

## Scandium is back on the radar; Sunrise and Hawk

### *Healthy Gold Correction was Needed*

It may be a small consolation for punters who bought into gold stocks the week before last, and who have seen share prices fall on the correction in the gold price, but we shouldn't be too judgement yet.

The performance of the gold price was starting to get out of hand. Everyone knew that there had to be a correction, and each day of increasing prices made that correction more imminent. It is almost with a sigh of relief that we have seen it happen. The more emotive buyers will be flushed out now and we can get back to the real theme - the structural change in the gold market. We can have a breather while we decide what gold stocks we really want to own.

### *IMARC - Why Conferences are Useful to Me*

On the one hand I am reluctant to be seen as a conference junkie (I don't go for the food), but on the other hand, you can look at a conference as a market meeting place. You run into numerous investors as well as companies and invariably you exchange views, and get a feel for what people are looking for.

Promotion has a key role in moving share prices. If a company has a spot in a conference and is out there pressing the flesh, and they are good presenters, they can simulate interest in their companies. If this leads to on-market buying, their shareholders will be pleased. As far as investors are concerned, there is less likelihood that a company is about to slap out a placement, as is so often the case with "non-deal roadshows".

I don't often sit and listen to ASX sanitised presentations. I would rather have private conversations with companies in which I can pursue specific lines of questioning, and dig deeper. I look for insights and perspectives. Invariably I find new stories, or old stories that have been overlooked. Like everyone else, I look for opportunities but the best ones are often the new stories. A case in point is Hawk Resources (HWK). While that company has been around a long time, it really only came to life a year ago on the back of an interesting copper project in Nevada, USA. Since then there was a game shifter though. Last week, it raised \$5m and it picked up a scandium project in WA.

### *Scandium - always exotic, always a teaser*

I have been keeping an eye on scandium since the 1980s when Danny Hill and companies like Black Range were reporting grades around Fifield in NSW, associated with laterite nickel exploration projects. Since then there have been several iterations of scandium projects being promoted around the world. However, as time passes by and investors learn that the amount of volume of the metal that trades is minuscule, their attention has shifted elsewhere. The obvious criticism is that there is no scalability, despite the theoretical economics. So far it has been like the search for the Holy Grail. However, scandium

is coming back onto the radar with the recent news flow from Sunrise Energy Metals.

### *Geological occurrences*

Scandium is commonly grouped with yttrium and the 15 elements of the lanthanide series, historically regarded as rare earth elements, though I have never thought of scandium as a true rare earth material. It is not considered rare, as it has a geological abundance of around 25 ppm. It is never mined in isolation. It is always a by-product and so the economics of any scandium project will depend upon the economics of the main metals. Primary ore grades are typically 100 ppm, but can be much higher in oxidised ore.

### *Uses of scandium*

Scandium is a strategic, high value rare earth (or 'critical') metal with applications in lightweight aluminium alloys, fuel cells and advanced technologies. It has vital applications in the automotive, aerospace and defence industries. It is used in solidoxide fuel cells to stabilise zirconia electrolytes, enabling next-gen fuel cells to achieve 60–70% electrical efficiency, which is key to decarbonisation efforts. In 5G and 6G networks scandium components improve signal quality and energy efficiency.

### *The scandium market is tiny*

As I said above, the scandium market is very small. In 2024, the global consumption of scandium oxide was estimated to be only 30-40 tonnes with global production capacity being 80 tpa. It is recovered as a by-product from cobalt, nickel, titanium and zircon processing streams. China is a leading producer.

ScaVanger, a French project, is planning to commission a 21 tpa capacity plant in 2026, as a by-product of titanium dioxide pigment production. It will be the first source of scandium production from Europe. The USA currently has no mine production. In Australia, several polymetallic projects are progressing and seeking permitting, financing, and offtake agreements including the Nyngan, Owendale, Sconi, and Sunrise projects.

The price of scandium metal on the Shanghai Metals Market is quoted at over US\$3,000/kg.

### *Sunrise Energy Metals is leading company*

The most notable Australian scandium company is Sunrise Energy Metals (SRL), headed by none other than the legendary Robert Friedland. Its roots go back to the Fifield location in central NSW, when the laterite nickel boom elevated interest in the region, but nothing came of it at the time.

