

# Distribution and textures of sulphides in the Matchless Western Extension orebody

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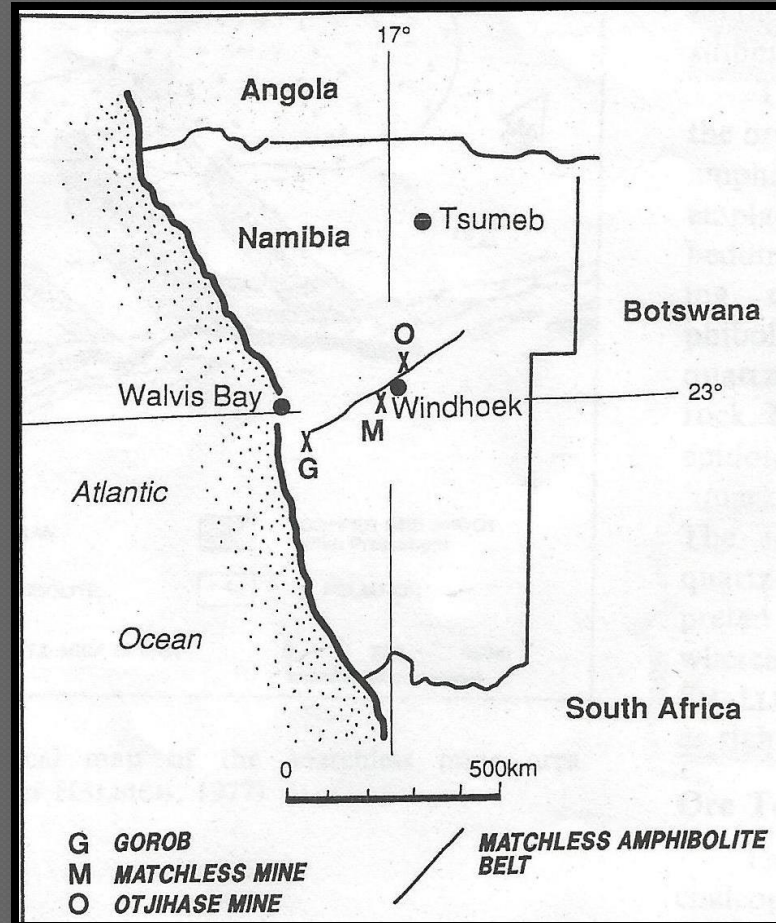
# Outline

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- ◉ Introduction
- ◉ Aim of the study
- ◉ Methodology
- ◉ Results
  - Field observations
  - Ore microscopy
- ◉ Conclusions

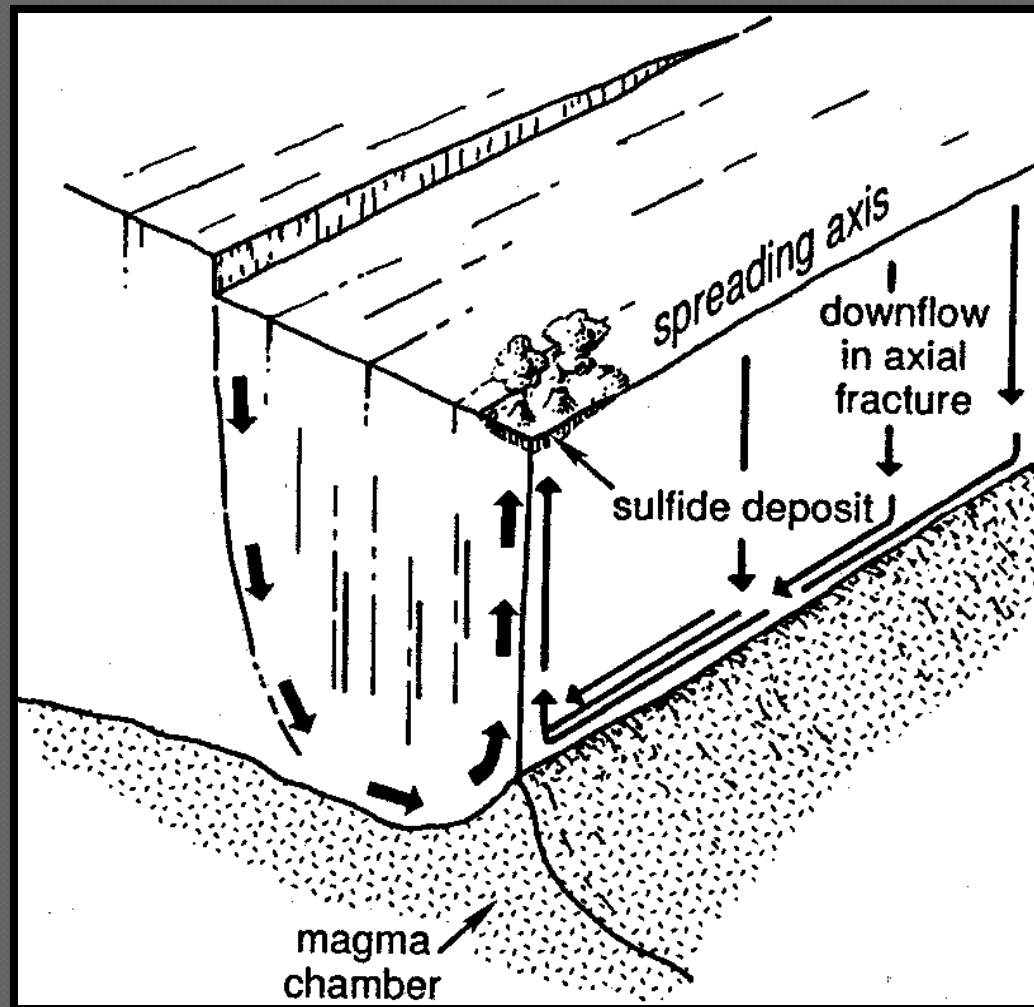
# Introduction

The Matchless mine is located on farm Friedenau 16, some 35km southwest of Windhoek

