



SWI 3.2

TECHNOLOGY



Radiographic Interpretation

Radiographs of Welds

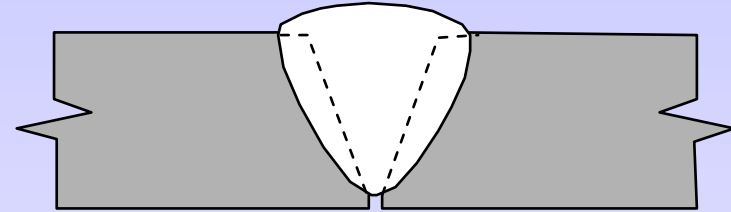
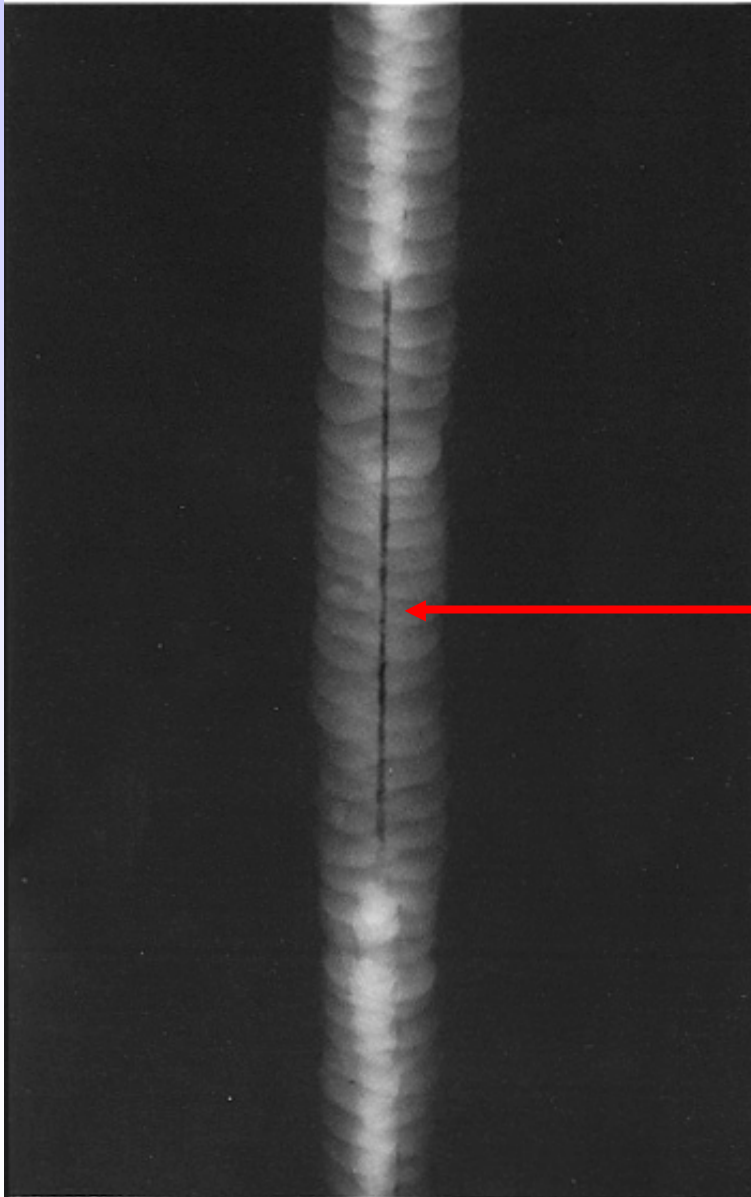
Course reference WIS 10



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TECHNOLOGY

Radiographic Interpretation of Welds



Lack of root penetration

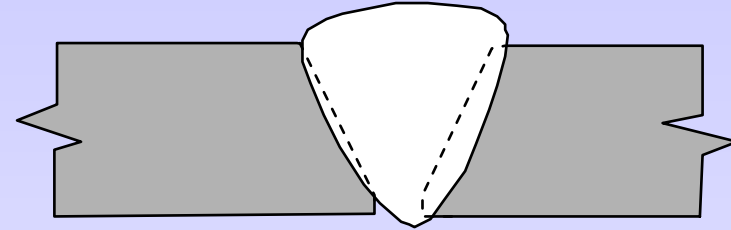
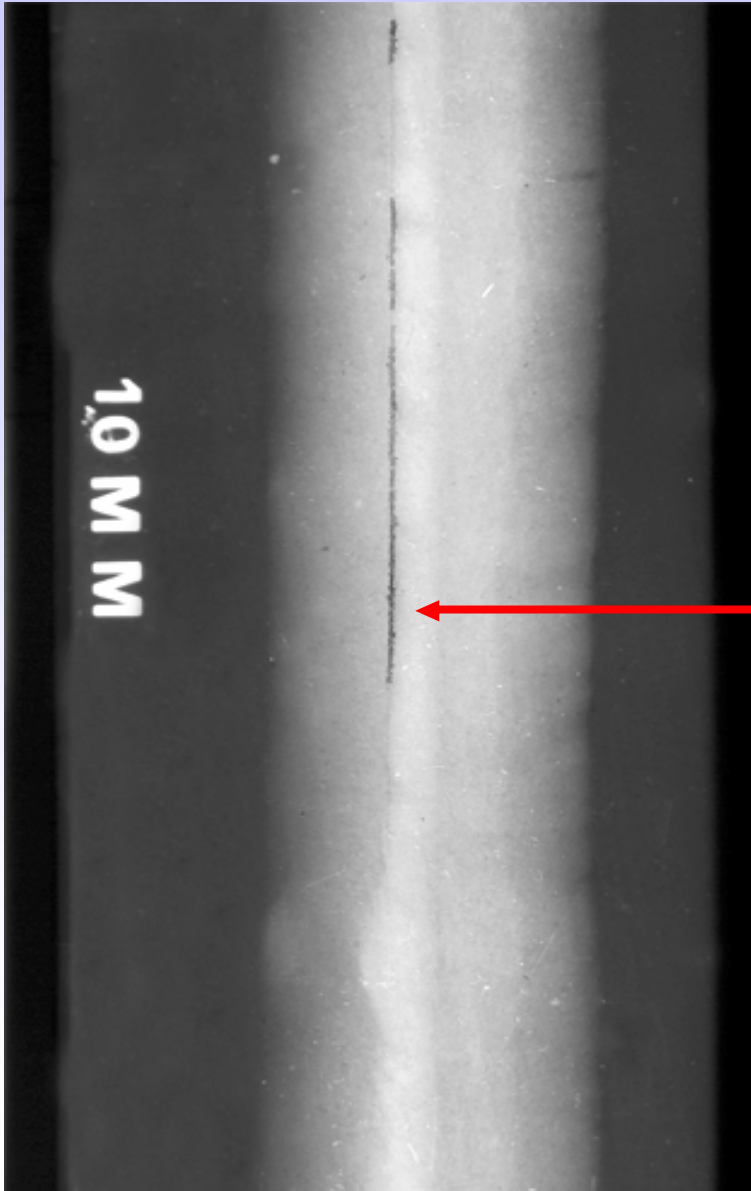
What's the defect?



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Radiographic Interpretation of Welds



Lack of root Fusion

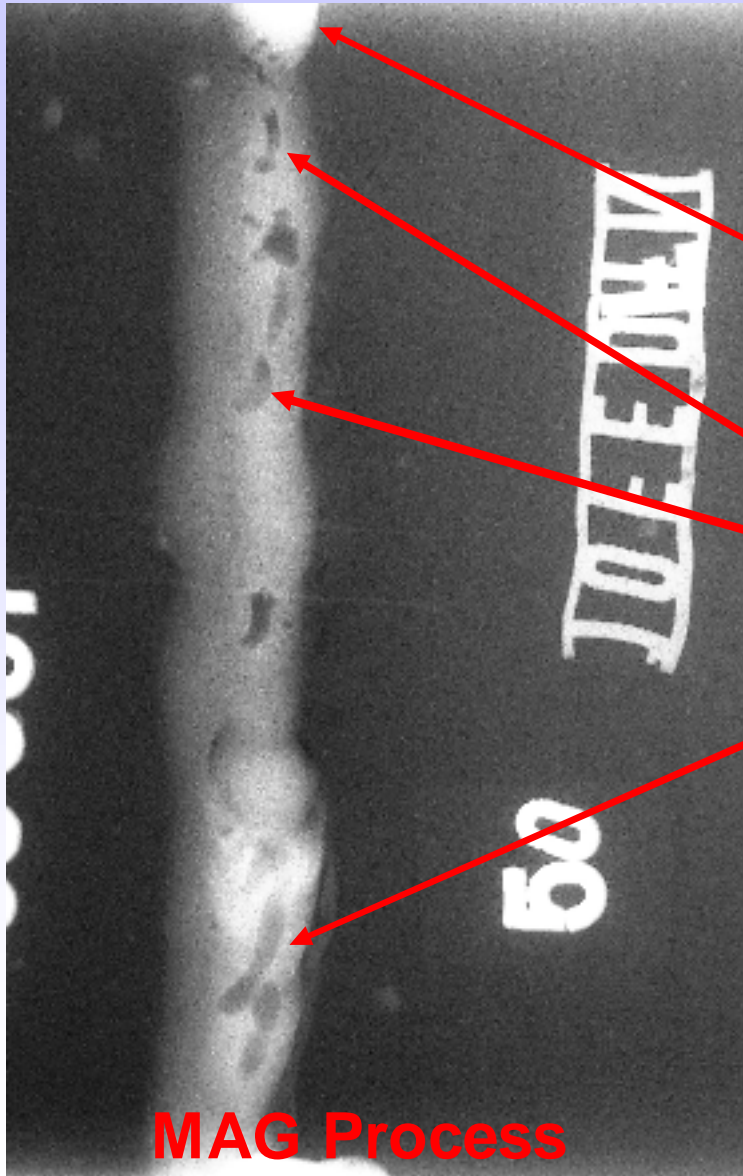
What's the defect?



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Radiographic Interpretation of Welds



MAG Process

Excess Penetration

Piping

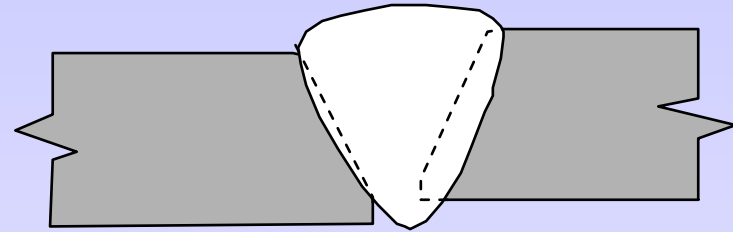
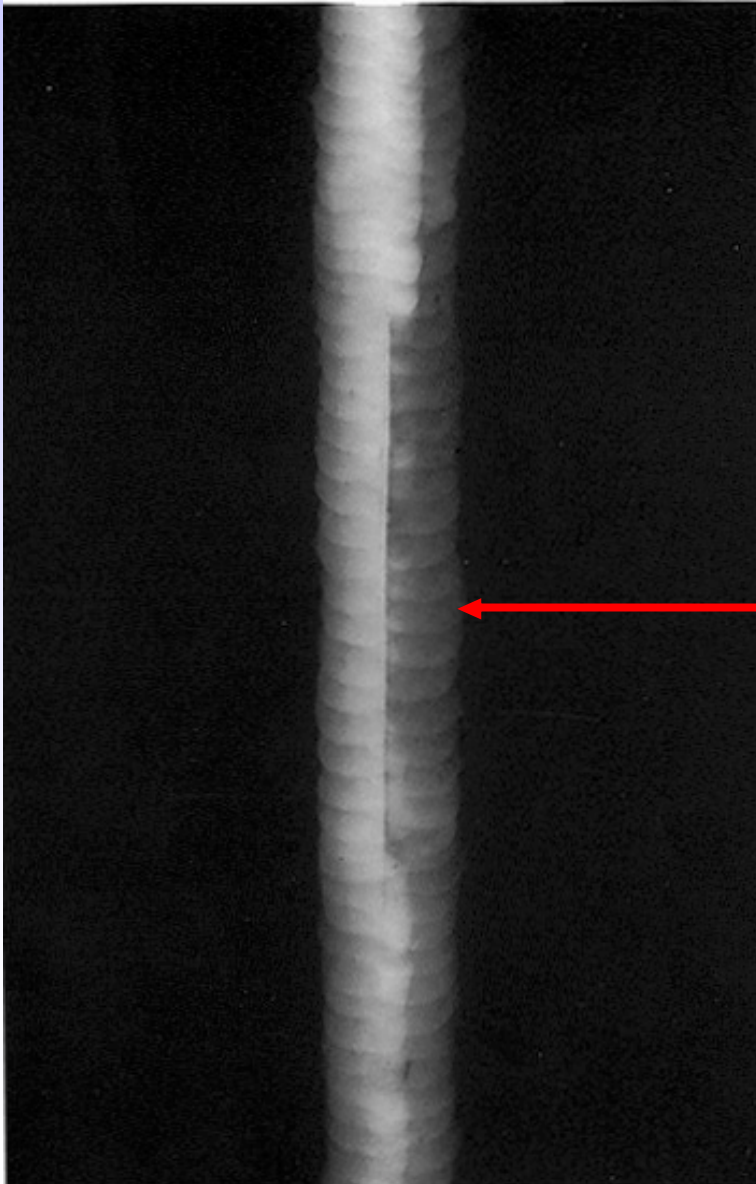
What's the defect?



