## Finding and funding copper

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# "Remember...exploration is not only a scientific and technical enterprise but foremost an investment."

Walter L Pohl *Economic Geology, Principles and Practice* p.417





#### Introduction

#### **Finding Copper**

- Exploration has to be viewed as an investment
- Location is key

#### **Funding Copper**

- The problem have copper, need money
- Different deposits need different strategies

Conclusion – the best place to find copper is...



#### Introduction

#### Copper remains one of the most sought after metals because:

Large gap between apparent cash costs and copper price



New copper jurisdictions opening up



Advancements in mining & processing technology make niche copper deposits more interesting



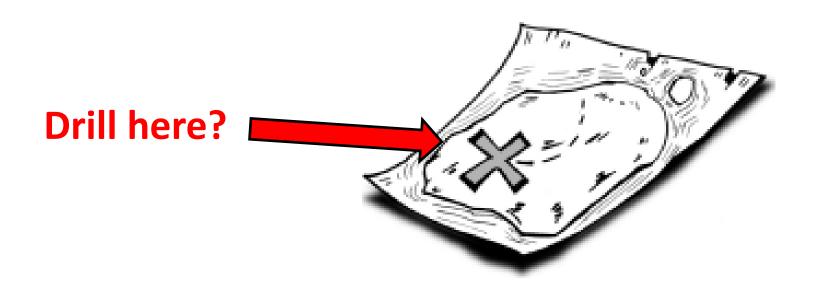
Brownfield exploration offers some easy-wins







## So how do you find copper?







## **Exploration is an investment**

#### To mitigate investment risk, choose the best location



Exploration target jurisdiction has to clear hurdles (Location, location, location)

- Political
- Infrastructure
- Geological





#### **Political Stability/Security of Tenure**

- Current hot topic. As yet, no real clarity.
- Security of tenure is a big issue, particularly for larger scale projects
- To encourage investment countries need to have consistency

#### Infrastructure

- In many instances infrastructure is of equal importance to the geology of an ore body.
- Will the project still generate an overall profit with a large infrastructure cost?





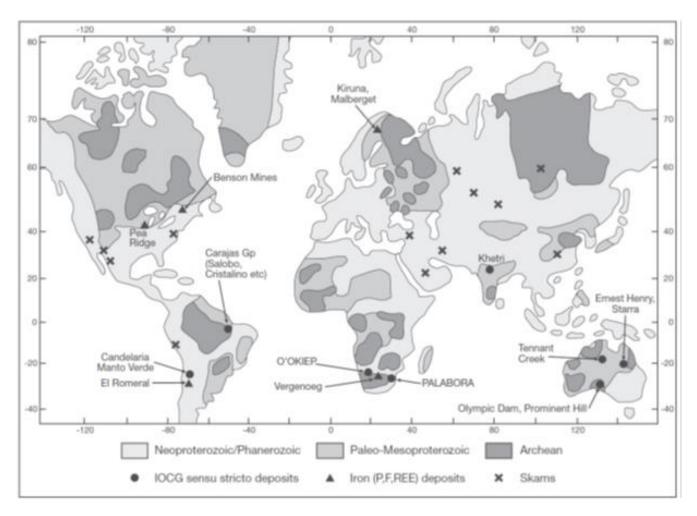
### **Geological**

What type of copper project are you looking for?

- Large Scale Deposit Porphyries, IOCG
- Mid-Scale Deposit with Good Grade Mantos Type, Skarn Copper Deposits
- Smaller Scale with High Grade Volcanic Massive Sulphides