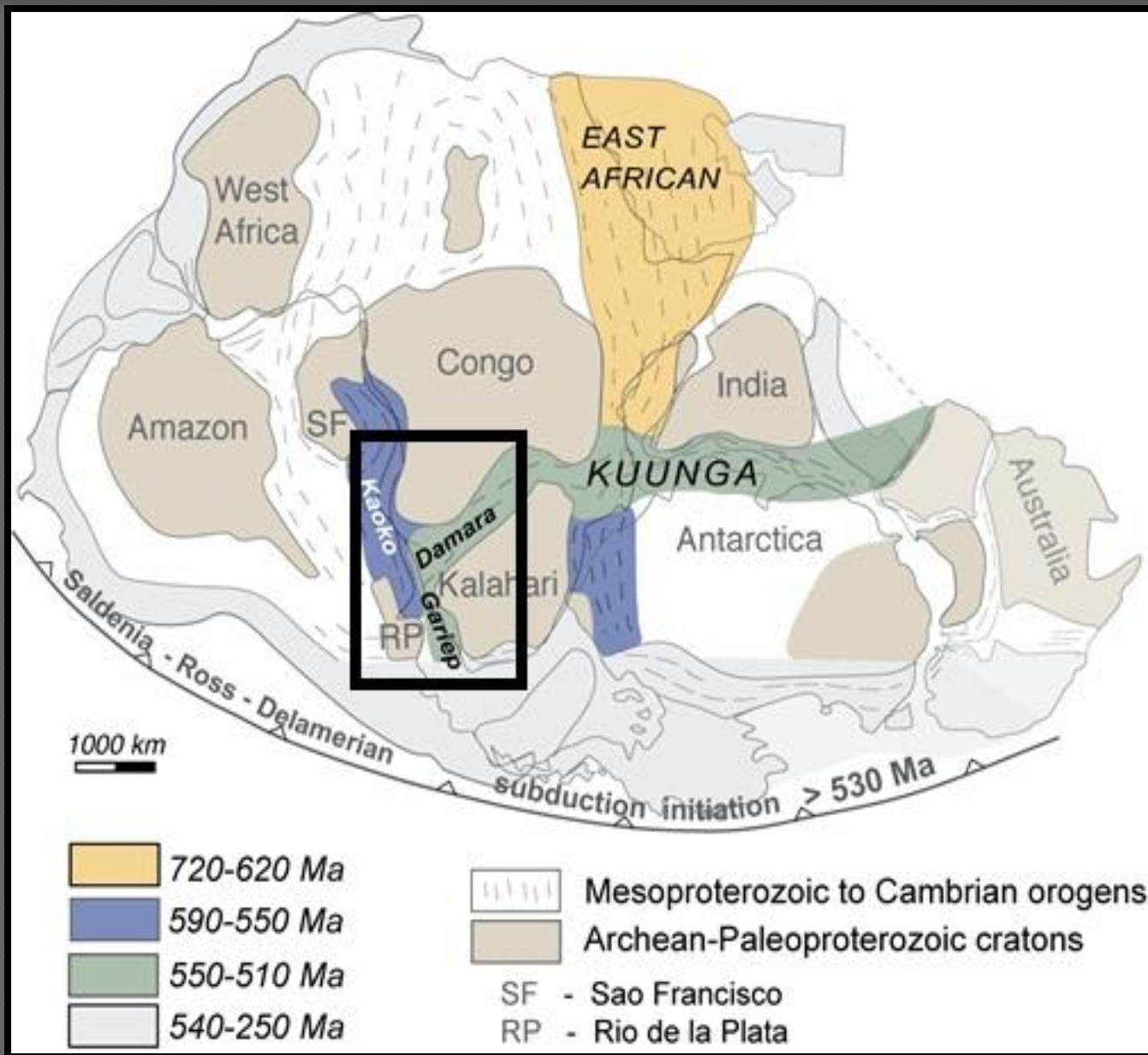


*Location map, showing the north-easterly trending Matchless Amphibolite Belt in central Namibia (from Maiden, 1993)*

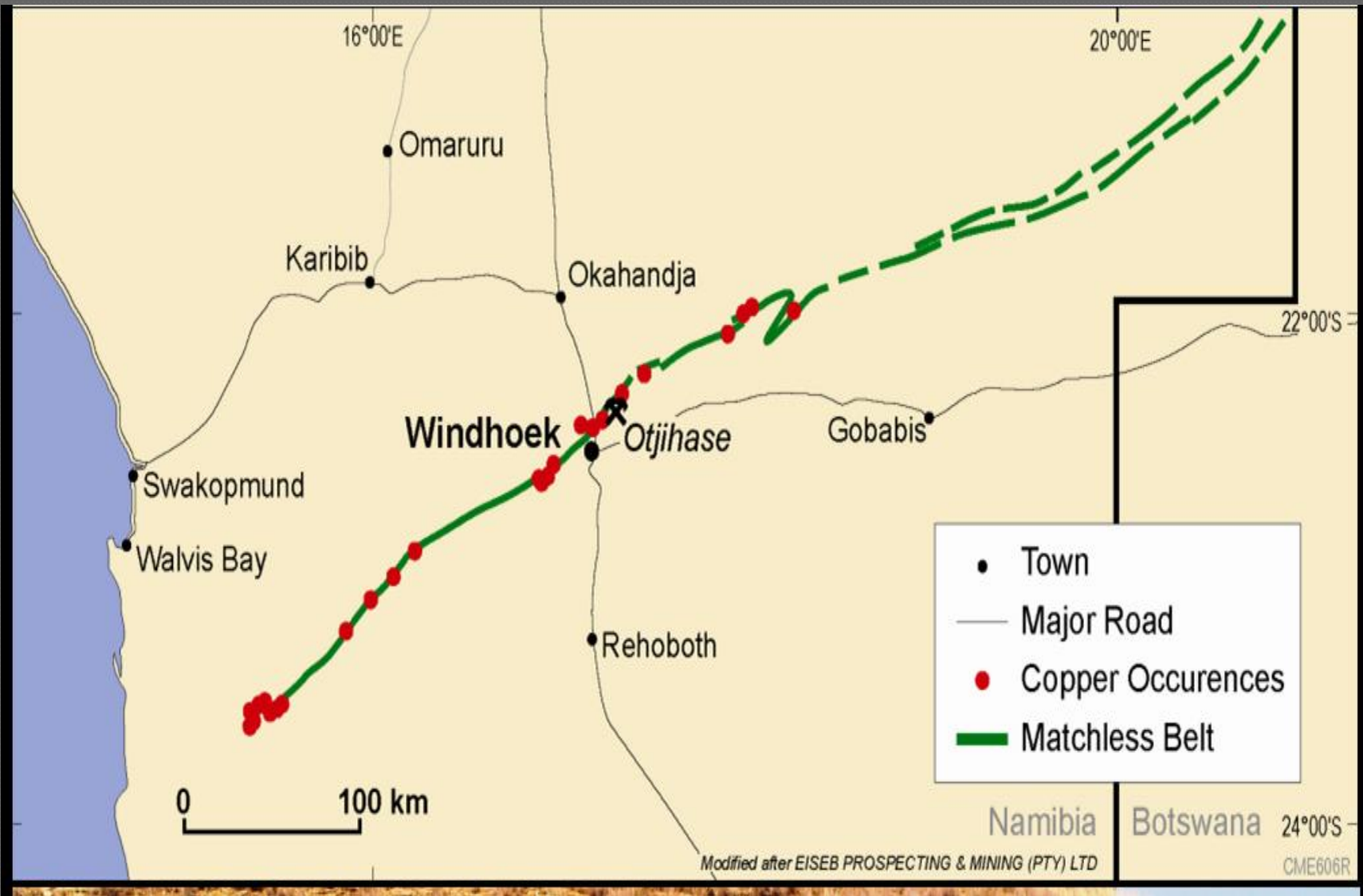
# How did this deposit form?



