GEN	down	iron ore
Gold Road	GOR	back to support line	gold
Great Boulder Resources	GBR	sideways	gold exploration
Group 6 Metals	G6M	down	tungsten
Hamelin Gold	HMG	uptrend	gold exploration
Hastings Technology Metals	HAS	back to lows	rare earths
Hazer Group	HZR	rising again	hydrogen
Heavy Minerals	HVY	slump back to trend line	garnet
Highfield Resources	HFR	down	potash

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Hillgrove Resources	HGO	slump	copper
Iluka Resources	ILU	still at highs	mineral sands
ioneer (was Global Geoscience)	INR	testing downtrend	lithium
Ionic Rare Earths	IXR	down	rare earths
Jervois Mining	JVR	improving	nickel/cobalt
Jindalee Resources	JRL	at lows	lithium
Kaiser Reef	KAU	sideways through downtrend	gold
Kalina Power	KPO	sideways at lows	power station additive
Krakatoa Resources	KTA	new low	rare earths
Kingfisher Mining	KFM	heavy fall	rare earths
Lepidico	LPD	down	lithium
Lindian Resources	LIN	rising again	rare earths + bauxite
Lion One Metals	LLO	slump	gold
Li-S Energy	LIS	breached downtrend	Lithium sulphur battery technology
Los Cerros	LCL	new uptrend	gold exploration
Lotus Resources	LOT	down	uranium
Lucapa Diamond	LOM	down again	diamonds
Lunnon Metals	LM8	resumed uptrend	nickel
Lynas Corp.	LYC	spike out of downtrend	rare earths
Magnetic Resources	MAU	new low	gold exploration
Mako Gold	MKG	sideways	gold exploration
Marmota	MEU	drifting lower	gold exploration
Matador Mining	MZZ	down	gold exploration
Mayur Resources	MRL	rising	renewables, cement
Meeka Gold	MEK	at lows	gold
Megado Gold	MEG	at lows	rare earths, gold exploration
MetalsX	MLX	down	tin, nickel
Meteoric Resources	MEI	rising again	rare earths
Metro Mining	MMI	still down	bauxite
Mithril Resources	MTH	sideways	gold/silver
Musgrave Minerals	MGV	testing downtrend	gold exploration
Nagambie Resources	NAG	down	gold, antimony
Neometals	NMT	breached downtrend	lithium
Newfield Resources	NWF	down	diamonds
Northern Star Res.	NST	new high	gold
Nova Minerals	NVA	collapse on -.3 gpt grade, 9.9 Moz	gold exploration
Orecorp	ORR	down	gold development
Pacific Gold	PGO	slump back to lows	gold exploration
Pantoro	PNR	new low	gold
Panoramic Res	PAN	down	nickel
Parabellum Resources	PBL	down	rare earths
Patriot Battery Metals	PMT	rising again	lithium
Peak Resources	PEK	on trend line	rare earths
Peninsula Energy	PEN	sideways through downtrend	uranium

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Perseus Mining	PRU		off its highs	gold
Poseidon Nickel	POS		sideways	nickel
Provaris Energy	PV1		down	hydrogen
PVW Resources	PVW		new low	rare earths
QMines	QML		new low	copper
Queensland Pacific Metals	QPM		long term down	nickel/cobalt/HPA
RareX	REE		breached uptrend	rare earths, phosphate
Regis Resources	RRL		rising again	gold
Reergen	RLT		breaching steepest downtrend	gas, helium
Resource Mining Corp.	RMI		strong rally	nickel exploration
Richmond Vanadium	RVT		recovering	vanadium
RIO	RIO		down	diversified, iron ore
Rumble Resources	RTR		secondary downtrend	gold exploration
S2 Resources	S2R		sideways	gold exploration
Sandfire Resources	SFR		breached uptrend	copper
Santos	STO		softer	oil/gas
Sarama Resources	SRR		sideways through downtrend line	gold exploration
Sarytogan Graphite	SGA		down	graphite
Siren Gold	SNG		sideways through downtrend line	gold exploration
South Harz Potash	SHP		down again	potash
Southern Cross Gold	SXG		down	gold exploration
Stanmore Coal	SMR		surge higher	coal
Strandline Resources	STA		down	mineral sands
Sunstone Metals	STM		sideways	gold/copper exploration
Suvo Strategic Minerals	SUV		new low	kaolin
Talga Resources	TLG		down	graphite
Tamboran Resources	TBN		breached downtrend	gas
Technology Metals	TMT		down	vanadium
Theta Gold Mines	TGM		rising	gold
Thor Mining	THR		down	gold exploration
Tietto Minerals	TIE		breached downtrend	gold
Vanadium Resources	VR8		new low	vanadium
Venture Minerals	VMS		down	tin, tungsten
West African Resources	WAF		breaching downtrend	gold
West Cobar	WC1		down	rare earth + lithium
Westgold Resources	WGX		good rally	gold
West Wits Mining	WWI		downtrend breached	gold
Whitehaven Coal	WHC		breached downtrend	coal
Xantippe Resources	XTC		sideways	lithium
Zenith Minerals	ZNC		down	gold exploration
Totals	23%	32	Uptrend	
	49%	70	Downtrend	
		142	Total	

Guides to Chart Interpretations

- Charts usually go pass from one trend (up or down) into the other via a period of indecision and uncertainty during which the trend can either recover or change. This period is signified by the orange colour. The orange represent both the greatest risk and greatest reward possibilities.
- Once a chart is in confirmed up or downtrends it is not uncommon for 10-20% of that trend to have already transpired.
- There are trends within trends. The focus of this chart review is the immediate trend that affects the sentiment i.e. it can be a downtrend within a long-term uptrend.
- Not every chart warrants a new comment every week. The new comments are in bold type. Grey type comments may be dated.
- Individual charts provide a single view. It is valuable to look at charts of other companies in similar commodities, and the overall sentiment is also very valuable. Not many stocks can swim against the tide.
- We periodically add or delete charts, some times for obscure reasons. If a chart consistent gives poor signals or is very erratic, we may delete it. Sometimes we add a chart because we want to see what all the fuss is about. We do have a preference for charting stocks that we cover in our research as well.
- Errors and omissions may occur from time to time, especially in fast moving markets.

Amber Lights in Tables: Just a reminder if when the amber light is used in the table – it is when the charts are ambiguous or when there is a change of trend taking place. If a chart is breaching a downtrend it can either be a positive sign or a trap. Only once it has done more work can it be confirmed as a new uptrend. Maybe it is a new uptrend (or conversely a new downtrend); the risk takers can decide to jump on board early (or sell). They will maximise their profits (or minimise their losses if indeed it is the start of the new uptrend (downtrend). More risk-averse investors should wait a little longer, being prepared to give up some of the gains in return for greater certainty.

Weightings of Sectors Represented in the Company Charts			
Sector	No. of Companies	Weighting	
Gold Exploration	23	16.2%	
Gold	22	15.5%	
Rare Earths	16	11.3%	
Oil/Gas	8	5.6%	
Nickel	8	5.6%	
Copper	9	6.3%	
Lithium	8	5.6%	
Iron Ore/Manganese	5	3.5%	
Graphite/graphene	5	3.5%	
Uranium	4	2.8%	
Silver	4	44.4%	
Tungsten	3	2.1%	
Mineral Sands	2	1.4%	
Vanadium	3	33.3%	
Zinc/Lead	2	1.4%	
Coal	2	1.4%	
Potash/Phosphate	2	1.4%	
Bauxite	2	1.4%	
Tin	2	1.4%	
Cobalt	1	0.7%	

Diamonds	2	1.4%	
Other	9		
Total	142		

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