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Radiographic Interpretation of Welds



**Lack of root
fusion with
misalignment**

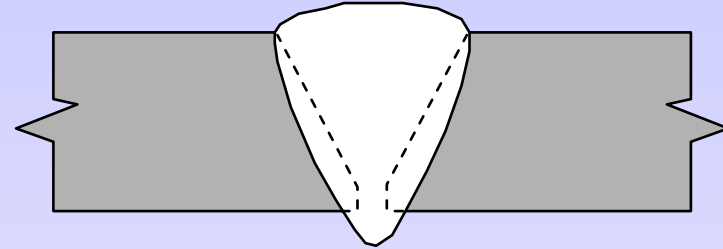
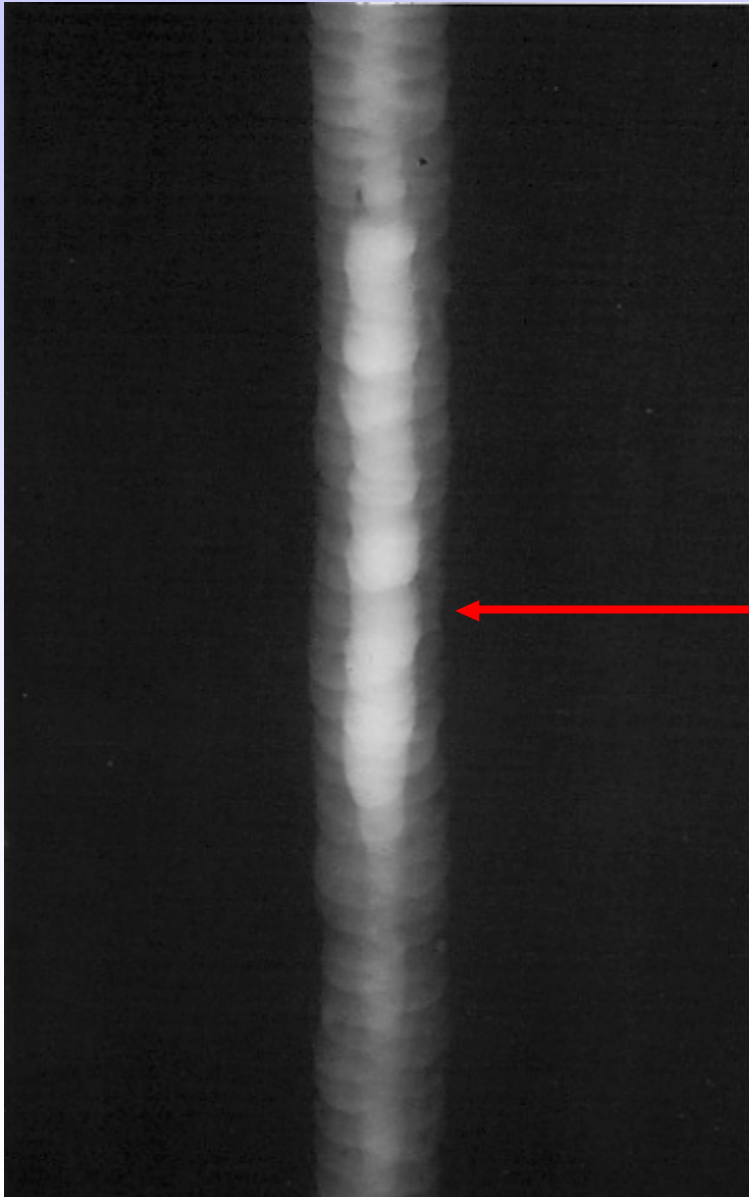
What's the defect?



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Radiographic Interpretation of Welds



Excessive root penetration

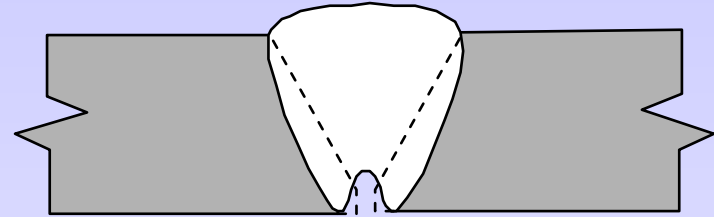
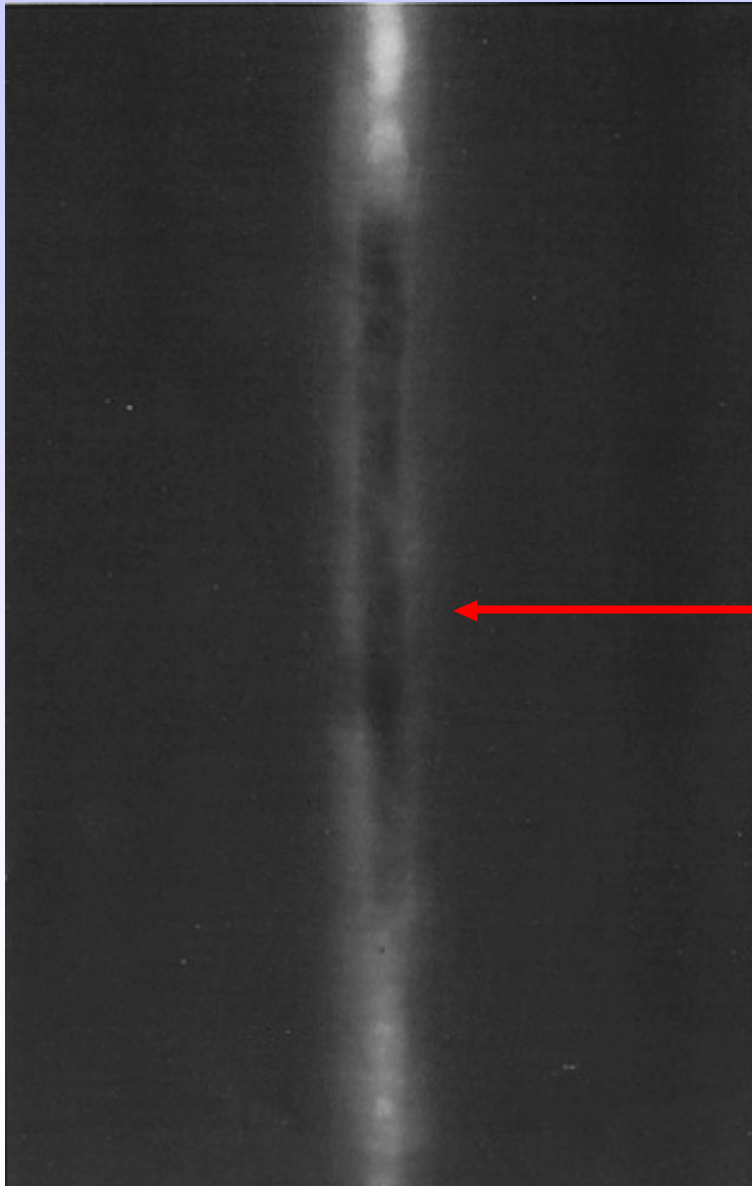
What's the defect?



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Radiographic Interpretation of Welds



← Concave root

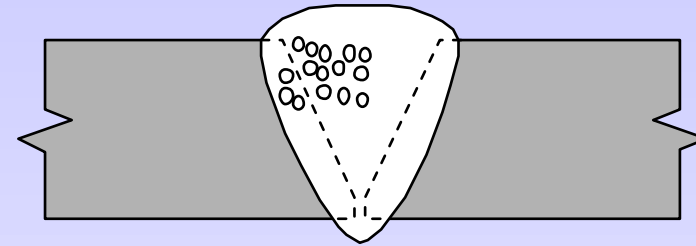
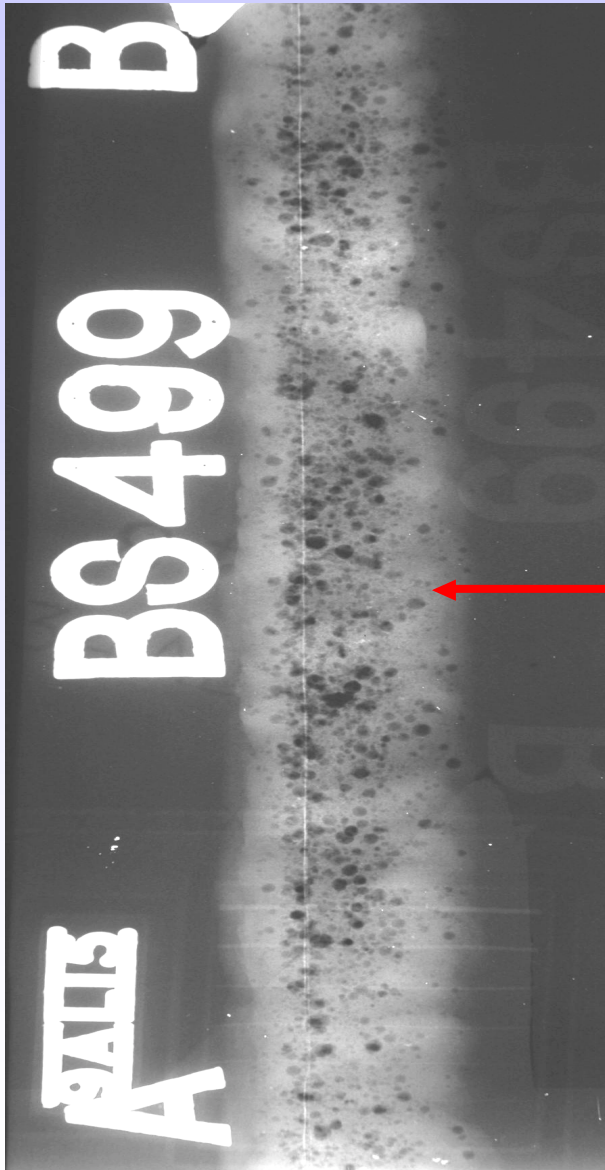
What's the defect?



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Radiographic Interpretation of Welds



← Cluster porosity

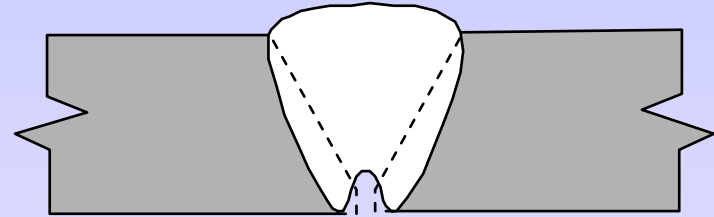
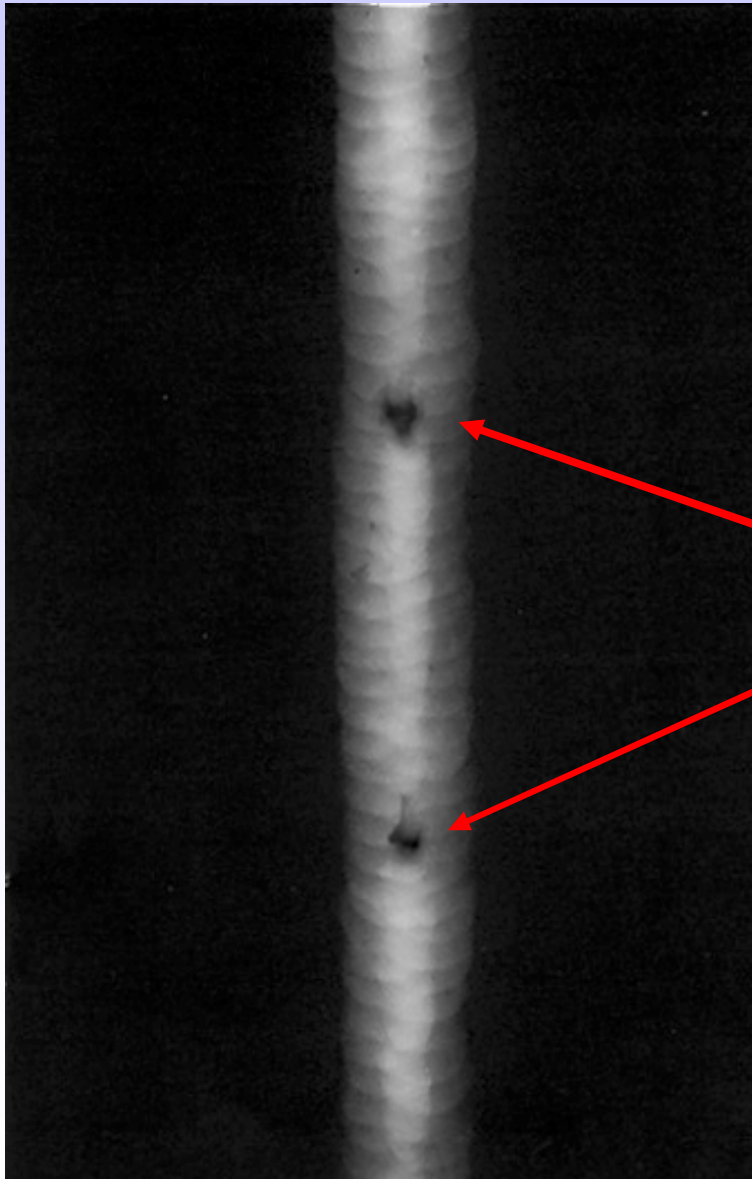
What's the defect?



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Radiographic Interpretation of Welds



Burn through

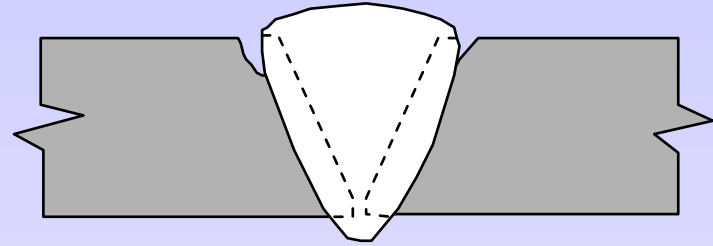
What's the defects?



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Radiographic Interpretation of Welds



Cap undercut

What's the defect?



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Radiographic Interpretation of Welds



Wormholes/Piping

What's the defect?