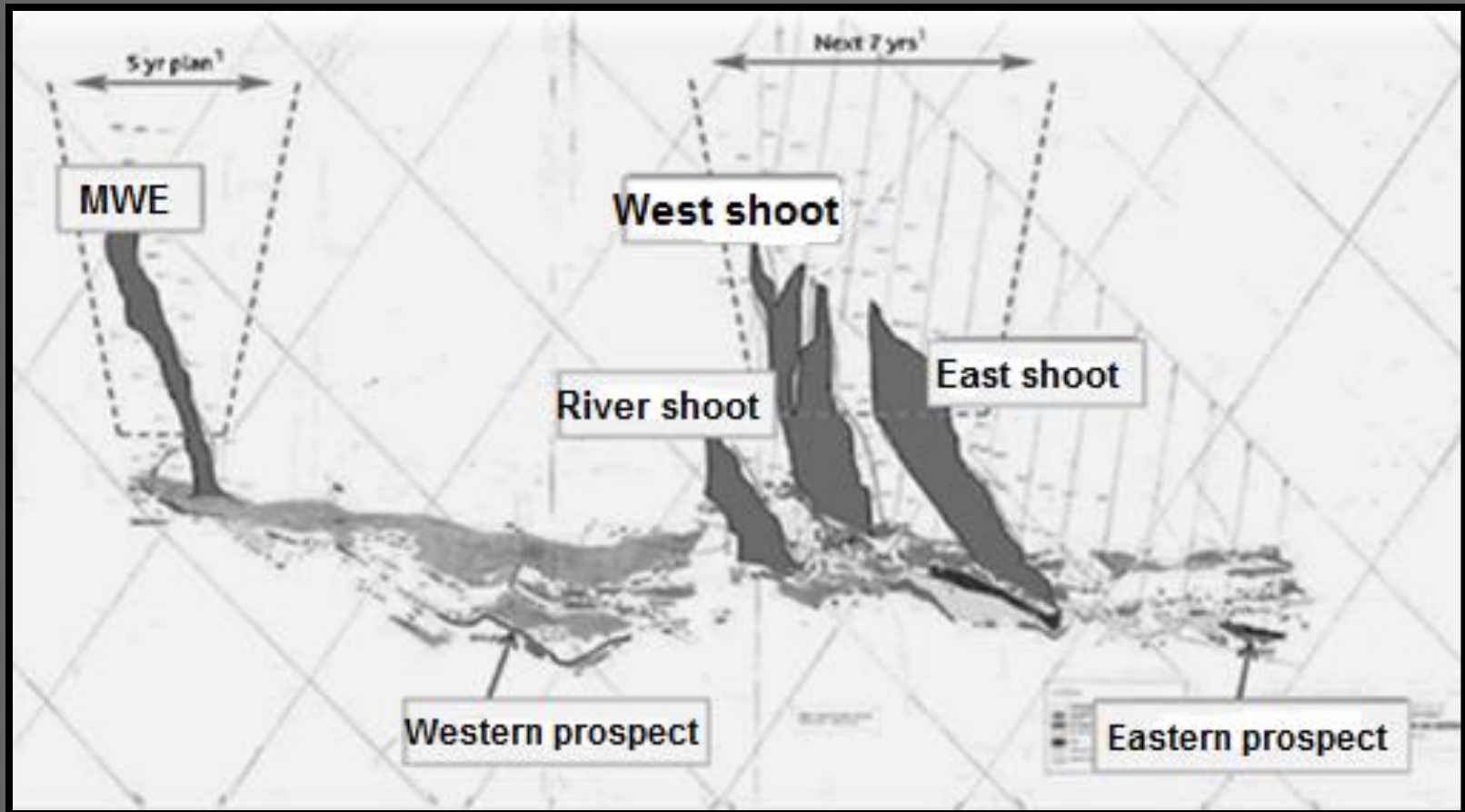
*From Sawkins (1990)*



*Early Phanerozoic plate configuration of Gondwana showing the Pan-African belts including the Damara Belt (after Gray et al., 2006).*



# Planview of Matchless



*Matchless Mine plan view with the Matchless Western Extension indicated as MWE (Weatherly plc company report, 2012)*

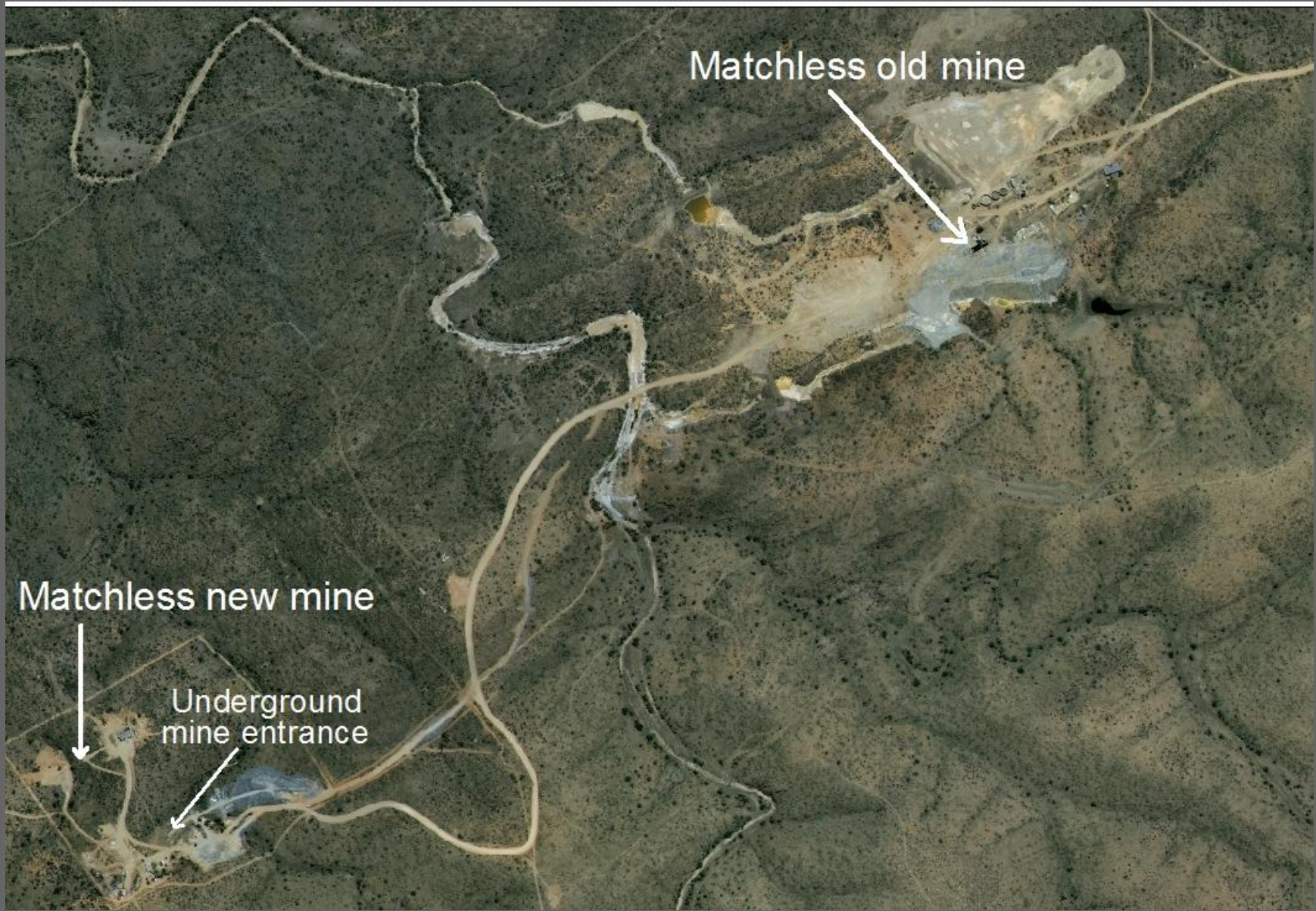
Matchless old mine



Matchless new mine



Underground mine entrance





# Main aim

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- To determine the occurrence and distribution of sulphides in the Matchless Western extension orebody, therefore contribute towards the mode of occurrence and evolution of the sulphide ores at Matchless.