## **IOCG Deposits**



Groves et al (2010)<sup>1</sup> – n.b. Palabora a carbonatite





## **Porphyry Deposits**

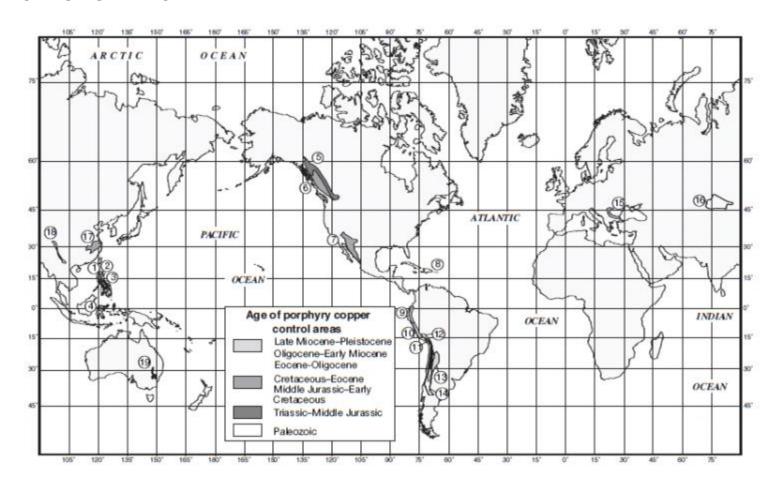
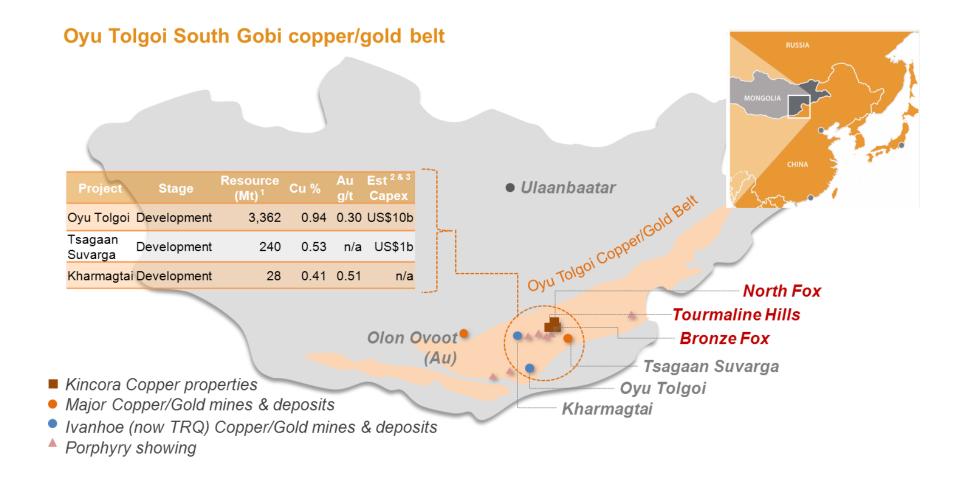


Fig. 1. Locations of selected perplyry copper control areas around the world. Numbers of the control areas are keyed to Tables 1 and 3.

Singer & Berger (2005)<sup>2</sup>











## **Sedimentary copper projects**

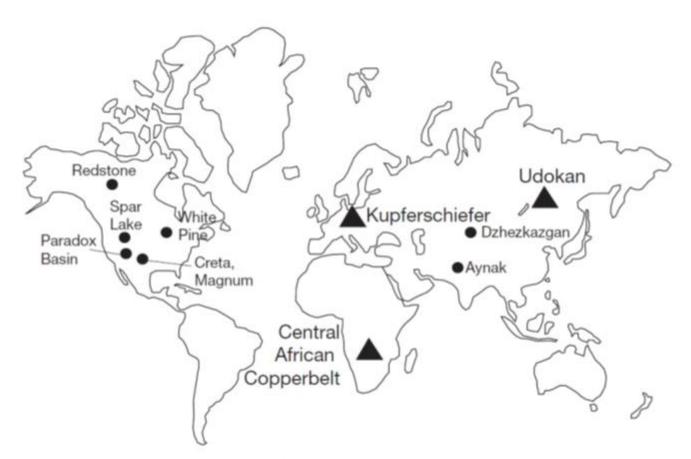


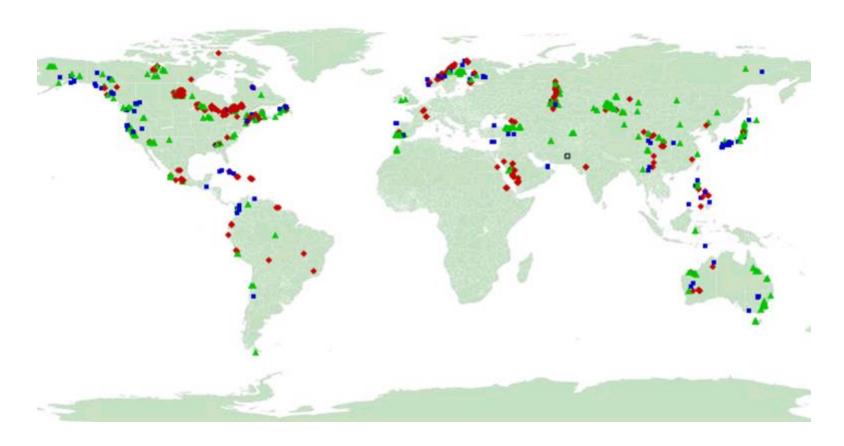
Fig. 1. Map of the world showing the location of the sedimentary rock-hosted stratiform copper districts and deposits mentioned in the text.