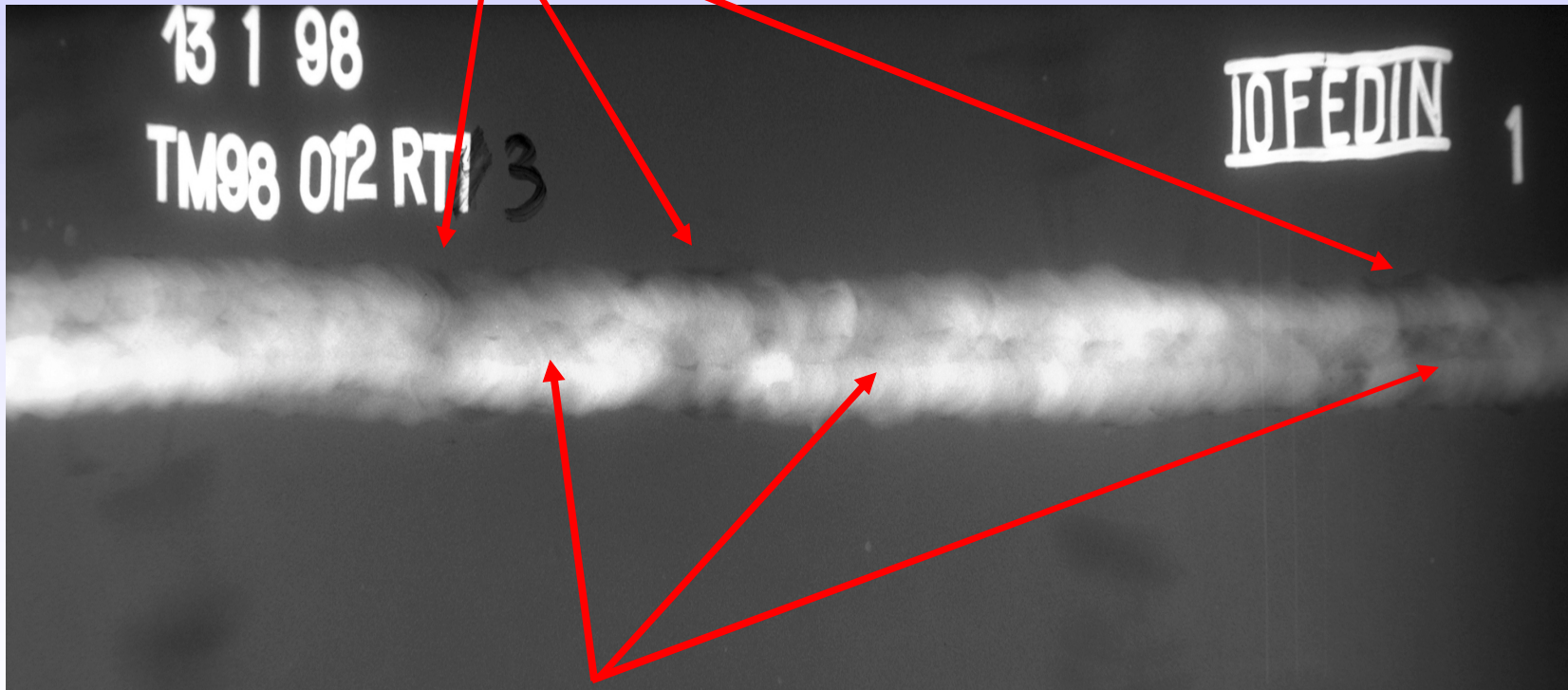
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Radiographic Interpretation of Welds

Note: Grinding marks on parent plate

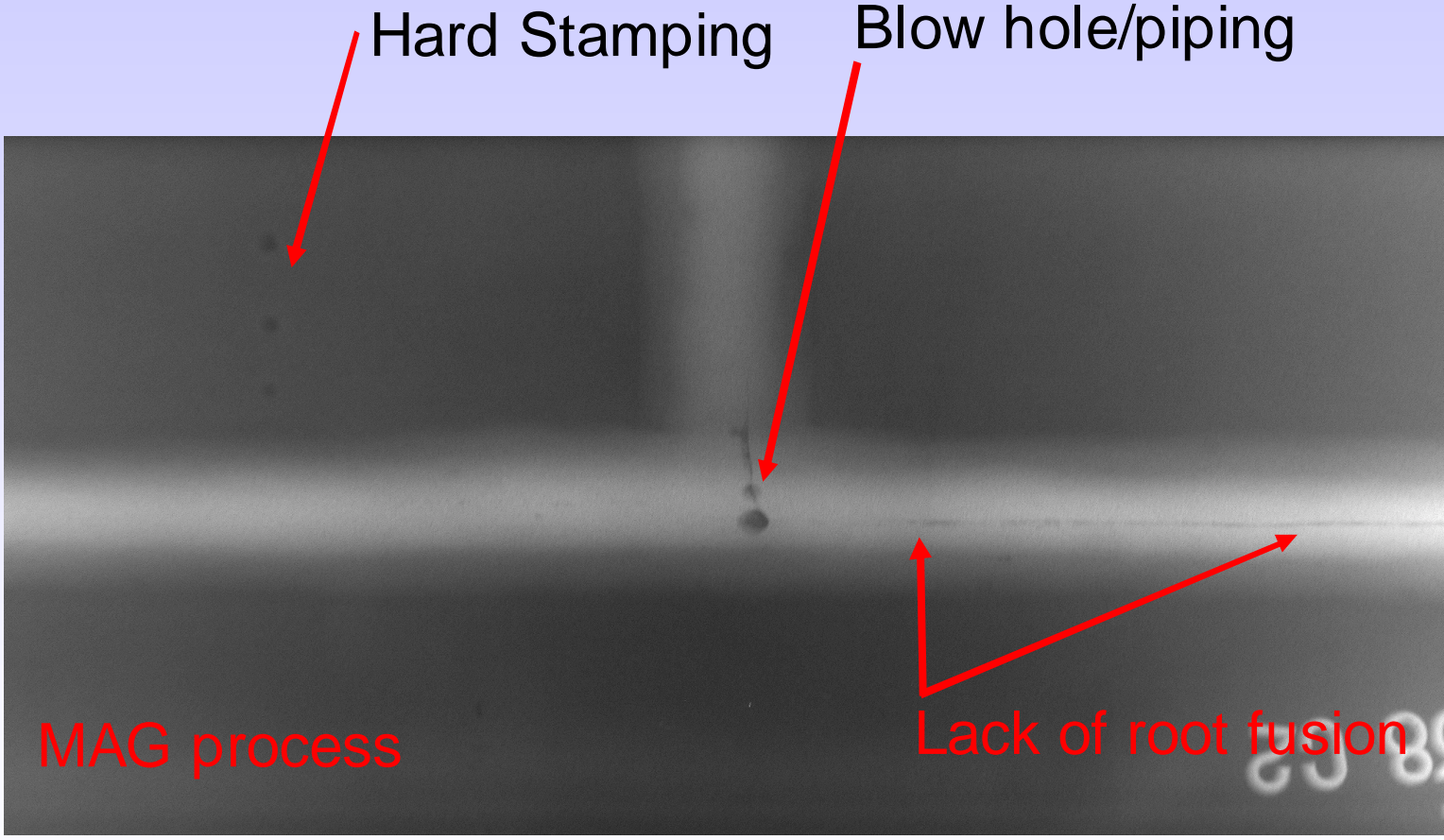
Cap undercut intermittent



Concave root

What's the defect?

Radiographic Interpretation of Welds



What's the defects?

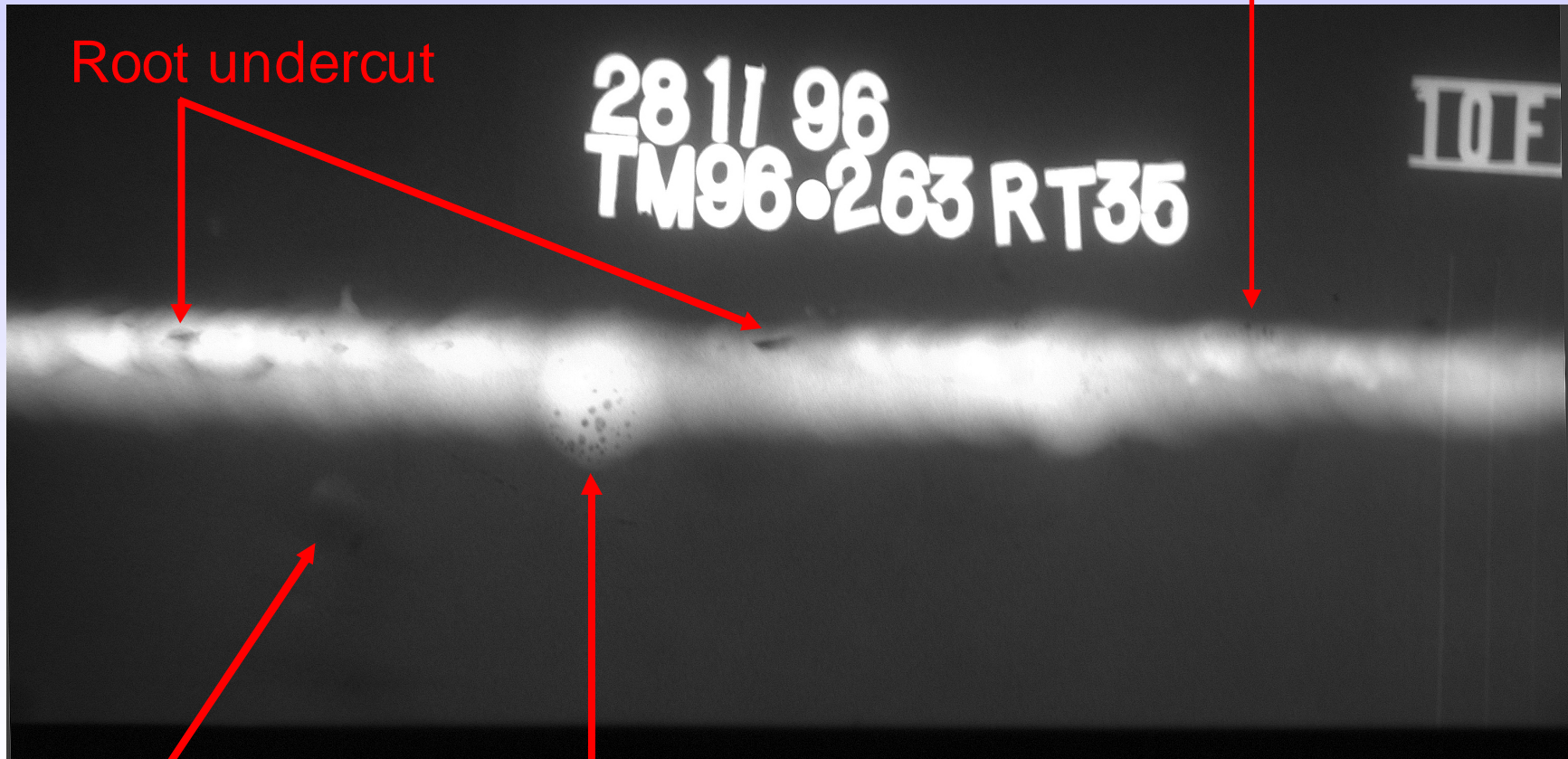


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Radiographic Interpretation of Welds

Note: Grinding marks on parent plate



Root undercut

Porosity

Arc strike indication

Porosity

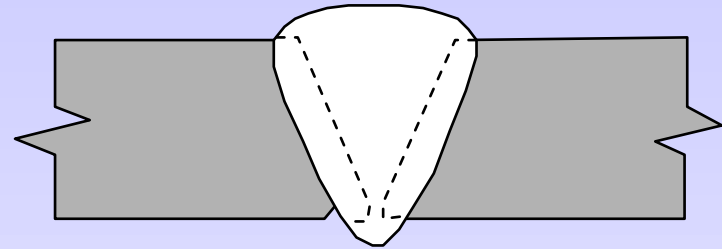
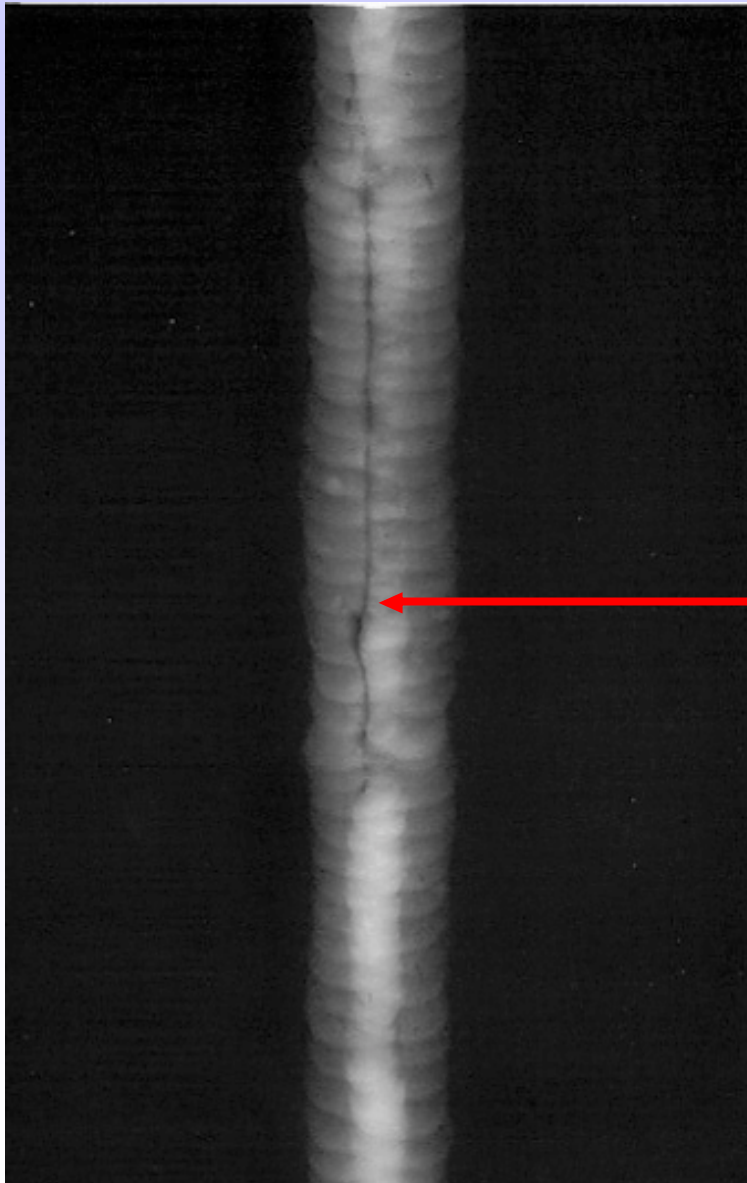
What's the defects?