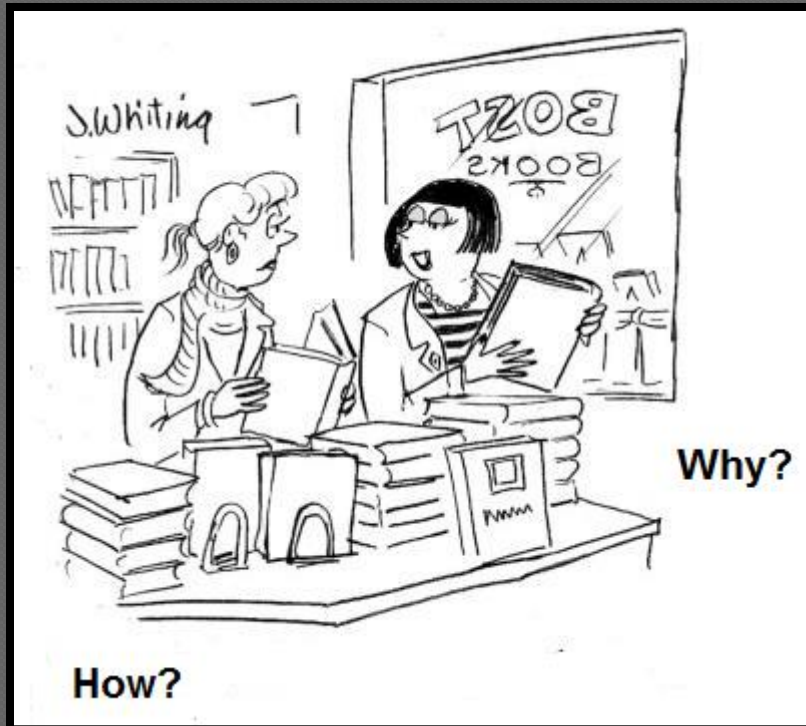
# Methodology

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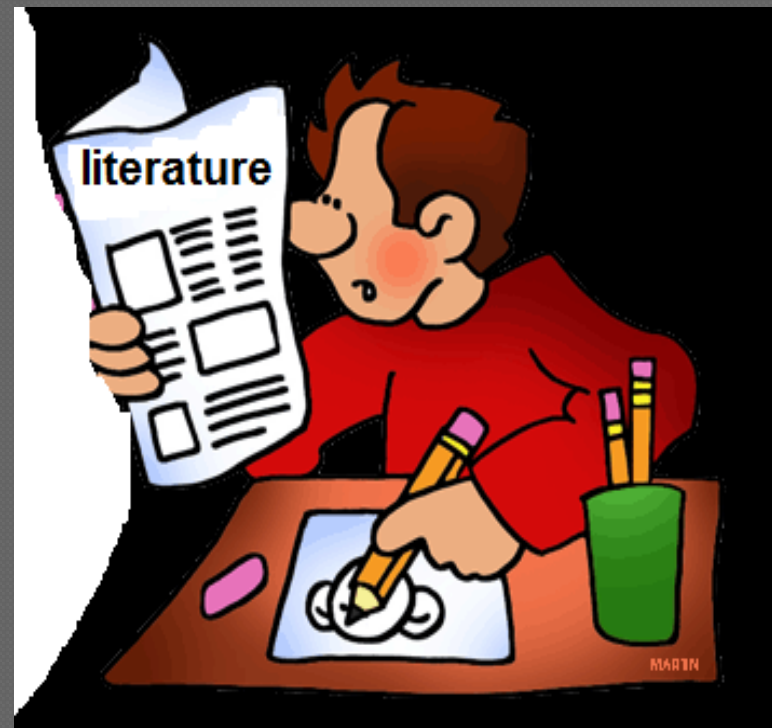
- ◉ Three principal approaches, namely:
  - Literature studies (desktop study)
  - Field work and
  - Laboratory procedure for sample analysis

# Literature Review

FROM SUPERVISOR, PROJECT PARTNER, FELLOW STUDENTS



OLD PUBLICATIONS



# Field work

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- ◉ Safety induction

- ◉ Location of pegs

- ◉ Underground mapping:

Mapped areas 18level East and West face  
mapping

Lithological sampling was done at 17level  
stope

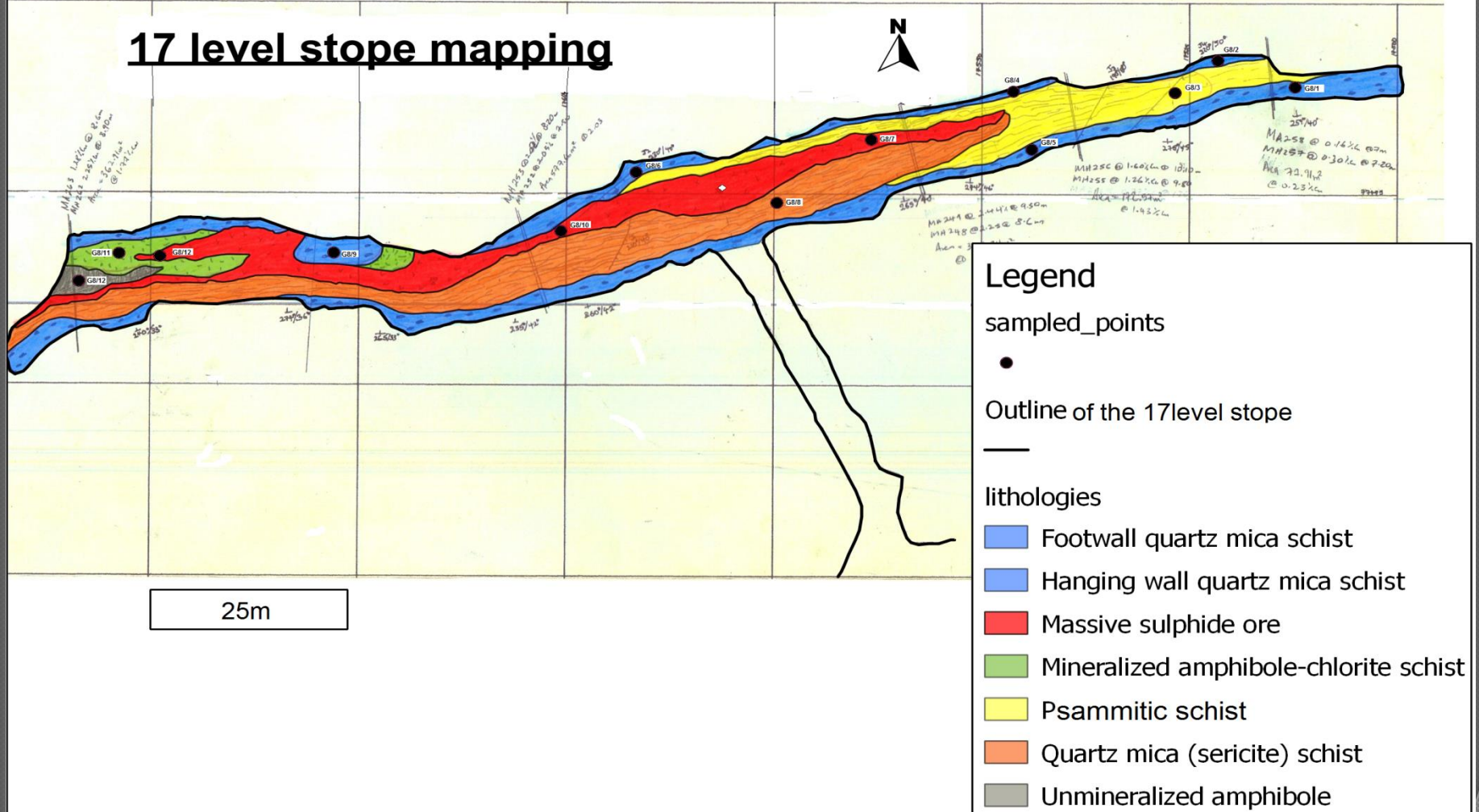


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# Findings

# Mapping

## 17 level stope mapping



Courtesy of J. Shikongo

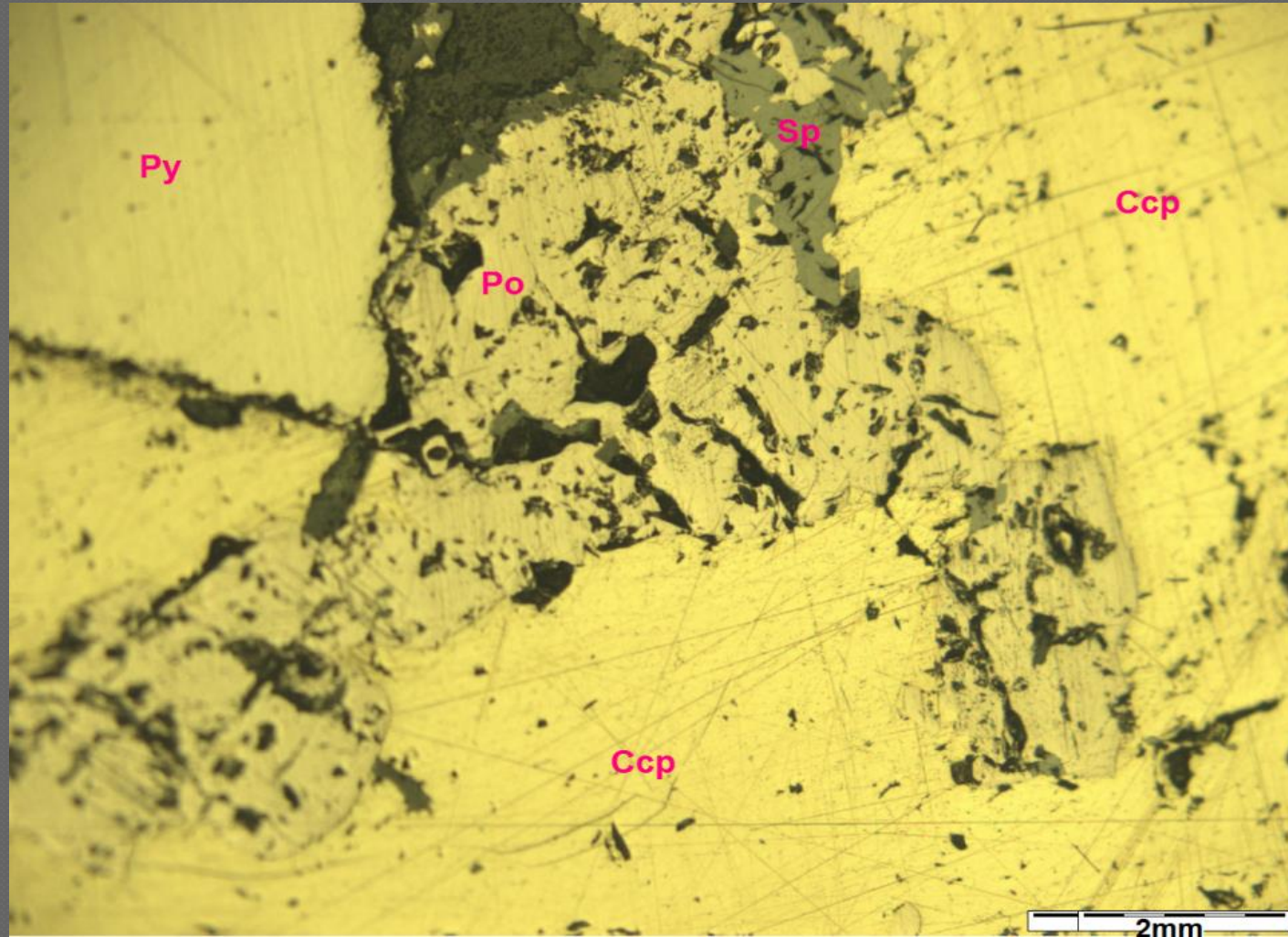
# Lenses of massive ore

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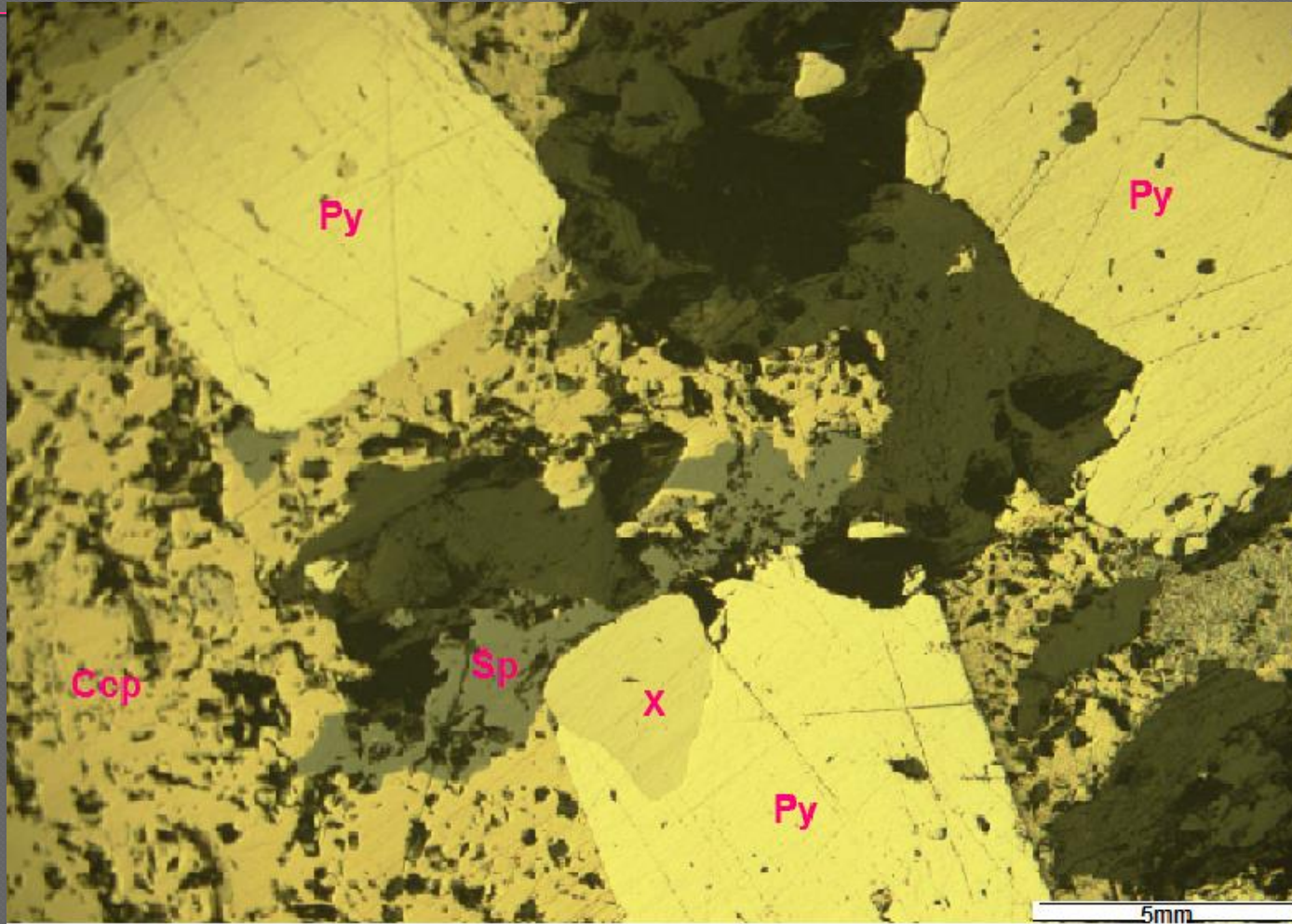