Sunrise's share price has run from \$1.00 in July to reach almost \$6.00 last week, giving a market capitalisation of \$620m. What have been the catalysts?

Back in September Sunrise announced a doubling of its Syerston Mineral Resource Estimate to 19,007 tonnes of

scandium at an average grade of 414 gpt, with a higher grade component of 1,155 tonnes at 600 gpt. The commerciality of this resources has been highlighted by the announcement last week that Lockheed Martin has secured an option to purchase the first 15 tpa of scandium oxide over an initial five year period, subject to formalising offtake terms.

The Syerston Mineral Resource is 30-40m deep and has been tested by over 2,000 drill holes. It covers an area of 4.5 km x 4.2 km. The high grade component forms a halo around the nickel-cobalt mineralisation, appearing in laterites.

The proposed processing circuit involves high pressure acid leaching (HPAL) and calcination to produce scandium oxide, and/or refining to make scandium hydroxide and scandium fluoride before getting scandium metal. A 30 tonne bulk sample has already been run through a pilot plant.

### *Hawk Resources is the latest scandium play*

Hawk has only just decided to join the scandium game. On 17th October, it announced a deal whereby it can earn up to 80% of the Olympus Scandium Project from Opal Resources, in the West Musgrave region of WA. It is actually an option on an option, with the ultimate owner currently being Beau Resources Pty Ltd. The cost to Hawk is a \$210,000 option fee payable to Beau and \$60,000 to Opal, and a low cost sale of unpatented mining claims in Utah, USA.

On the exercise of the option, Hawk will have to pay \$150,000 in cash to Opal, and \$1m in cash/shares/options. Opal will retain a 20% free carried interest until a decision to mine. Various other payments will become due, but you can read the ASX release for details. Due diligence is still being undertaken, so there continues to be an element of transactional risk until DD finishes.

The West Musgrave region is highly regarded for the geology, but more so for nickel, PGMs and copper than gold, with WMC making a few important discoveries at Nebo and other locations. Scandium has been of

secondary interest, up until now. It is in a very remote location and this has impeded exploration in the past, but maybe that means it has been under-explored.

Hawk talks of it being a new scandium province with a 7 km x 4 km soil anomaly at a 500 ppm cut-off based on pre-JORC 2012 pXRF analysis and selected RAB drill intercepts up to 11m at 934 ppm Sc from surface. That means it is early days and a grass roots project. The company was keen to emphasise the strong grade compared to other projects. See the table below that makes interesting reading.

### *Financing*

Hawk placed \$5m at 2¢ at the same time it announced the scandium deal, in a two tranche placement. Those funds account for a substantial proportion of the market capitalisation which is in the range of \$10-15m.

### *The Bottom Line*

Hawk is in the process of bedding down the deal. It has addressed the financing needs with the placement and now it is doing DD, so it is still early to be mentioning the Company. The next step is to get into the field to do its own sampling and complete the due diligence.