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Radiographic Interpretation of Welds



Root undercut

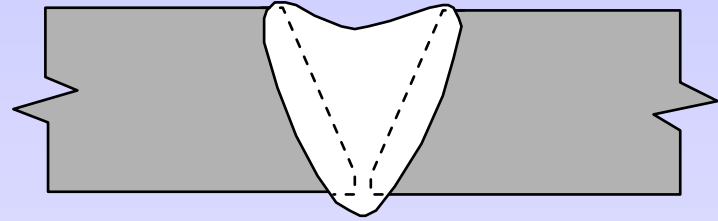
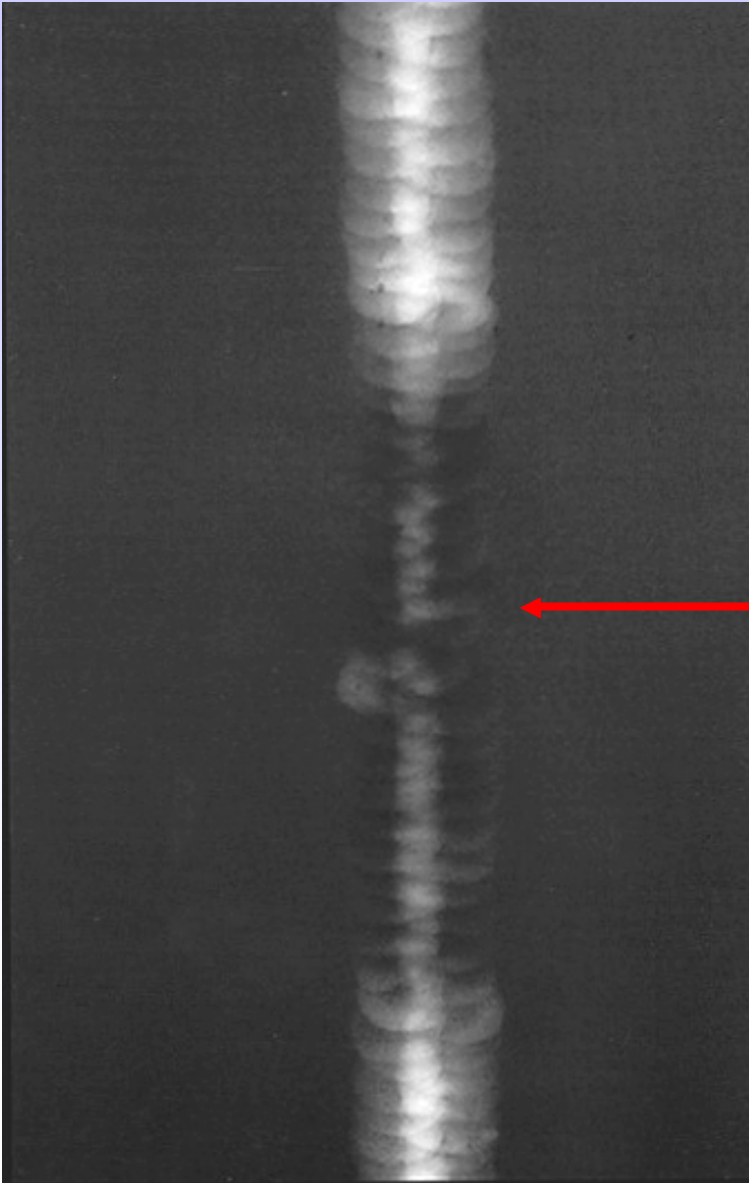
What's the defect?



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Radiographic Interpretation of Welds



Incomplete filled groove

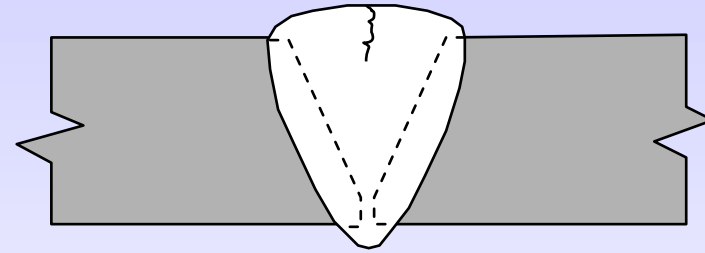
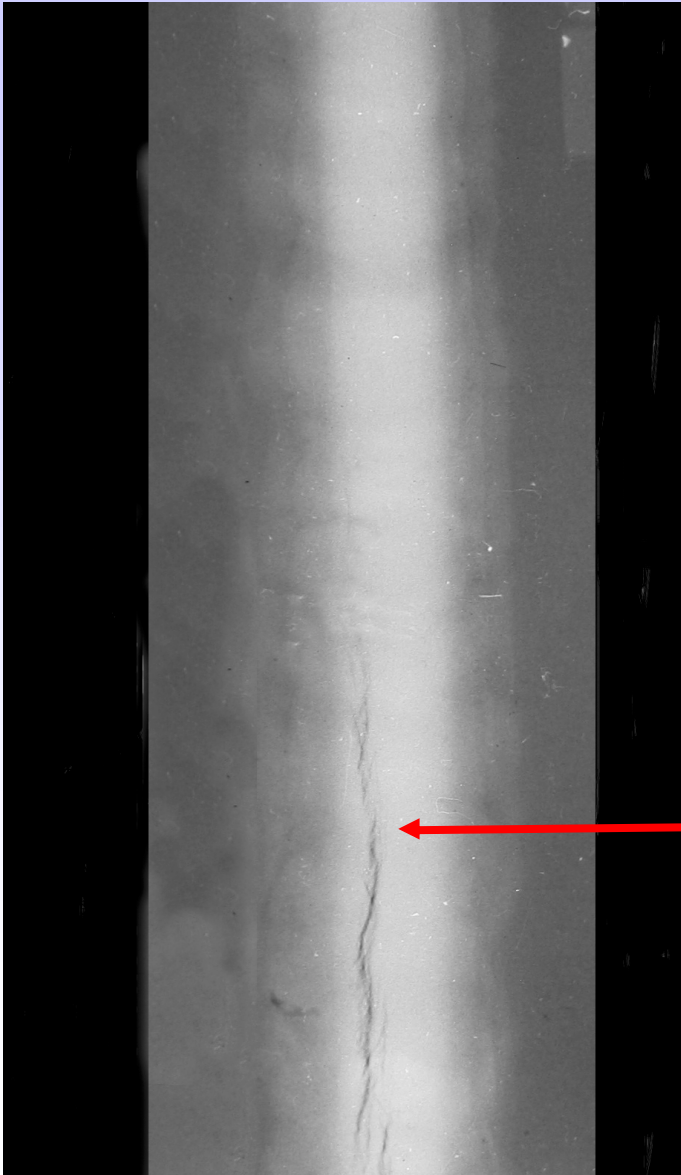
What's the defect?



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Radiographic Interpretation of Welds

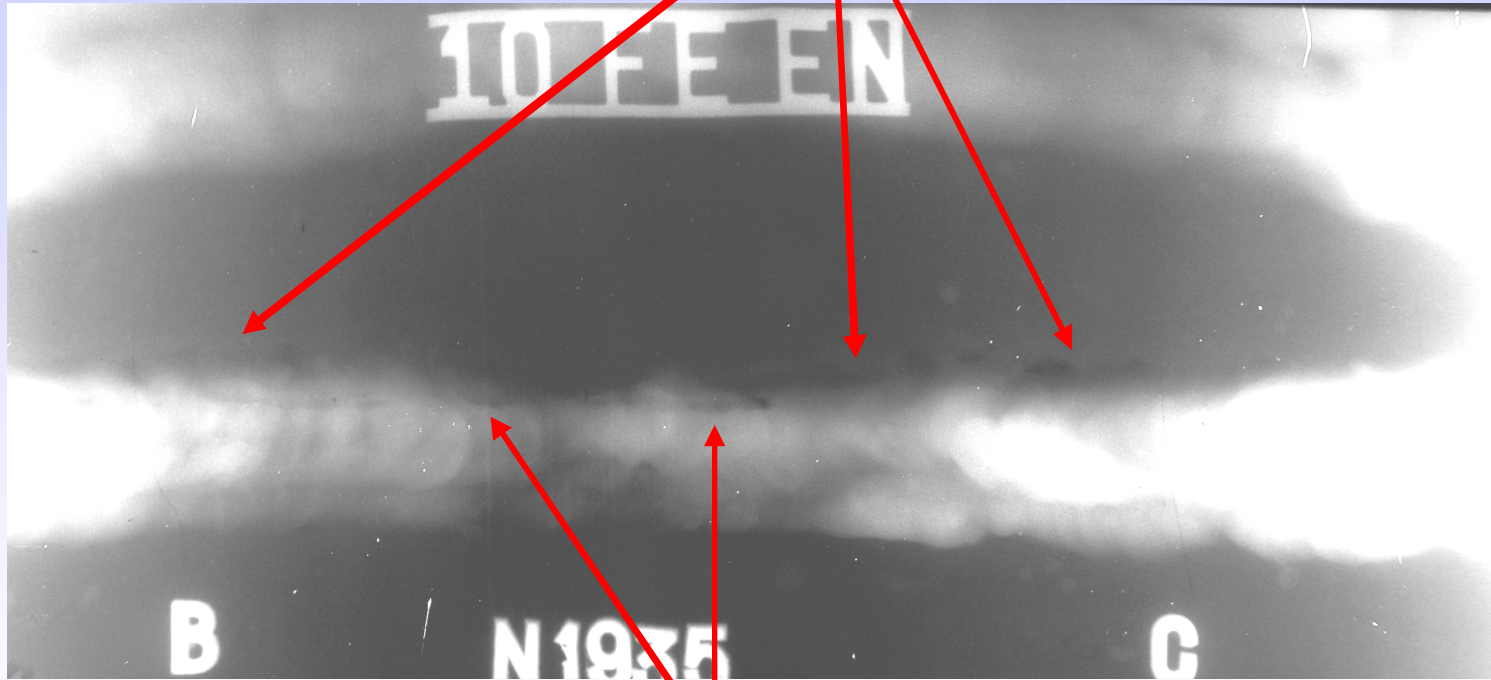


Longitudinal
crack

What's the defect?

Radiographic Interpretation of Welds

Cap Undercut Intermittent



Slag Line

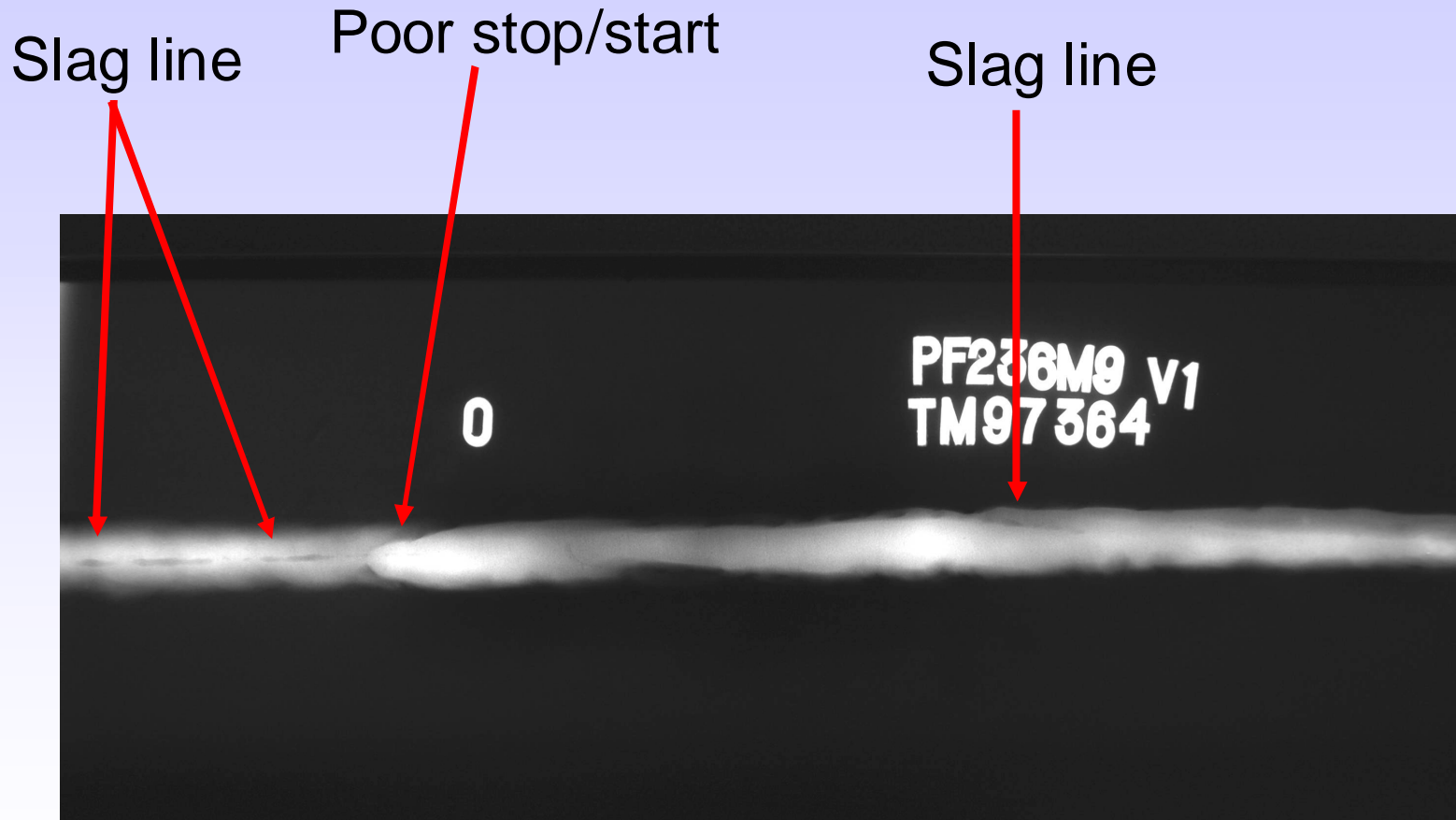
What's the defects?