# Massive

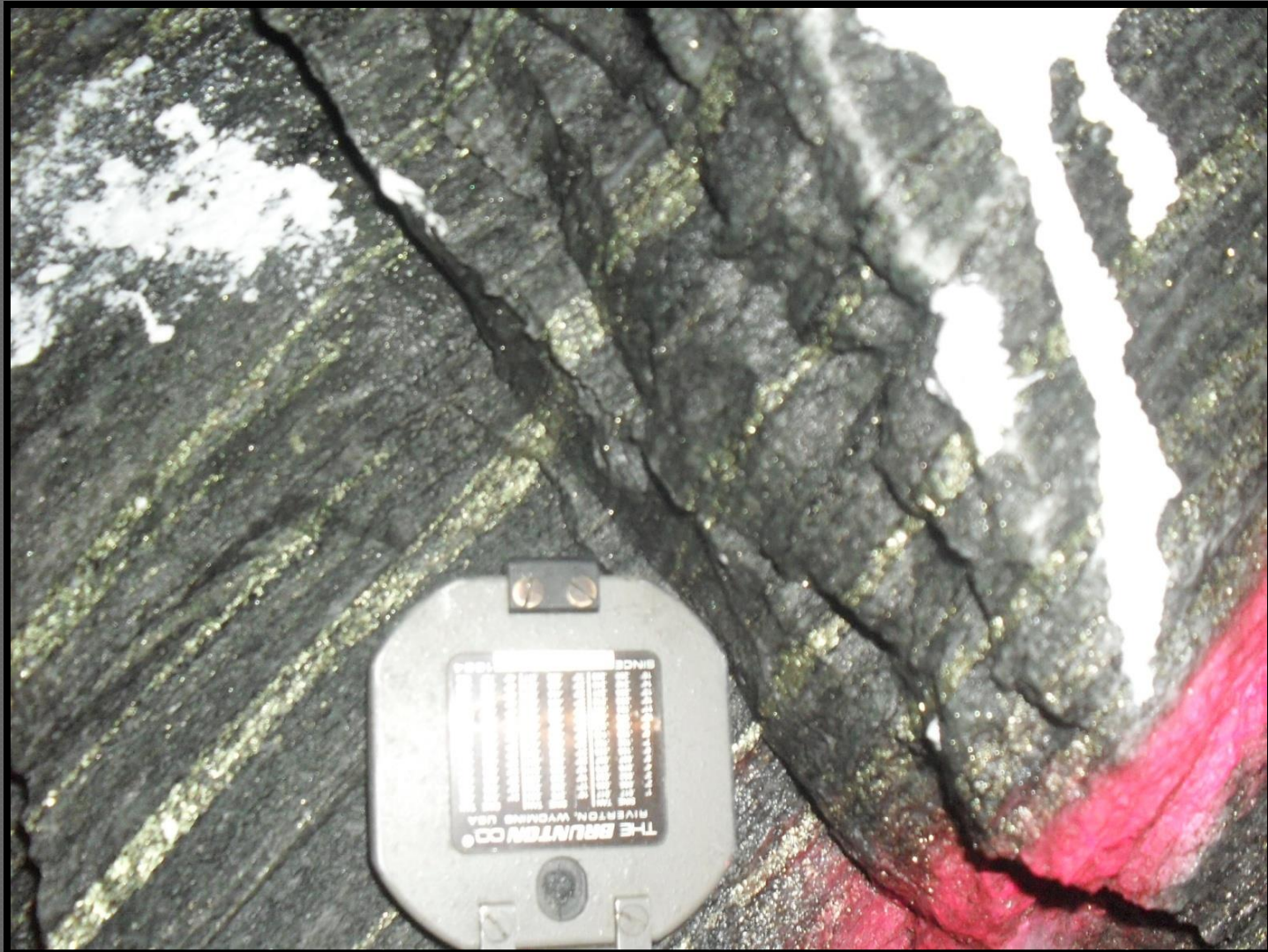


# Massive ore

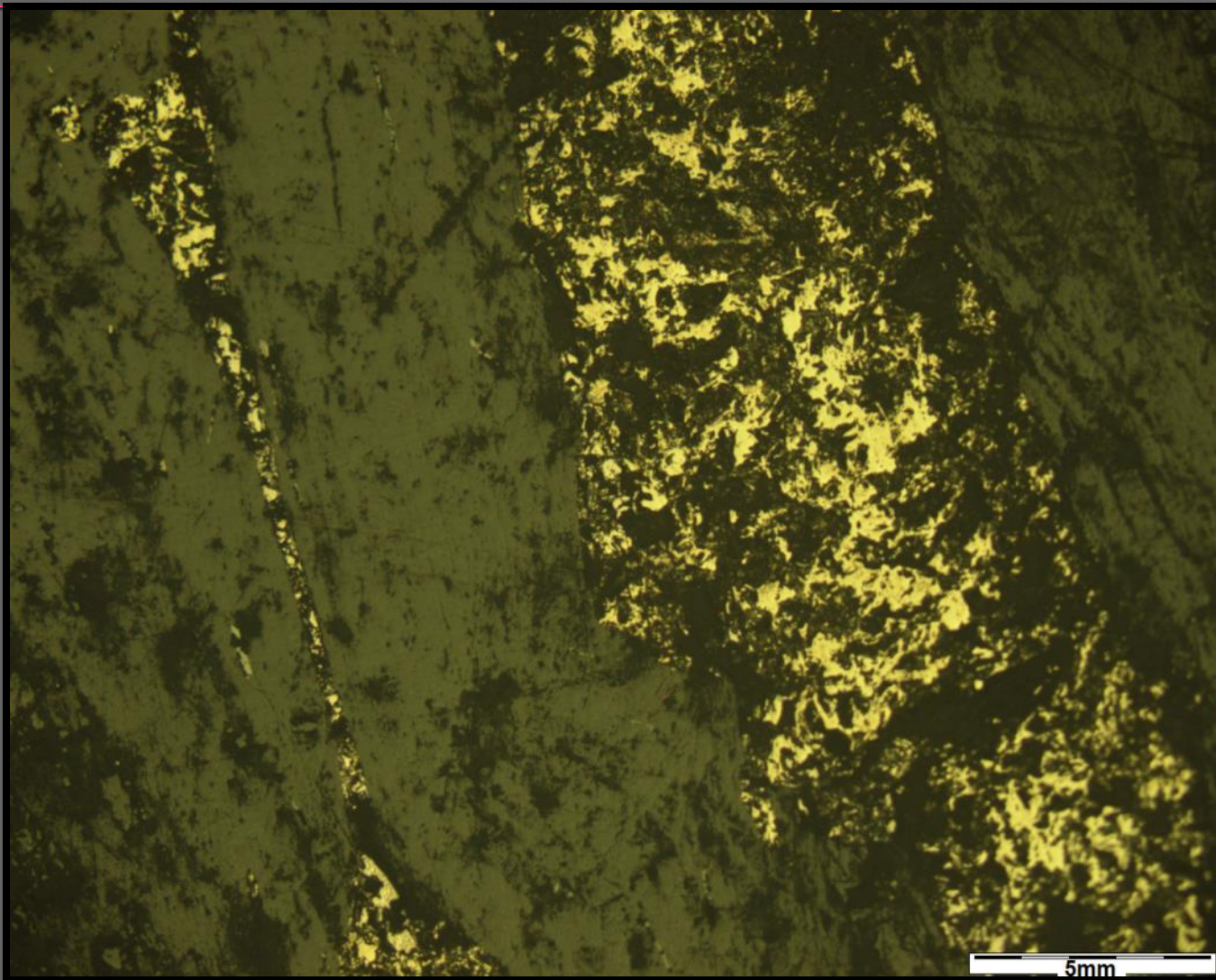


Shows a microphotograph of a polished section taken from sample G8/12 representative of massive ore at 17level. It shows chalcopyrite (Ccp), pyrite (Py) and sphalerite (Sp).