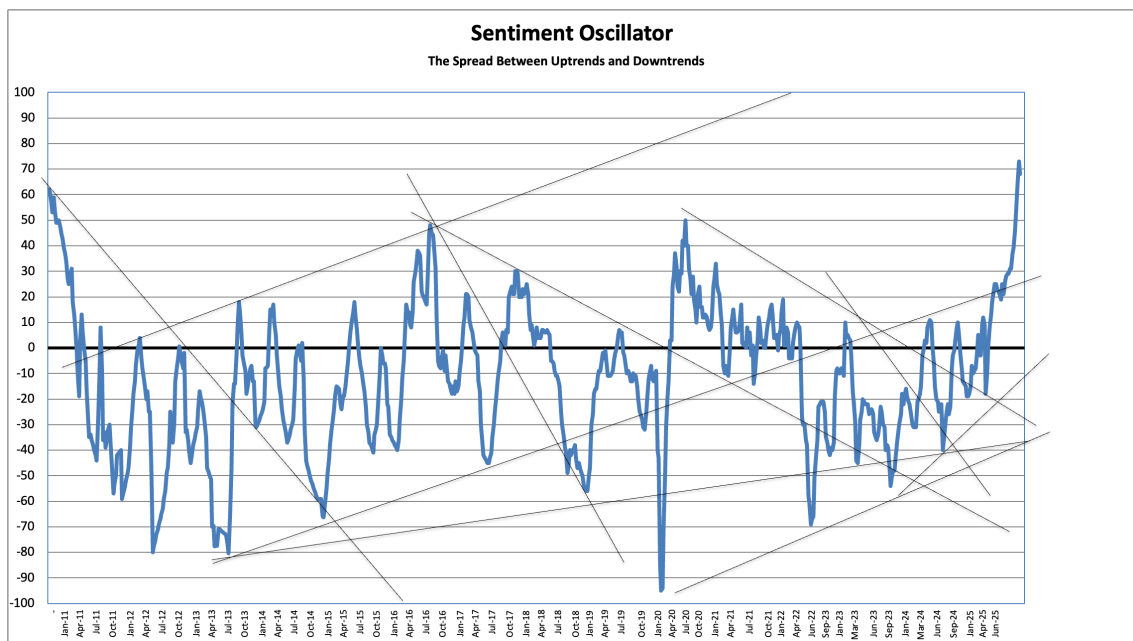
We can take guidance from Sunrise Energy Metals, which has been on the scandium case for a long time. Hawk may gain some collateral benefit from Sunrise opening up possibilities for the commodity and investors. Early explorations results will be important in confirming the credibility of the project.

Hawk offers a speculative, early entry point into scandium with potentially strong share price performance in the offing. All the ducks seem to be lining up in a row for this one. I expect to see some sharemarket action. Hawk still has copper exploration projects in the USA, but we are just focusing on scandium today.

We have added Investigator, Hawk and Sunrise to our charting coverage.

Project	Company	Location	Resource	Status
Syerston	Sunrise Energy Metals (ASX: SRL) <b>Mkt Cap A\$650.2m</b>	Fifield, NSW	51.66Mt @ 408 ppm Sc (300ppm Sc c/o) or <b>1.74Mt @ 665ppm Sc</b> (600ppm Sc c/o)	SRL ASX announcement 9 Sept 2025 update
Owendale	Rio Tinto (ASX: RIO) (Bought from Platina PGM in 2023 for US\$9.0M plus up to US\$6.0M in milestone payments)	Fifield, NSW	35.6 Mt @ 405ppm Sc (300ppm Sc c/o; MI&I) <b>4.0Mt @ 570ppm Sc</b> (450ppm Sc c/o; Reserve)	DFS Dec 2018 Reserve includes <b>2Mt @ 640ppm Sc (550ppm Sc c/o)</b>
Flemington	Australian Mines (ASX: AUZ) (Bought from Jervois Mining) <b>Mkt Cap A\$39.9m</b>	Fifield, NSW	<b>2.7Mt @ 403ppm Sc</b> (0.03% Co c/o)	AUZ ASX 31 Oct 2017; Resource estimate includes 0.101% Co and 0.24% Ni
Avondale & Fifield	Rimfire Pacific Mining (ASX: RIM) <b>Mkt Cap A\$60.4m</b>	Fifield, NSW	<b>3.0Mt @ 240ppm Sc</b> (100ppm Sc c/o) <b>21 Mt @ 125ppm Sc</b> (100ppm Sc c/o)	MRE Sept 2024
Nyngan	Scandium International (TSX: SCY) (Bought from Jervois Mining) <b>Mkt Cap C\$21.3m</b>	Nyngan, NSW	<b>16.9Mt @ 235ppm Sc</b> (100ppm Sc c/o; M&I) <b>1.4Mt @ 409ppm Sc</b> (155ppm Sc c/o; Reserve)	DFS May 2016