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Radiographic Interpretation of Welds



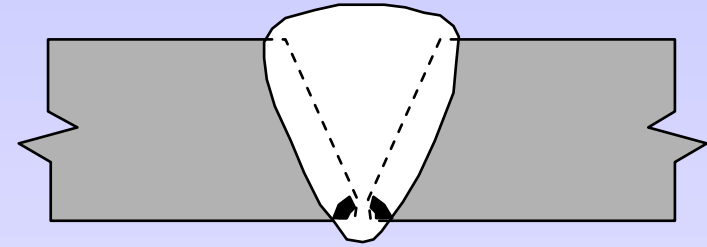
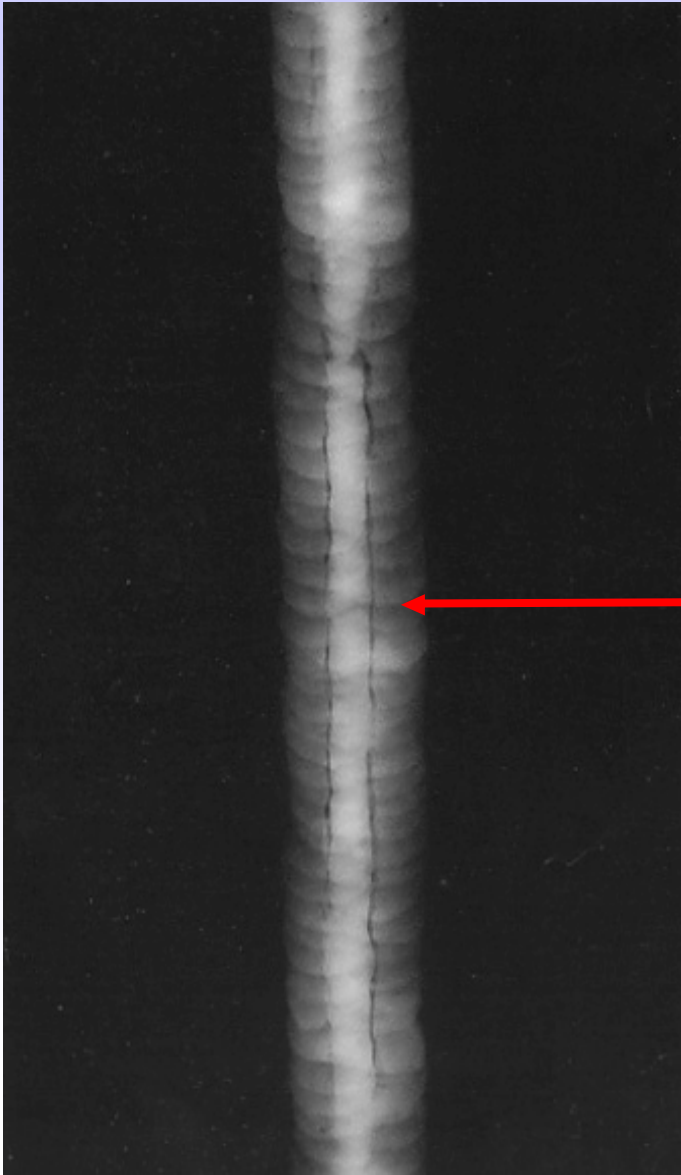
What's the defect?



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Radiographic Interpretation of Welds



Elongated slag lines

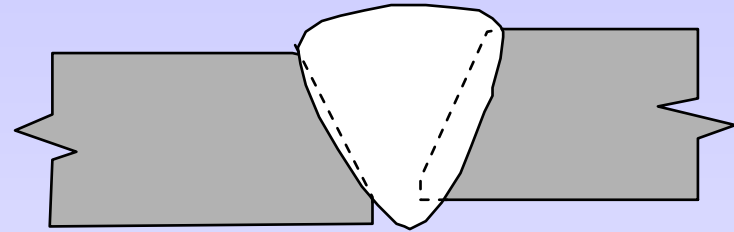
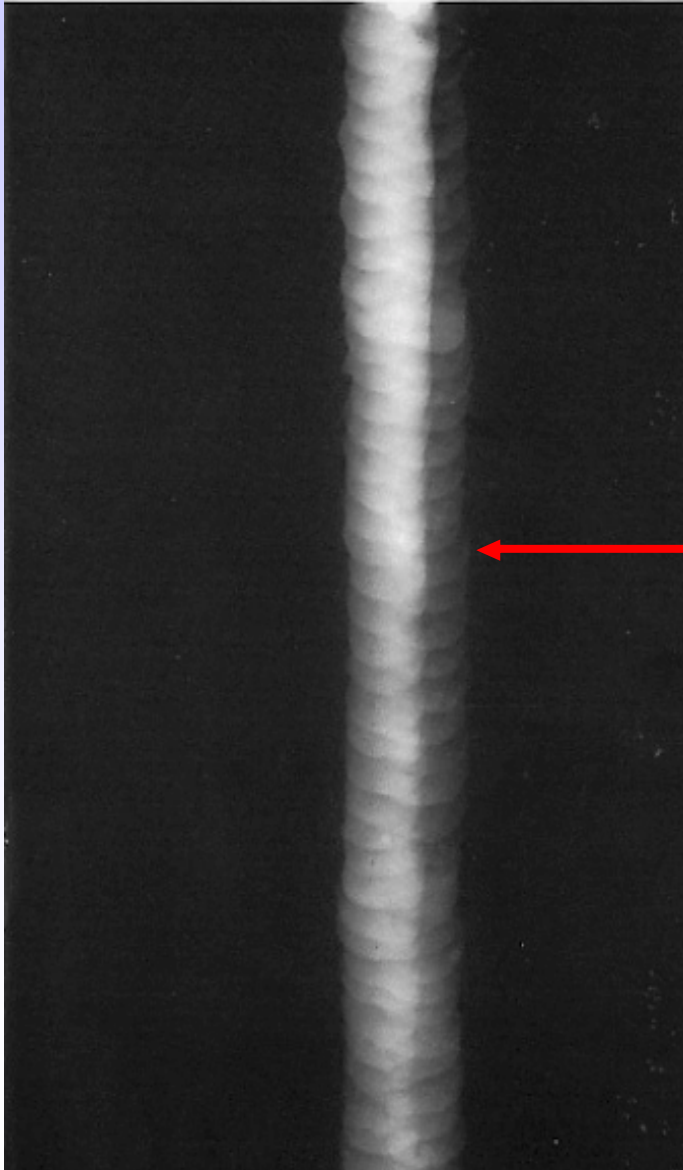
What's the defect?



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Radiographic Interpretation of Welds



**Linear
misalignment**

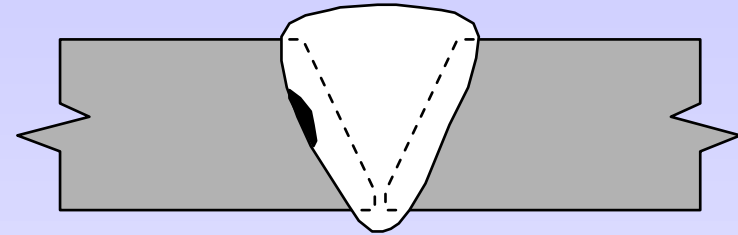
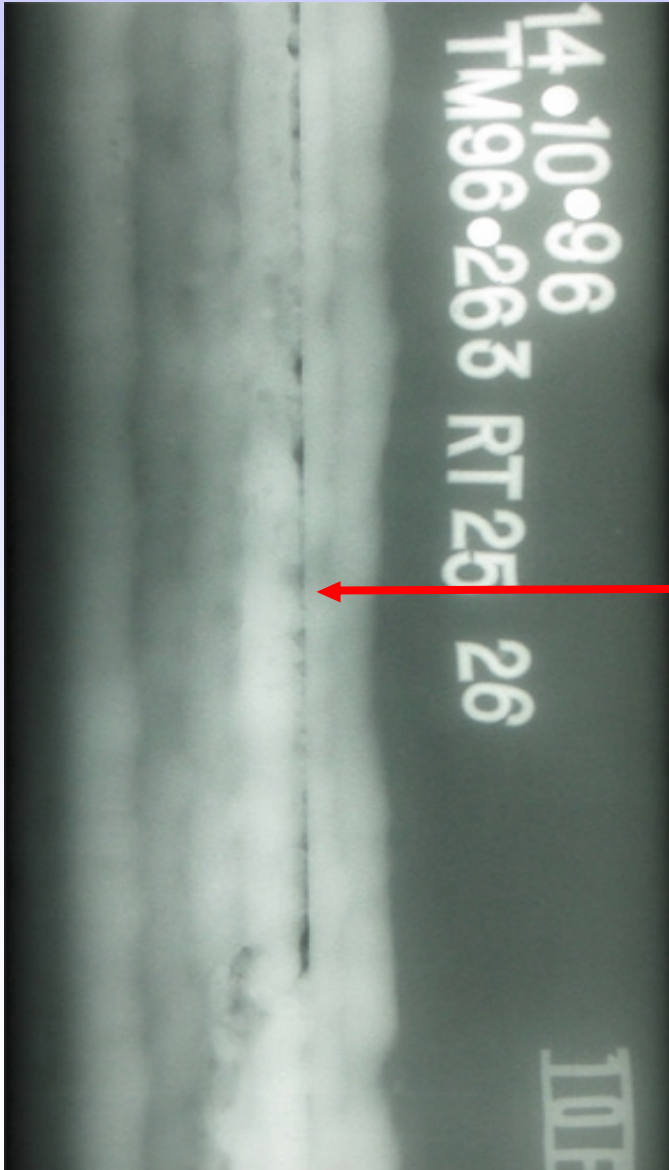
What's the defect?



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Radiographic Interpretation of Welds



Lack of sidewall fusion

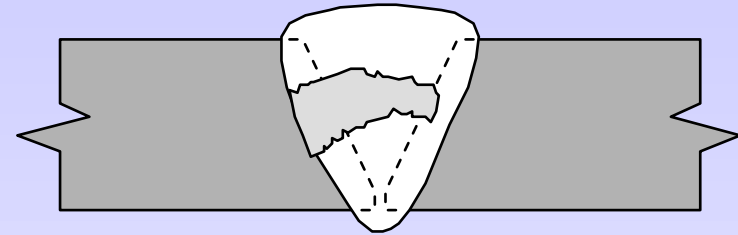
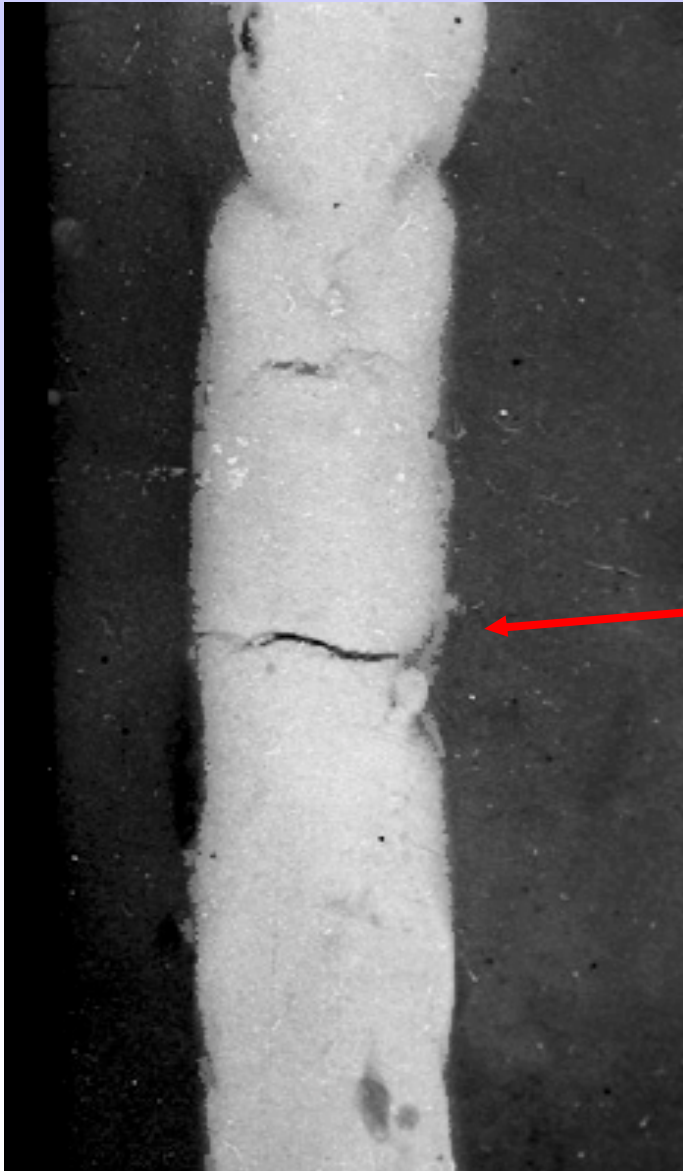
What's the defect?



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Radiographic Interpretation of Welds



**Transverse
cracking**

What's the defect?