# Mineralization occurring as stringers/veins



# Veined/banded ore

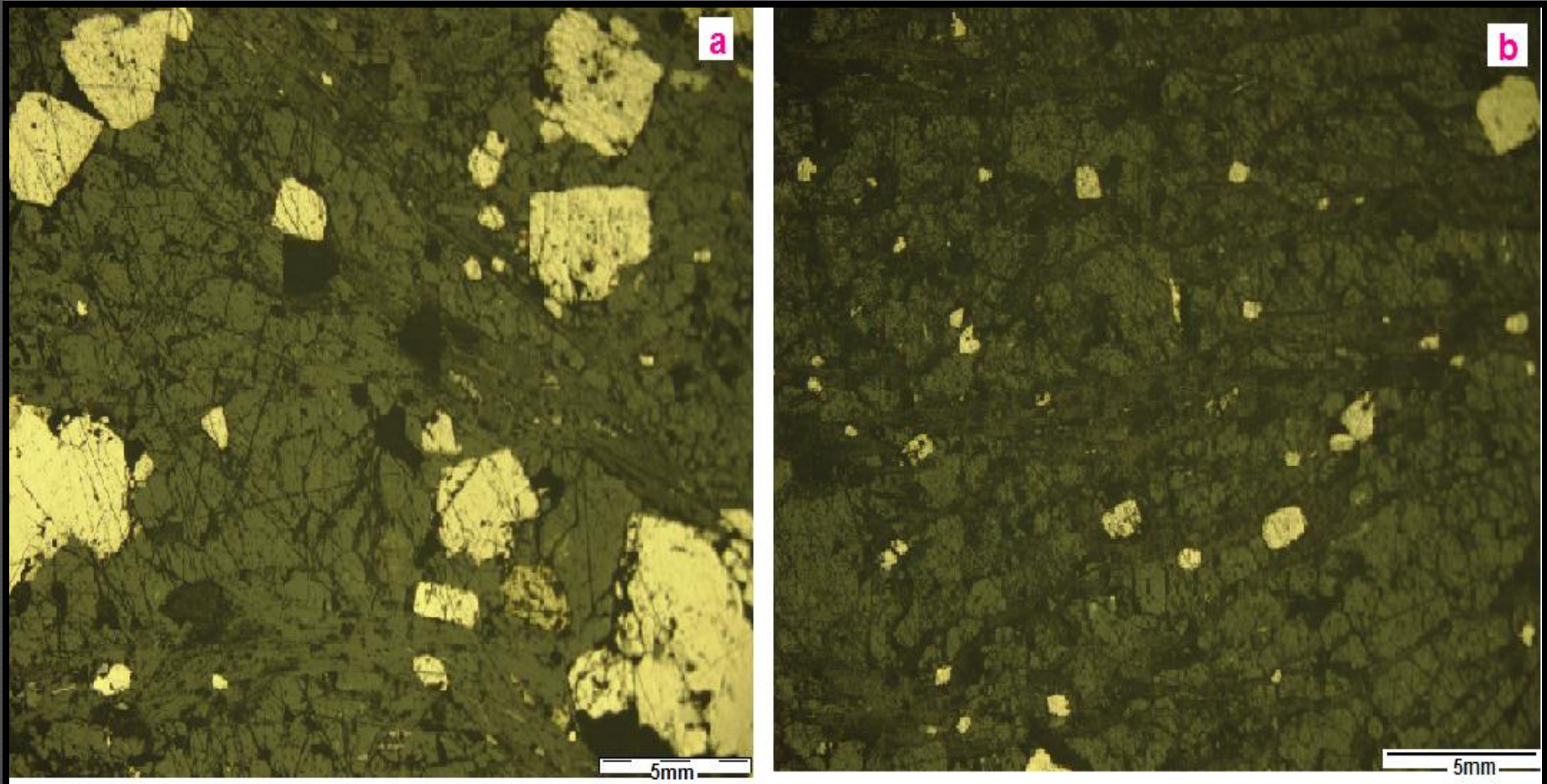


# Disseminated textures

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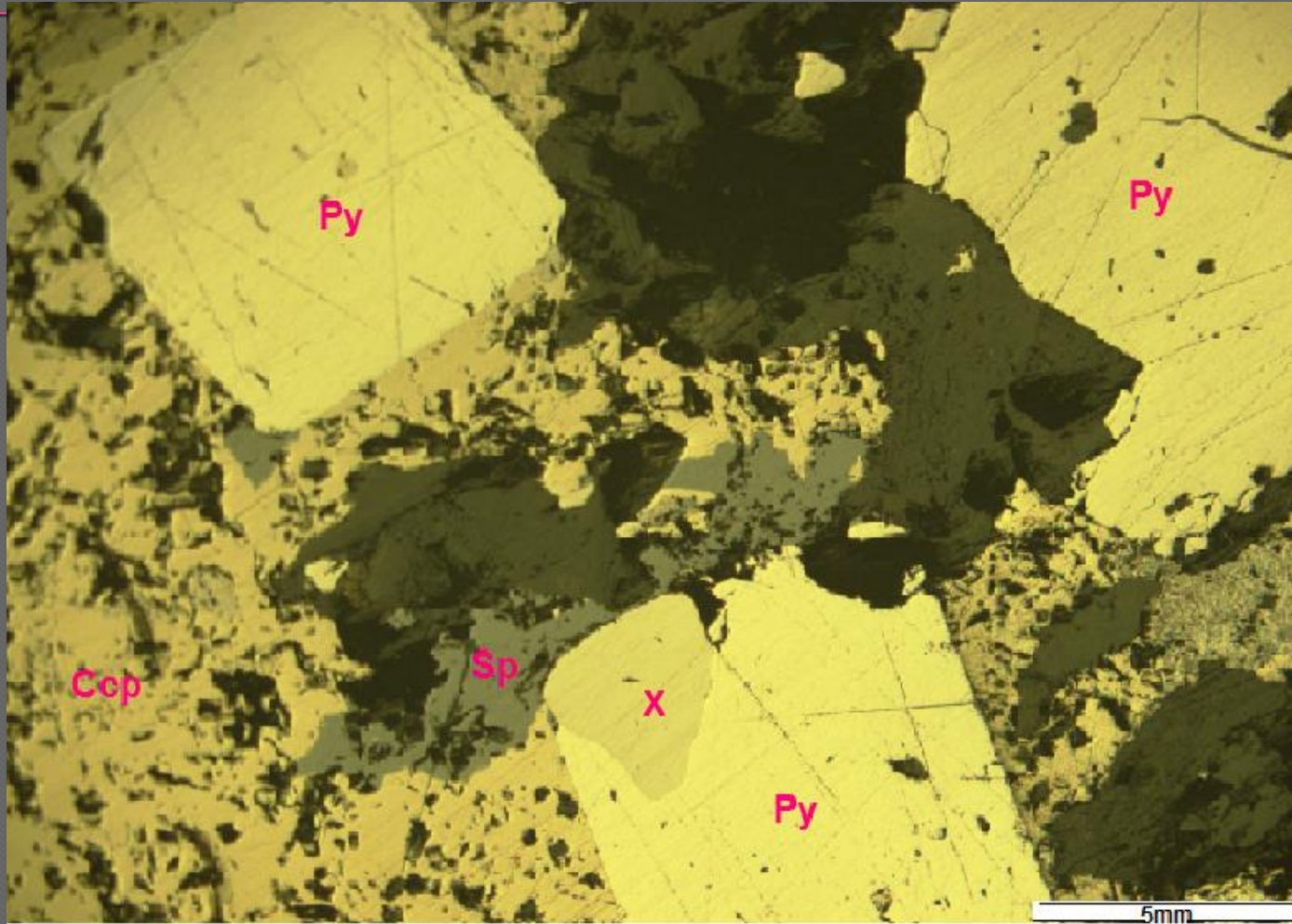