Hitzman, Selley & Bull (2010)<sup>3</sup>





## **Volcanogenic Massive Sulphide projects**



Source: USGS<sup>4</sup>





#### **Chile – Demonstrates Location Advantages**

Abundance of mineralisation is a great advantage but insufficient to ensure returns on exploration investment.

Empirical research carried out by Dogget & Leveille<sup>5&6</sup> demonstrated returns on exploration on exploration are greater for projects in Chile.

- ✓ Politically stable
- ✓ Good infrastructure
- ✓ Abundant Mineralisation
- ✓ Encourages foreign investment

Where's the next Chile?





## **Project Location Chosen, What Next?**



#### **Exploration Tool Kit**

#### **Grass Roots Stage**

- Regional desktop study is it in the right area?
- Ad hoc grab sampling
- · Basic field mapping



- Wild Cat drilling
- Bring in the black box surveys <u>must be used in combination with other exploration techniques</u>
  - Induced Polarisation
  - Gravity
  - VTEM
  - Titan

#### **Resource Drilling**

- Choose appropriate drill spacings
- Seek independent resource modelling advice
- Take metallurgical samples from an early stage
- Will it the copper minerals float? Are they acid soluble?





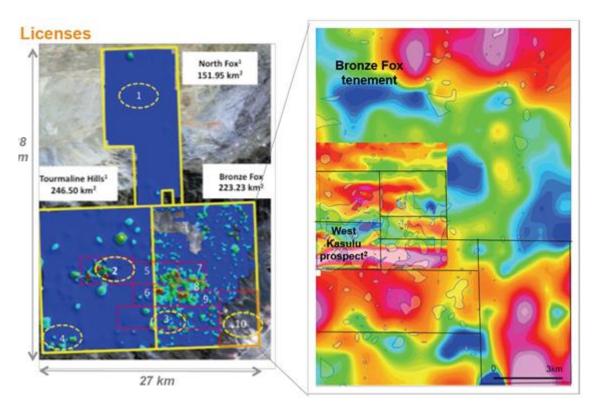


#### Kincora – Case Study

**Desktop assessment** – in very interesting area of large scale copper mineralisation

**Initial drilling** - results have been encouraging including 1,000m intercepts of ~0.3% copper, but no show-stopper holes drilled, yet

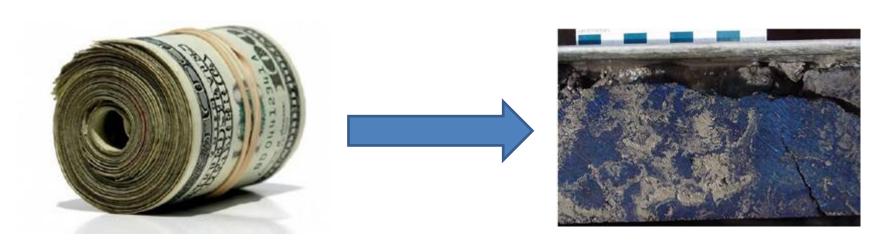
**Early stage geophysical surveys** - have given more detail on the subsurface geology, but looks like broader strokes are required. Company is assessing bringing in deeper IP surveying tools such as Titan to help define porphyry drilling targets



Broad zones of mineralisation seen in latest drill holes:
Hole F62 - 661m at 0.35% copper, 0.16% molybdenum and 0.07g/t gold