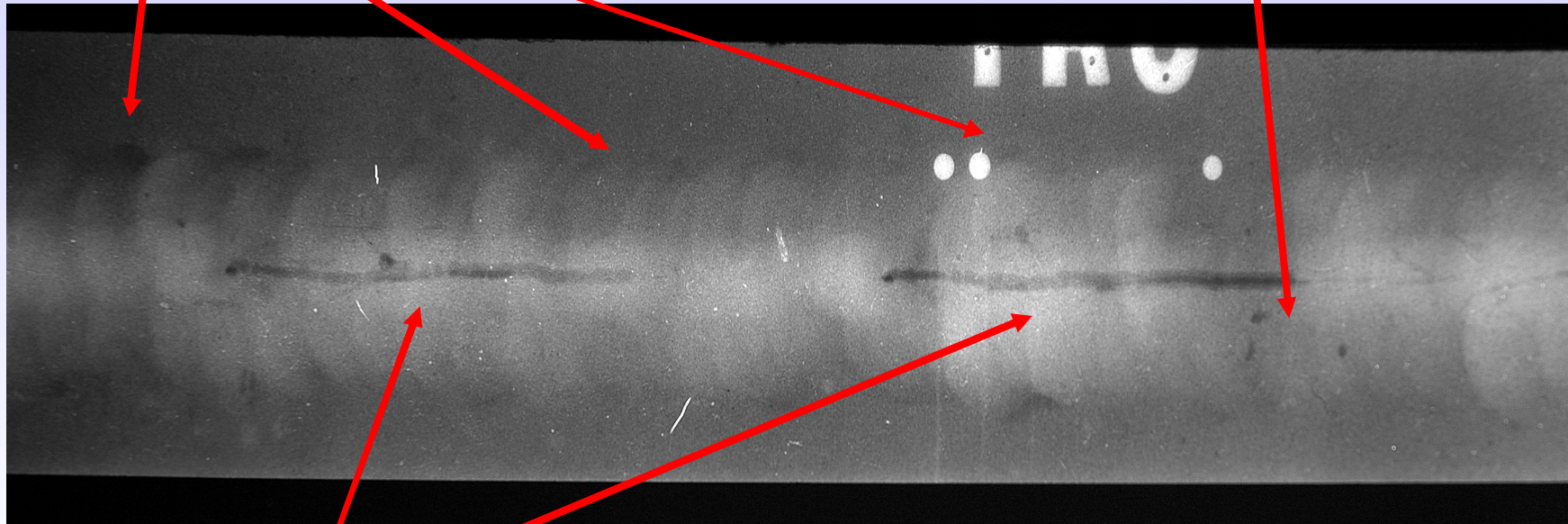
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Radiographic Interpretation of Welds

Cap undercut intermittent

Slag inclusions



Root piping

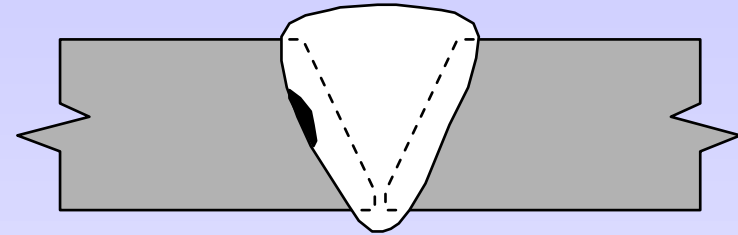
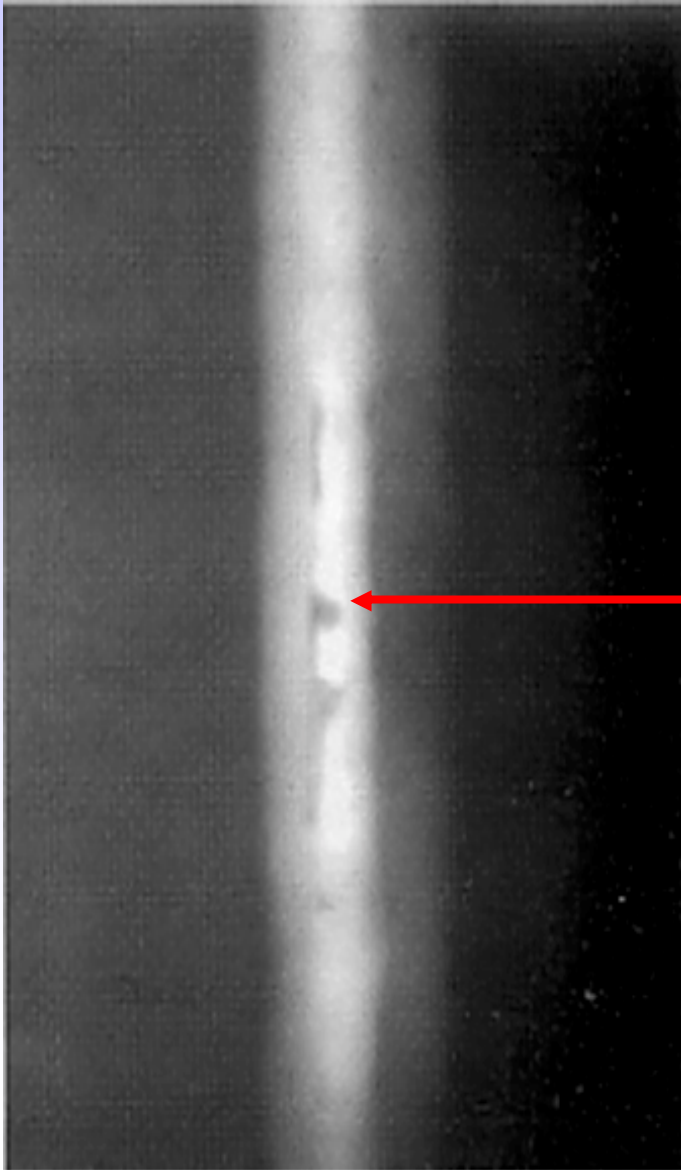
What's the defect?



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Radiographic Interpretation of Welds



Lack of sidewall fusion + slag

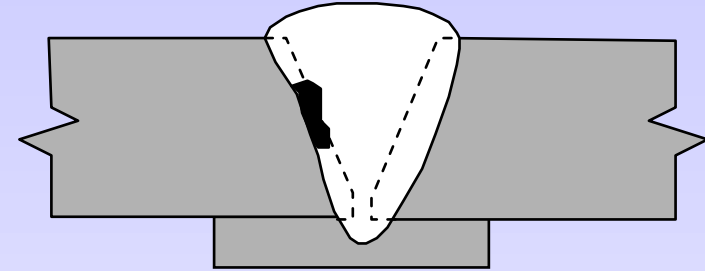
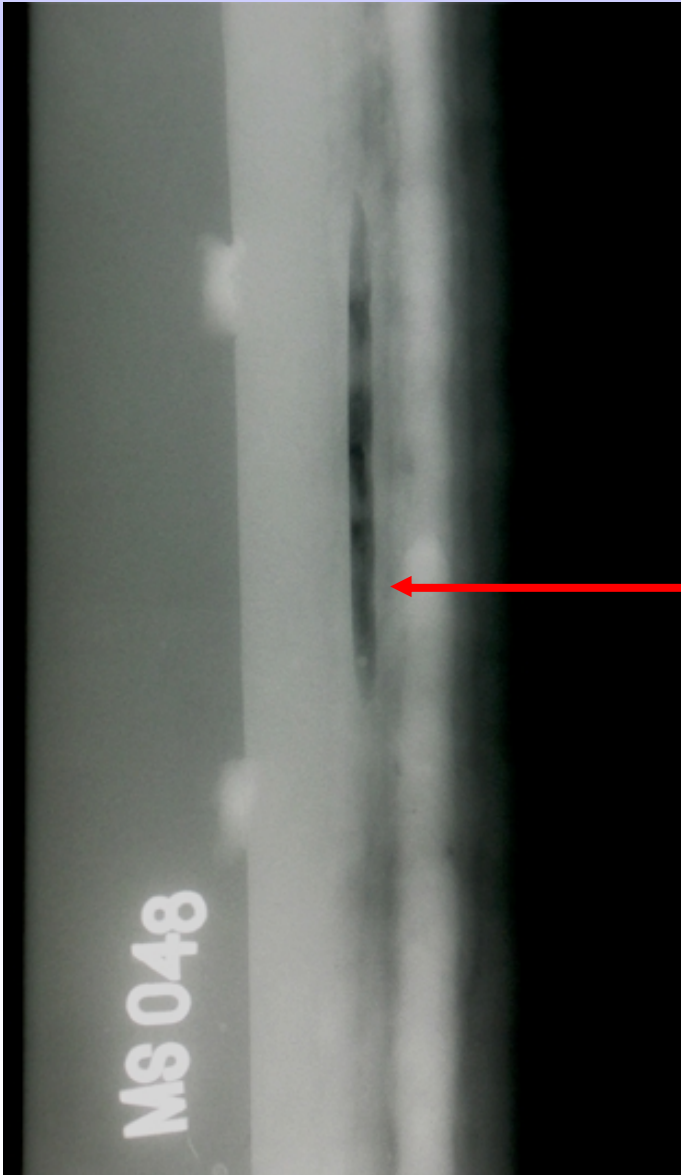
What's the defect?



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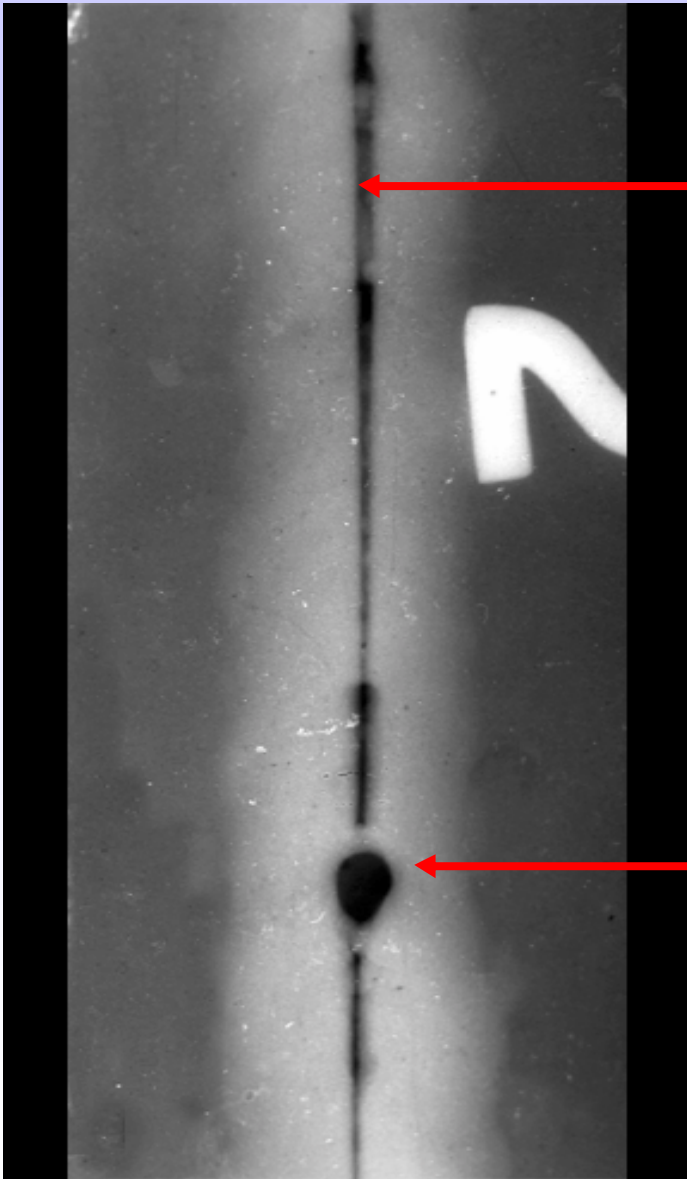
Radiographic Interpretation of Welds



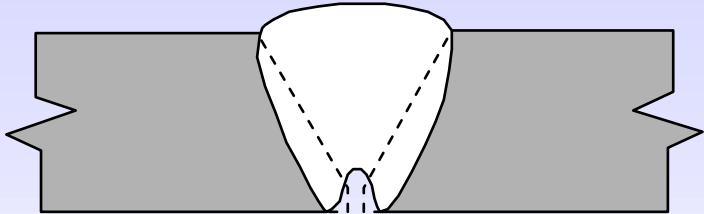
Lack of sidewall fusion + slag

What's the defect?

Radiographic Interpretation of Welds



Lack of root penetration

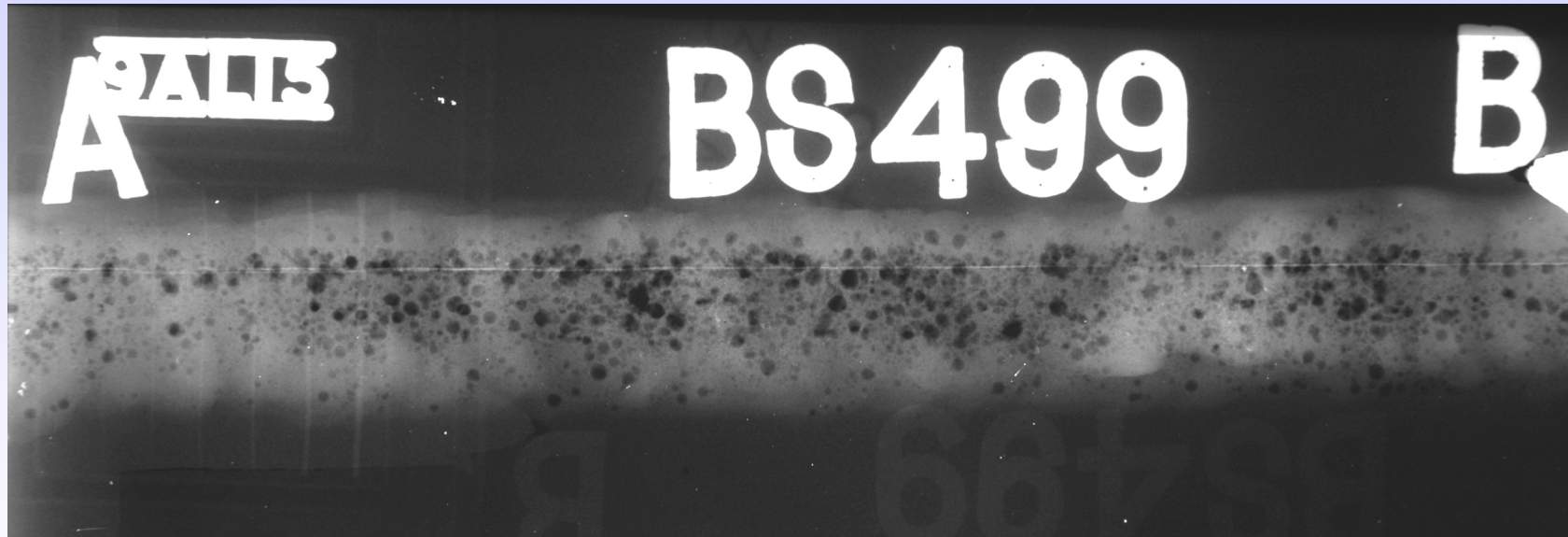


Burn through

What's the defects?