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**Sentiment Oscillator:** Sentiment is still very strong, though it came off slightly. Many of the charts that went vertical have eased off quite a bit. A trend needs more than a spike to be sustainable, so maybe there will be quite a few stocks that come off next week. There were 78% (81%) of shares under coverage in uptrend, and only (8%) 10% 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	rising again	
Metals and Mining	XMM	new high, then a pullback	
Energy	XEJ	down	
Stocks	Code	Trend Comment (updated comments in bold)	Main Interest
Agua Resources	AGR	rallying	phosphate, gold
Alkane Resources	ALK	new high	gold
Alicanto Minerals	AQI	spiked higher	base metals, silver, gold
Alligator Energy	AGE	pullback	uranium
Almonty Industries	All	surge to new high	tungsten
Alpha HPA	A4N	down	HPA
American Rare Earths	ARR	spiked higher	rare earths
Anax Metals	ANX	rising again	copper
Andean Silver	ASL	rising again	silver
Arafura Resources	ARU	surge to new high	rare earths

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Ardea Resources	ARL		rising	nickel
Ark Mines	AHK		new high	rare earths
Astral Resources	AAR		new high	gold
Aureka	AKA		spiked higher	gold exploration
Auric Mining	AWJ		rising	gold
Aurora Energy Metals	1AE		spiked higher	uranium
Aurelia Metals	AMI		recovering	copper + base metals
Aurum Resources	AUE		rising	gold
Australian Gold and Copper	AGC		rising	base metals, silver, gold
Australian Rare Earths	AR3		heavy slump	rare earths
Australian Strategic Materials	ASM		heavy slump	rare earths
BHP	BHP		breached downtrend	diversified, iron ore
Ballard Mining	BM1		rising	gold
Ballymore Resources	BMR		rising	gold exploration
Barton Gold	BGD		rising again	gold exploration
Beach Energy	BPT		at resistance line	oil and gas
Beetaloo Energy	BTL		strongly higher	breached down trend
Bellevue Gold	BGL		higher	gold
Besra Gold	BEZ		spiked higher	gold
Black Cat Syndicate	BC8		spiked higher	gold
Boab Metals	BML		spike then a placement	silver/lead
Brazilian Rare Earths	BRE		new high	rare earths
Brightstar Resources	BTR		rising	gold
Caravel Minerals	CVV		testing downtrend	copper
Carnaby Resources	CNB		rising	copper
Castile Resources	CST		rising	gold/copper/cobalt
Catalyst Metals	CYL		surge higher	gold
Cazaly Resources	CAZ		gentle uptrend	rare earths
Centaurus Metals	CTM		rising	nickel/cobalt/HPA
Challenger Gold	CEL		surge higher	gold
Cobalt Blue	COB		spiked higher	cobalt
Cyprium Metals	CYM		higher	copper
Emerald Resources	EMR		back to highs	gold
Emmerson Resources	ERM		new high	gold
EQ Resources	EQR		spiked higher	tungsten
Estrella Resources	ESR		down	manganese
Evolution Mining	EVN		new high	gold
Felix Gold	FXG		steep rise	gold exploration, antimony
Finder Energy	FDR		spiked to new high	oil/gas
First Graphene	FGR		new high	graphene
Flagship Minerals	FLG		spiked higher	gold
Genesis Minerals	GMD		surge to new high	gold
Globe Metals and Mining	GBE		off its highs	niobium
Gold 50	G50		surge higher	gold exploration + gallium

