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# The Mercenary Geologist's Guide to Investing in Junior Resource Stocks

A Primer for the Lay Investor:  
Geology 101

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# What is an “Ore Deposit”?

Ore Deposits, Park and McDiarmid, 1975

*“Ores are rocks and minerals that can be recovered at a profit.”*

Juniors, Metals, and Projects:

The Good, The Bad, and the Butt-Ugly

“At a Profit”

# The Good, The Bad, and the Butt-Ugly

- Timeline
- Access to Capital
- Cost of Production
- Exit Strategy

## The Good:

- Short Lead Time to Development
- Low Capital Expenditures
- Low Cost Producers
- Multiple Exit Strategies

# The Good:

- Open pit heap leach Oxide Gold deposits
- Open pit heap leach Copper Oxide deposits
- Open pit heap leach or ISR Uranium deposits
- Rare Earth Element deposits



# Good Gold Deposits

- Oxide
- Shallow
- Open pit
- Heap Leach

# Good Gold Deposits

- Volcanic-hosted epithermal deposits
- Sedimentary-hosted gold deposits
- Intrusive-hosted gold deposits
- Greenstone gold deposits

# Heap Leach Open Pit Gold Deposit Dumps, Leach Pad, and Recovery Plant NW Sonora, Mexico



# Volcanic-hosted Epithermal Deposit Southern Armenia



# Sediment-Hosted Gold Deposit Northern Sonora, Mexico



# Intrusive-hosted Gold Deposit Baja California Sur, Mexico



# Good Uranium Deposits

- Shallow
- Open Pit or In-Situ Recovery
- High Grade Underground

# Good U<sub>3</sub>O<sub>8</sub> Deposits

- Sandstone-hosted
- Unconformity-style
- Granite-pegmatite hosted



# Sandstone Uranium Deposit Open Pit, Central Wyoming



# Sandstone Uranium Deposit In-Situ Recovery Well-Field, South Texas

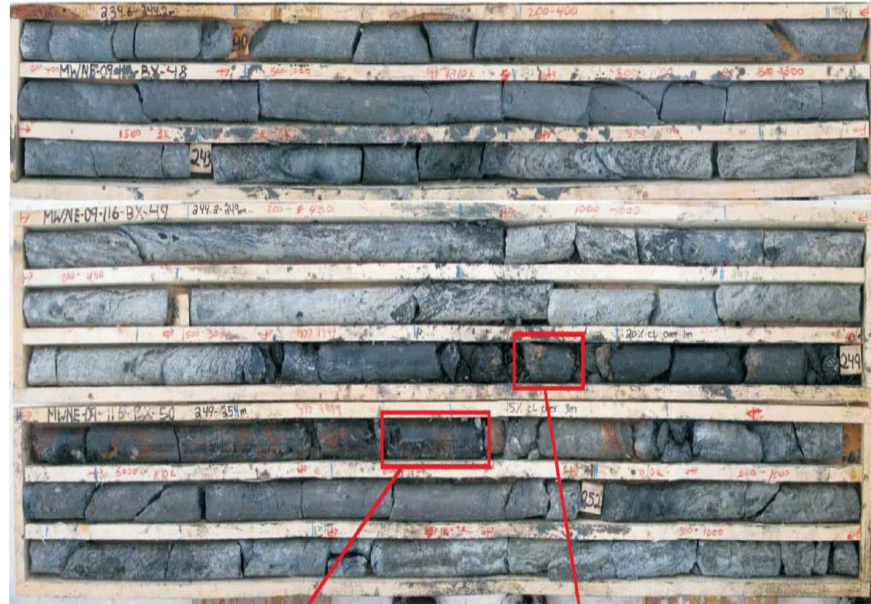


# Unconformity-style Uranium Deposit Athabasca Basin, NE Saskatchewan



# Athabasca Basin High-Grade Uranium

13 meters of 18.12%  $U_3O_8$



# Granite-Pegmatite Hosted Uranium West Central, Namibia



# Good Copper Deposits

- Oxidized Part of Sulfide Deposits
- Shallow
- Open Pit
- Heap Leach

# Copper Oxide Deposits

- Porphyry Copper Deposits ( $\pm$  Mo-Au-Ag)
- Iron Oxide-Copper Deposits
- Sediment-hosted Copper Deposits
- Volcanic-Hosted Copper-Silver Deposits