Radiographic Interpretation of Welds

Note: Re-shoot lead letters in weld area



Cluster porosity throughout weld

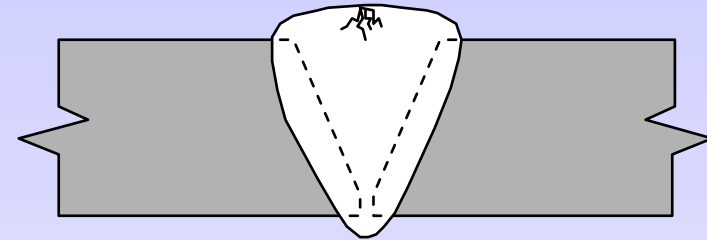
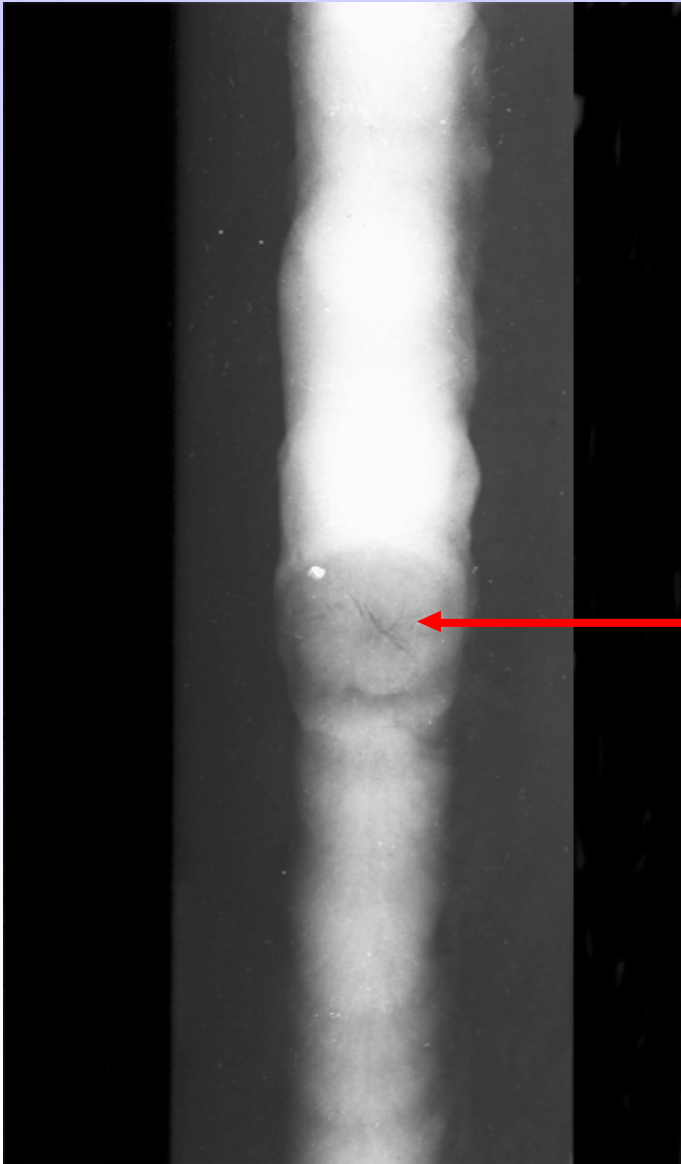
What's the defect?



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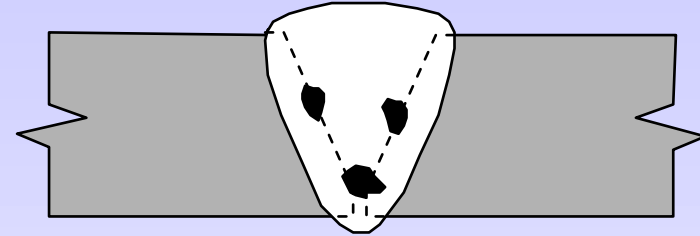
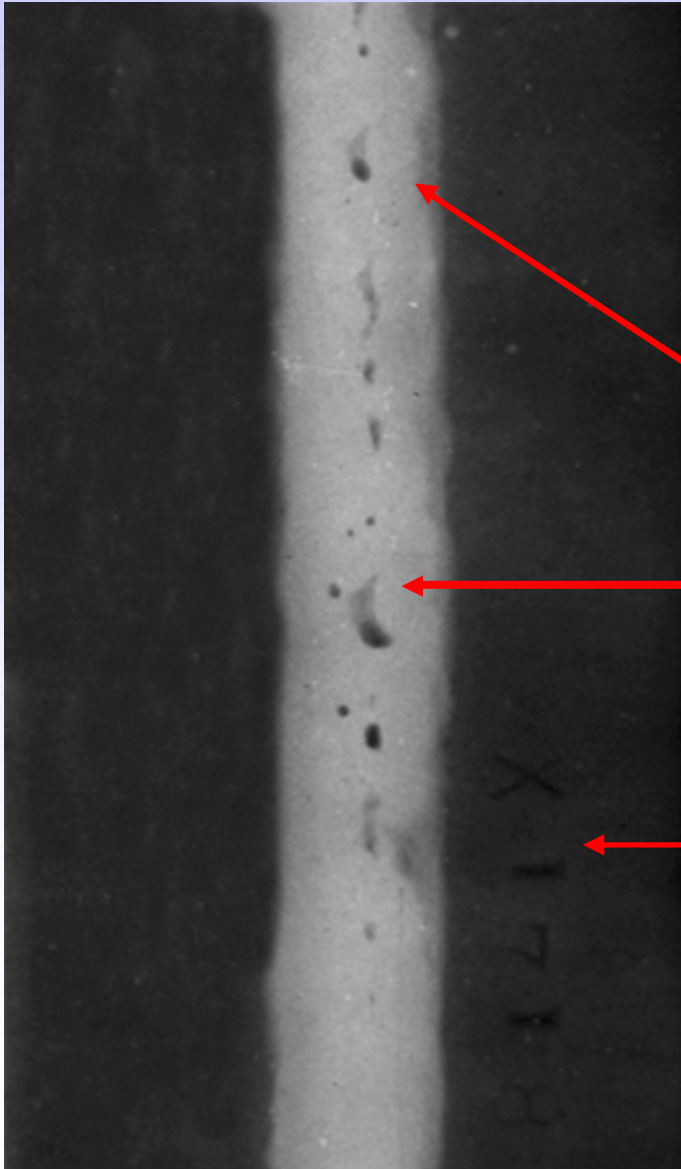
Radiographic Interpretation of Welds



Crater crack or
Star crack

What's the defect?

Radiographic Interpretation of Welds



Worm holes

Do you see anything else

Hard stamping

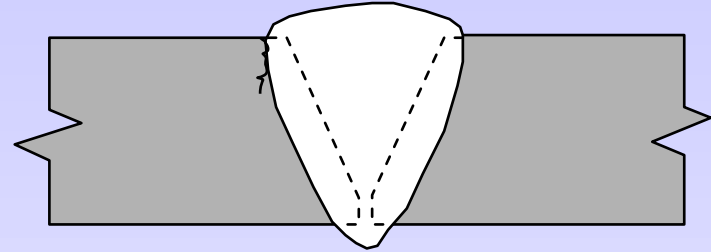
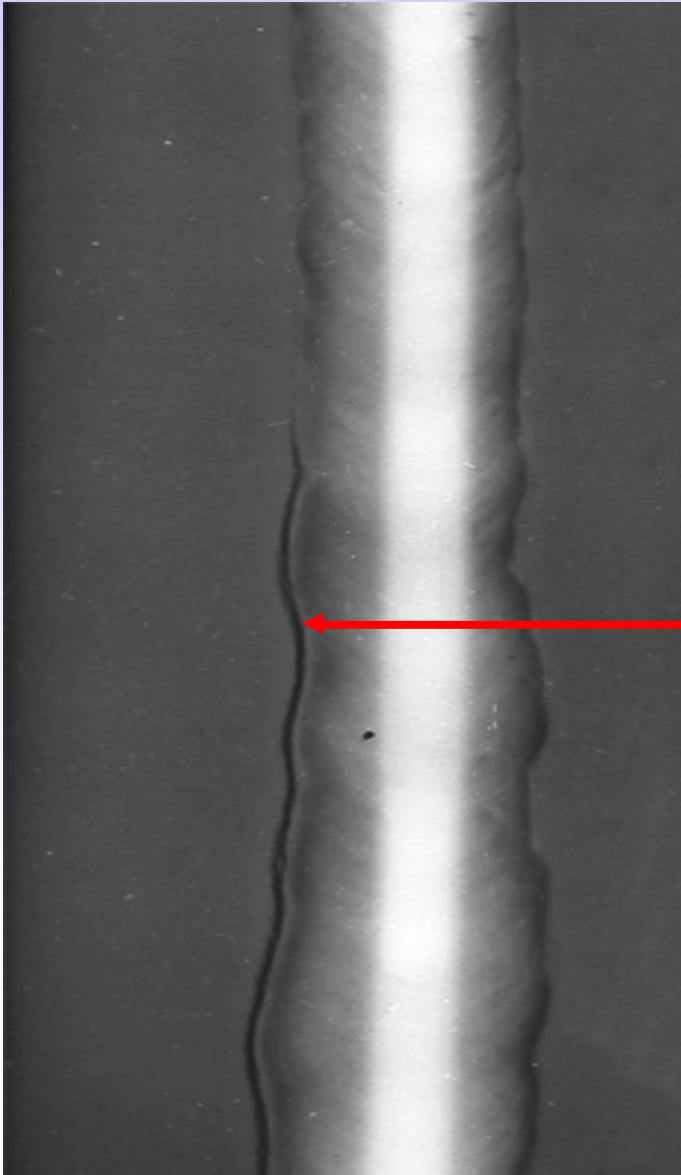
What's the defect?



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Radiographic Interpretation of Welds



HAZ crack

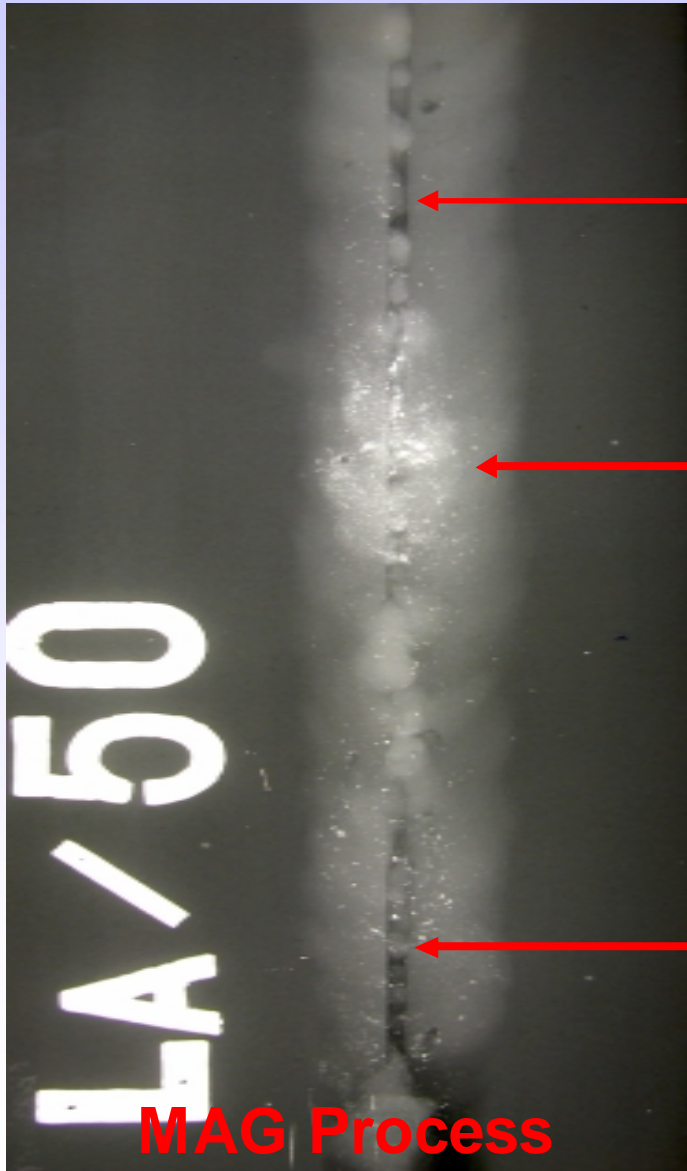
What's the defect?



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Radiographic Interpretation of Welds



Lack of root penetration

Copper inclusions

Lack of root penetration

What's the defects?