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Golden Horse	GHM		rising	gold exploration
Great Boulder Resources	GBR		steeply higher	gold exploration
Green360 Tech	GT3		rallying	kaolin
Hamelin Gold	HMG		down	gold exploration
Hawk Resources	HWK		rising	scandium
Heavy Minerals	HVY		new high	garnet
Hillgrove Resources	HGO		weaker	copper
Iltani Resources	ILT		spiked higher	antimony
Iluka Resources	ILU		strongly higher	mineral sands
Investigator Resources	IVR		rising	silver
Jupiter Mines	JSM		improving	manganese
Kairos Minerals	KAI		rising	gold
Kaiser Reef	KAU		new high	gold
Kalamazoo Resources	KRZ		rising	gold
Kalina Power	KPO		good rise	carbon sequestration
Koba Resources	KOB		steep rise	uranium
Larvotto Resources	LRV		return to highs	gold, antimony
Lindian Resources	LIN		rising	rare earths + bauxite
Lotus Resources	LOT		rising again	uranium
Lynas Corp.	LYC		rising again	rare earths
Many Peaks	MPK		down	gold exploration
Marmota	MEU		higher	gold/uranium exploration
Matsa Resources	MAT		strongly higher	gold
Mayur Resources	MRL		sideways	renewables, cement
Meeka Gold	MEK		at highs	gold
MetalsX	MLX		new high	tin, nickel
Meteoric Resources	MEI		new high	rare earths
Metro Mining	MMI		rising again	bauxite
Midas Minerals	MM1		new high	lithium
Native Mineral Resources	NMR		down	gold
New Murchison	NMG		rising	gold
New World Resources	NWC		rising	copper
Nexgen Energy	NXG		rising again	uranium
Northern Star Res.	NST		rising again	gold
Nova Minerals	NVA		heavy fall	gold exploration
Novo Resources	NVO		spike higher	gold exploration
Omega Oil	OMA		rising	oil
Pacific Gold	PGO		spiked higher on gold acquisition	gold exploration
Paladin Energy	PDN		breached downtrend	uranium
Pantoro Gold	PNR		higher	gold
Patriot Battery Metals	PMT		pullback	lithium
Peninsula Energy	PEN		steep rise	uranium
Perseus Mining	PRU		new high	gold
Prairie Lithium	PL9		new low	lithium

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QMiners	QML		rising	copper
Queensland Pacific Metals	QPM		rising	nickel/cobalt/HPA
Regis Resources	RRL		rising	gold
Renegen	RLT		pullback	gas, helium
Revolver Resources	RRR		rising	copper
Richmond Vanadium	RVT		down	vanadium
RIO	RIO		rising	diversified, iron ore
RTG Mining	RTG		improving	copper
Rumble Resources	RTR		rising	zinc exploration
S2 Resources	S2R		sideways	gold exploration
Santana Minerals	SMI		rising	gold
Santos	STO		slump	oil/gas
Sarytogan Graphite	SGA		sideways	graphite
Scorpion Minerals	SCN		spiked higher	gold exploration
Siren Gold	SNG		spiked higher	gold exploration
Southern Palladium	SPD		spiked higher	PGMs
Stanmore Coal	SMR		improving	coal
St George Mining	SGQ		rising again	rare earths, niobium
Stellar Resources	SRZ		strongly higher	tin
Sun Silver	SS1		higher	silver
Sunrise Metals	SRL		rising	scandium
Talga Resources	TLG		down	graphite
Tamboran Resources	TBN		rising	gas
Terra Uranium	T92		higher	uranium
Theta Gold Mines	TGM		rising again	gold
Toro Energy	TOE		spiked higher	uranium
Torque Metals	TOR		down	gold exploration + lithium
Toubani Resources	TRE		new high	gold
Trigg Minerals	TMG		spiked higher	antimony
Verity Resources	VRL		sideways	gold
Vertex Minerals	VTX		breached downtrend	gold
Waratah Minerals	WTM		off its highs	gold exploration + gallium
Westgold Resources	WGX		new high	gold
West Wits Mining	WWI		rising	gold
Whitehaven Coal	WHC		breached uptrend	coal
White Cliff Minerals	WCN		down	copper exploration
WIN Metals	WIN		spiked higher	gold
Yandal Resources	YRL		new high	
Totals	78%	106	Uptrend	
	10%	13	Downtrend	
		136	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	36	26.7%	
Gold Exploration	18	13.3%	
Copper	14	10.4%	
Rare Earths	11	8.1%	
Uranium	10	7.4%	
Oil/Gas/Hydrogen	7	5.2%	
Iron Ore/Manganese	4	3.0%	
Lithium	2	1.5%	
Graphite/graphene	3	2.2%	
Nickel	3	2.2%	
Silver	4	3.0%	
HPA/Kaolin	2	1.5%	
Tungsten	2	1.5%	
Tin	2	1.5%	
Antimony	3	2.2%	
Coal	2	1.5%	
Niobium	2	1.5%	
Potash/Phosphate	1	0.7%	
Vanadium	1	0.7%	
Zinc/Lead	1	0.7%	
PGMs	1	0.7%	
Mineral Sands	1	0.7%	
Bauxite	1	0.7%	
Cobalt	1	0.7%	
Other	3	2.2%	
Total	135		



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