# Oxidized Porphyry Copper Deposit SE Arizona





# Iron Oxide-Copper Deposit Region IV Chile



# Sedimentary Copper Oxide Deposit NW New Mexico



# Copper Oxide-Silver Deposit Mine, Leach Pad, Recovery Plant Region II Chile



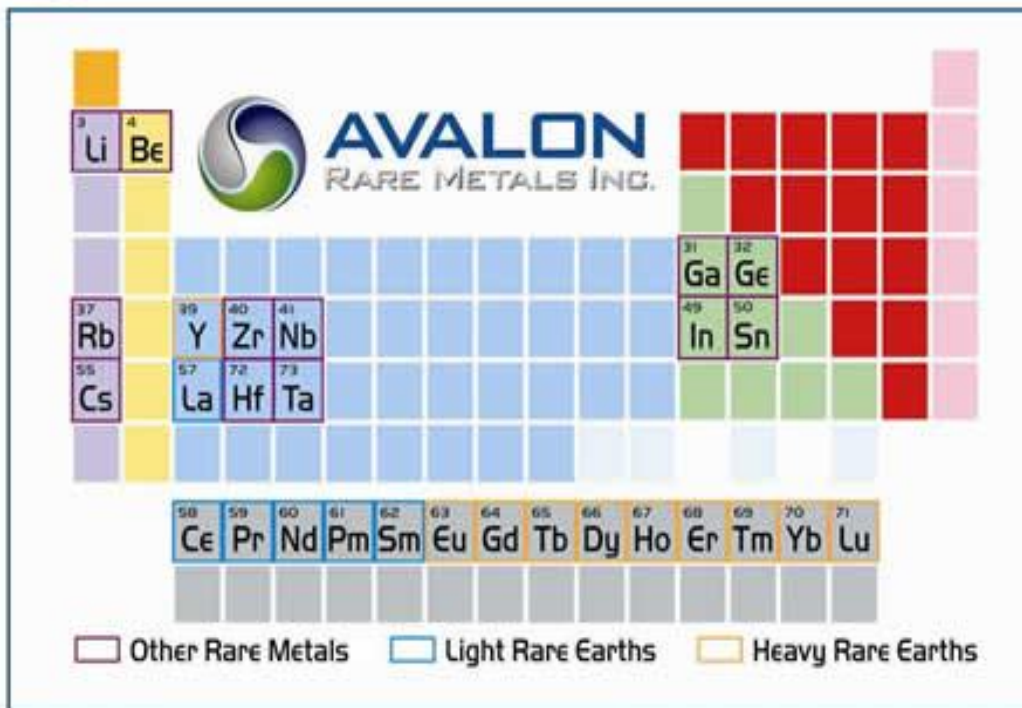
# Volcanic-hosted Copper Oxide-Silver NW Haiti



# Good: Rare Earth Element Deposits

- China controls world supply and processing
- Domestic demand, exports curtailed
- Supply to North America, Japan, & Europe?
- Deposits in North America & Europe
- Integrated mine to market required

# What are Rare Earth Elements? (Not Rare Metals)



## Light REE:

La = Lanthanum  
 Ce = Cerium  
 Pr = Praseodymium  
 Nd = Neodymium  
 Sm = Samarium

## Heavy REE:

Eu = Europium  
 Gd = Gadolinium  
 Tb = Terbium  
 Dy = Dysprosium  
 Ho = Holmium  
 Er = Erbium  
 Tm = Thulium  
 Yb = Ytterbium  
 Lu = Lutetium  
 Y = Yttrium

Neodymium, Dysprosium, Terbium and Europium in highest demand

# Rare Earth Element Deposits

- Carbonatite Host Rocks
  - Enriched in Light Rare Earth Elements (LREEs)
- Alkalic Intrusive Host Rocks
  - Enriched in Heavy Rare Earth Elements (HREEs)

# Light Rare Earth Element Deposit SE California





# Light Rare Earth Element Deposit NE Wyoming



# Heavy Rare Earth Element Deposit NWT Canada



Every Good Geologist Knows  
That  
Grade is King!

# Rules of Thumb: Economic Grades

- Open Pit Heap Leach Gold Deposits
- Open Pit Heap Leach Copper Oxide Deposits
- ISR or Open Pit Heap Leach Uranium Deposits
- Rare Earth Element Deposits (LREE, HREE)

# Resources and Reserves:

A Primer for the Lay Investor

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What is the Difference?

Mineral Resources vs Mineral Reserves

“At a Profit.”

# Evaluating a Company for Investment

## Mineral Resource:

- Mineralized mass of rock
- Highly elevated content
- Particular mineral commodity
- Compared to Background Abundances
- Often Little or No Economic Input



# Junior Resource Companies

- Most Inferred Resources not Upgrade
- Measured and Indicated Resources
- Pre-Feasibility Study
- Proven and Probable Reserves
- Feasibility Study for Financing
- Development and Mining

# Junior Resource Companies

- Few juniors achieve mining a deposit
- Fewer succeed at a profit
- Mining is seldom a viable exit strategy

# Mining the Stock Market

Mark Twain: Comstock Lode 1865  
Virginia City, Nevada

“A mine is a hole in the ground  
with a liar standing beside it.”

# Evaluation of Junior Resource Stocks

## A Primer for the Lay Investor

Share Structure, People, and Projects

# Monday Morning Musings from Mickey the Mercenary Geologist



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