# Disseminated textures



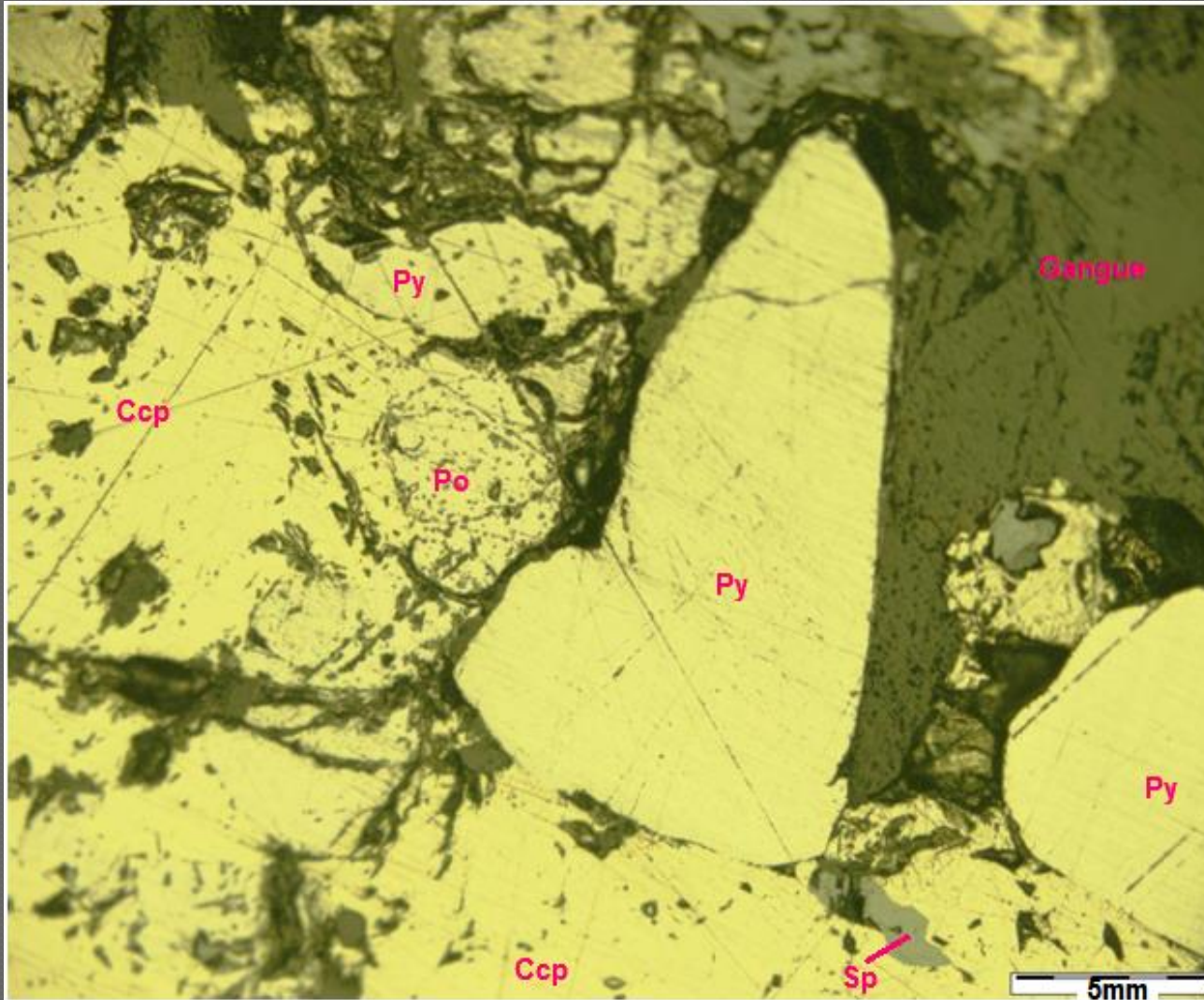
*Figure shows disseminated ore from a footwall sample G6/3 and how mineralisation changes with distance from the main ore*

# Massive ore



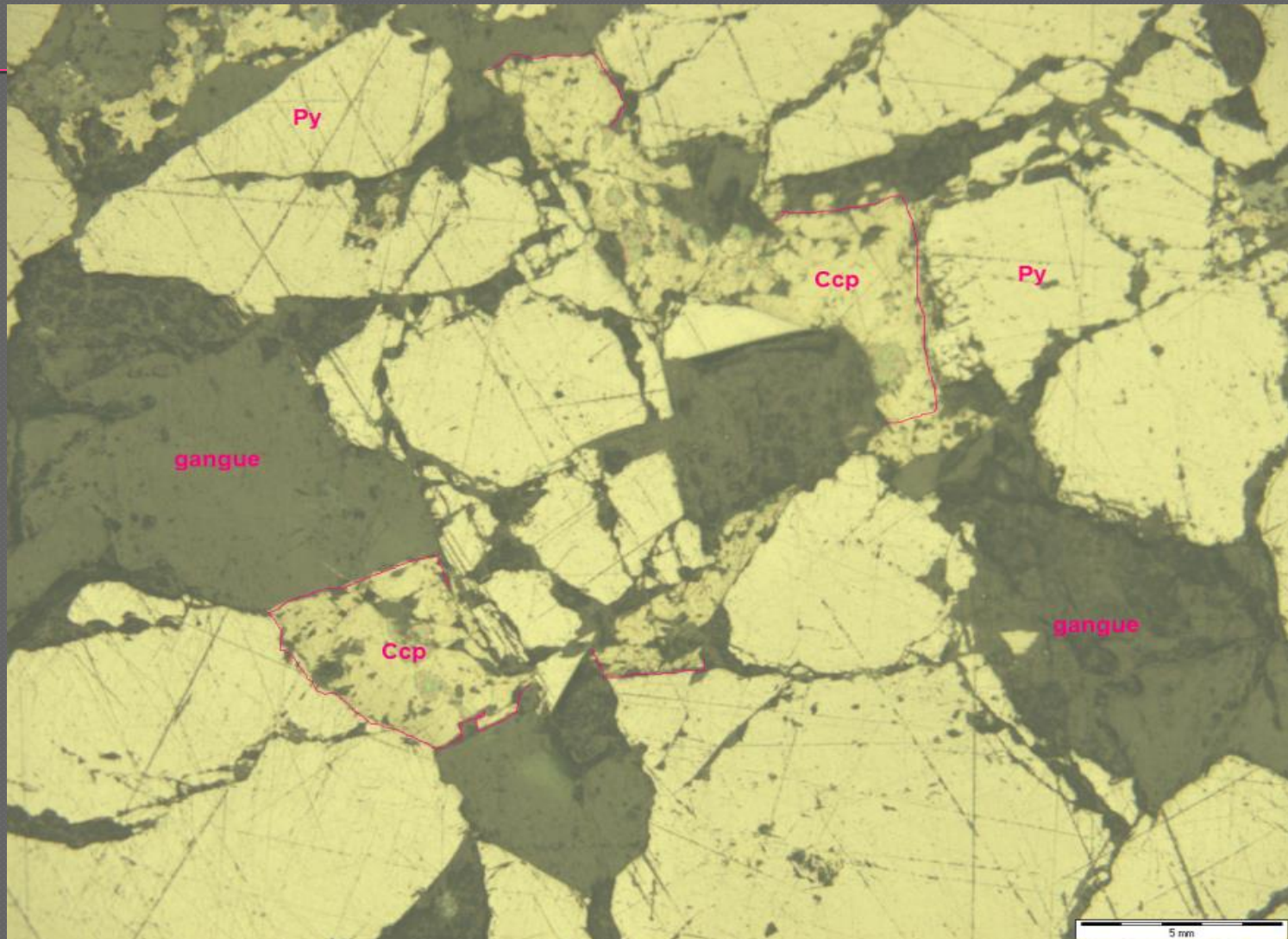
Shows a microphotograph of a polished section taken from sample G8/12 representative of massive ore at 17level. It shows chalcopyrite (Ccp), pyrite (Py) and sphalerite (Sp).

# Replacement textures





# Replacement..



*Figure shows a microphotograph of a polished section prepared from sample G16/1 representative of massive ore at 18level east, and it shows pyrite (Py) replacement by chalcopyrite (Ccp)*

# Conclusion

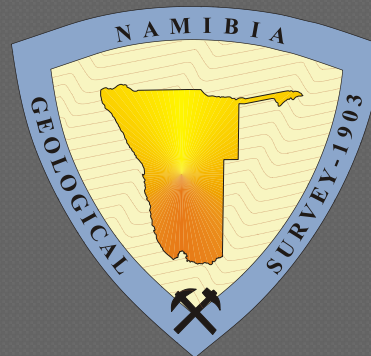
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- Three main textures were observed
  - Main ore (massive)
  - Veined ore
  - Disseminated grains
  
- Evidence of deformation and metamorphism
  - Presence of ore shoots
  - Replacement textures

# Acknowledgements

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- ◉ University of Namibia- Geology Department
- ◉ Geological Survey of Namibia
- ◉ Weatherly Mining Namibia



# References

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Thank You!