## So how do you fund copper?



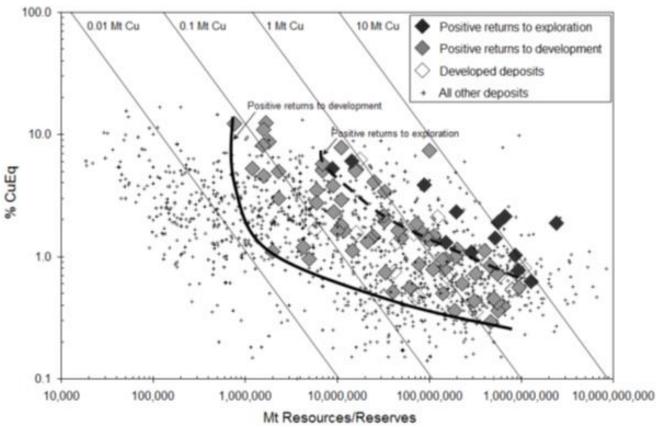
Eye catching drill core from Reservoir Minerals' Bor Project





#### **Match Fund Raising Strategy With Copper Project**

Whether the project is large scale and low grade or relatively small and high grade will effect how you approach potential investors

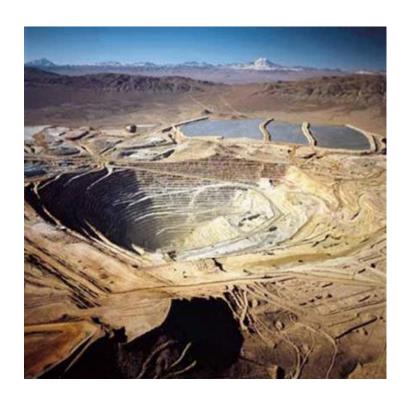






#### **Copper Porphyry Targets**

- Scale differentiates projects
- High exploration costs
- Long time from discovery through to development.
- Often requires strategic partners.
- Large scale of project gives low operating costs but high capex.
- Scale makes porphyry plays attractive to larger investment funds.
- Long delay to capital payback may deter short-term focused investment funds.







#### **Unique Copper Projects**

- Differentiated through unique selling point.
- Usually combined with intellectual property opportunity.
- First mover advantages.
- Technology plays will appeal to most if the process is relatively simple.
- Previously sub-economic projects will appeal to most investment companies if the development risk is relatively small (i.e. off-the-shelf tech applied in new way).







#### **VMS Deposits**

- High grade differentiates projects.
- Lower exploration costs.
- By-product credits reduce cash costs.
- Simple metallurgy requires simple processing techniques.
- Quite often found in areas of low operating risk.
- Smaller scale may be very profitable but may be too small to be "on the radar" of larger investment companies







#### **Conclusions**

#### Finding copper

- Focus on a strategic advantages
- Aim to mitigate risks to your exploration investment from the start
- Black box exploration can help but boots-on-the-ground exploration required

#### **Funding copper**

- Pick a funding strategy to fit your copper project
- If looking for strategic partners, de-risk your projects and company as much as possible
- Encourage investment by putting majority of cash into the ground
- Differentiate your company focus on a strategic strength

Finally, the best place to find copper is....



## ...probably in your competitors project portfolios.







#### **Company Overview**

- Focused on the development and acquisition of advanced copper and gold exploration projects in the highly prospective Oyu Tolgoi copper/gold belt in southeast Mongolia
- Secured a strategic landholding with mineralisation identified over 40km2 at the wholly owned Bronze Fox Cu/Au and adjacent Tourmaline Hills Au/Cu projects
- Primary focus remains ongoing exploration and testing the potential for a high grade porphyry style copper deposit(s)
- Extensive near surface lower grade oxide copper mineralisation identified at Bronze Fox with promising shallow sulfide and significant deeper higher grade primary copper mineralisation with Au and Mo
- Management team and board of experienced mine developers and years of background in Mongolia with a permanent in-country presence

#### **Corporate Overview**

- Kincora Copper was formed mid-2011 and is listed on the TSX Venture Exchange (KCC)
- Market Cap C\$19m (158.3m shares @ C\$0.12/sh), Cash C\$3m (Mar'12), Convertible Note C\$2.5m (Jul'12)
- Shareholders include Origo Partners, a major Mongolian shareholder, CCF, Ecofin, BakerSteel, Samos, Trafigura, amongst others.





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#### References

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- 2. D. A. Singer et al, (2005) Porphyry copper deposit density, *Economic Geology*, v. 100, pp. 491–514
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- 4. M. D. Dogget and R. A. Leveille, (2010) Assessing the returns to copper exploration 1989-2008, *Exploration and Mining Geology*, Vol 19, Nos 1-2, p. 23-33.
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- 6. USGS http://mrdata.usgs.gov/mineral-resources/vms.html