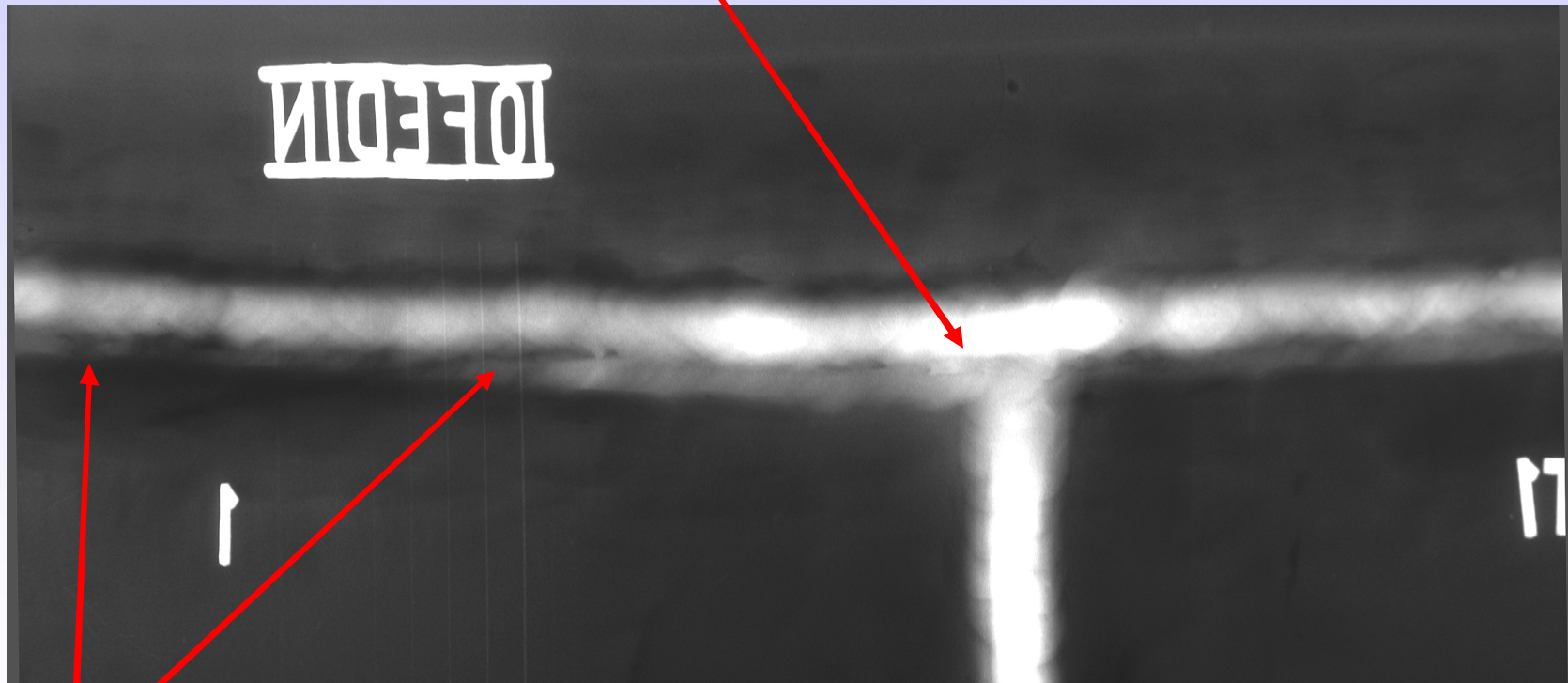
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Radiographic Interpretation of Welds

Note: Grinding marks throughout

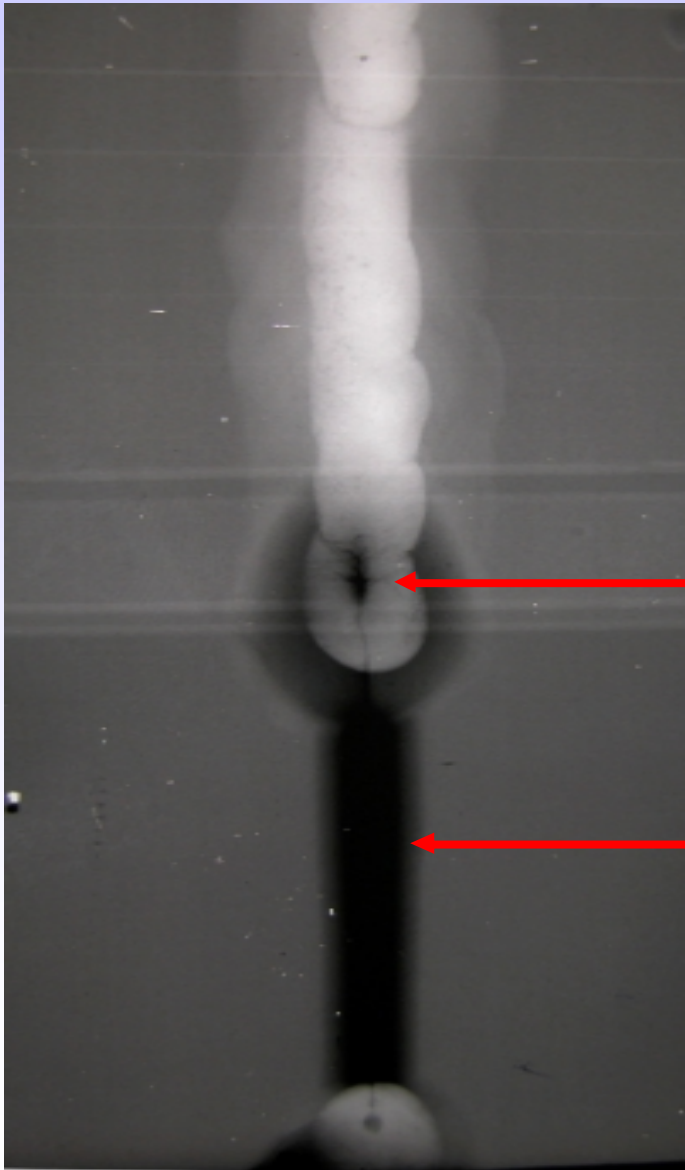
Excess root penetration



Root undercut

What's the defect?

Radiographic Interpretation of Welds

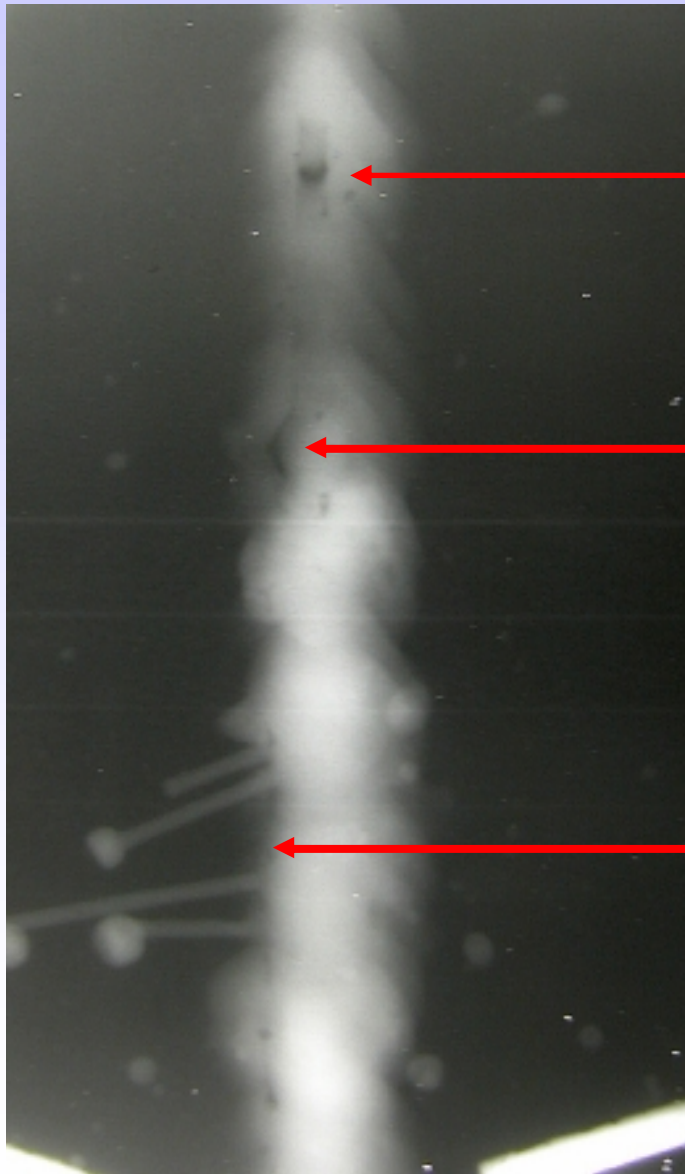


**Crater cracks
+ crater pipe**

No weld metal

What's the defect?

Radiographic Interpretation of Welds



Lack of root penetration

Root undercut

Unfused filler wire

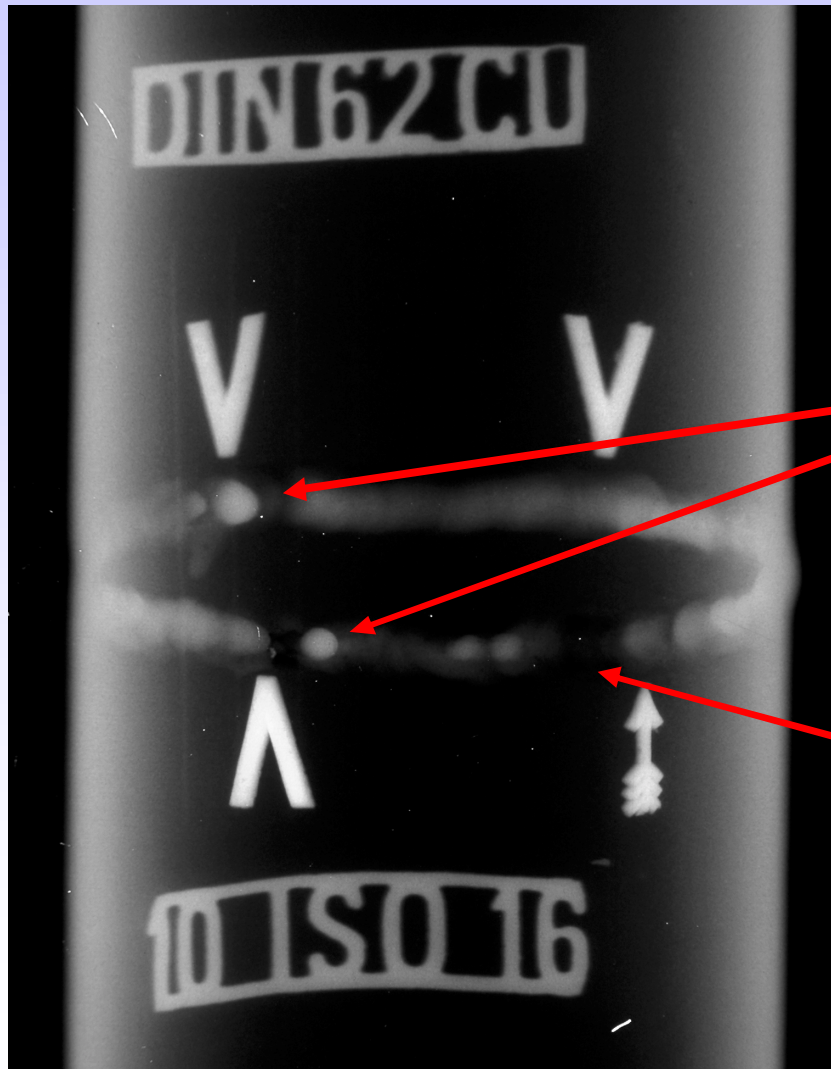
What's the defect?



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Radiographic Interpretation of Welds



Excess penetration

Flush weld

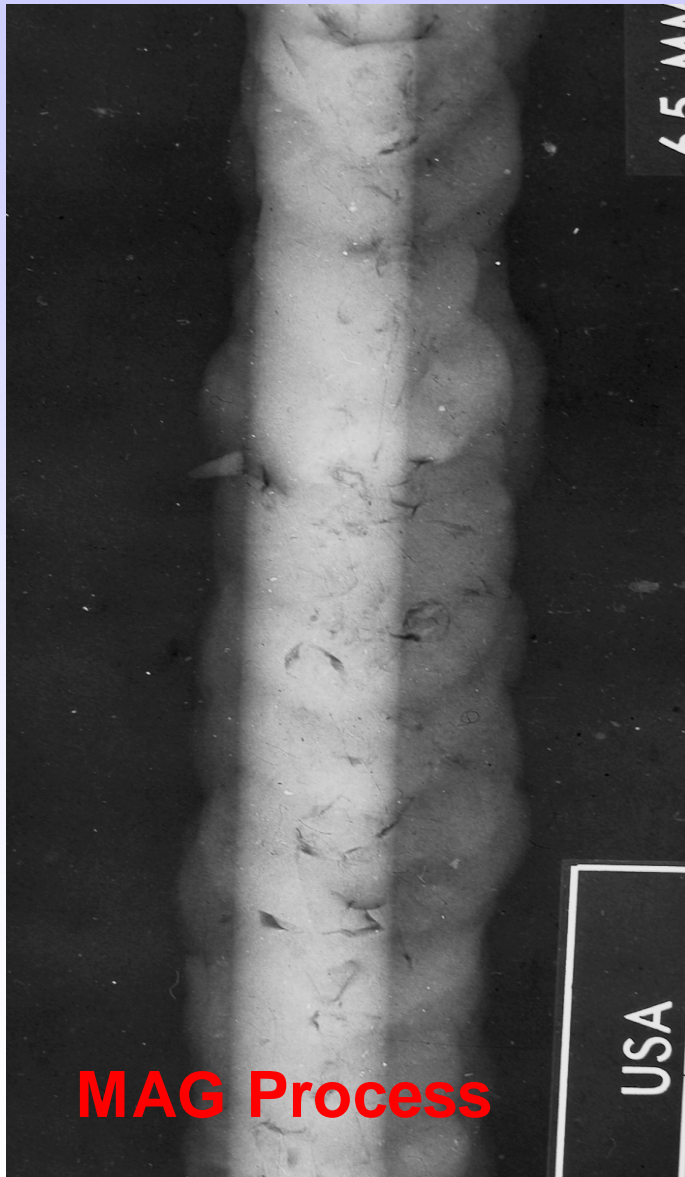
What's the defect?



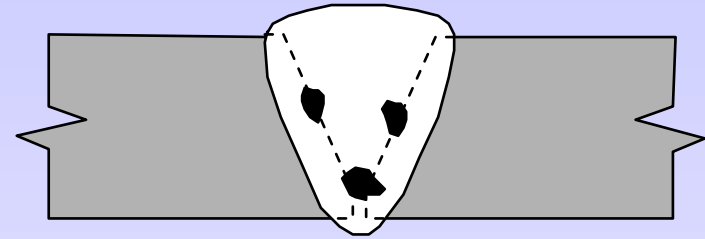
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Radiographic Interpretation of Welds



MAG Process



Silica inclusions

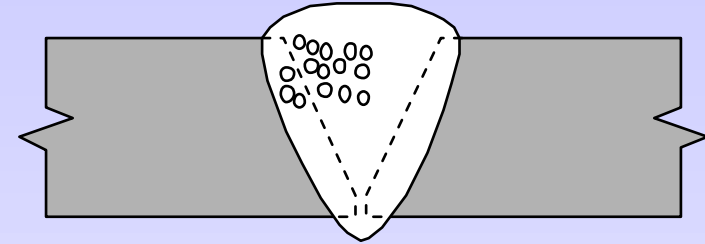
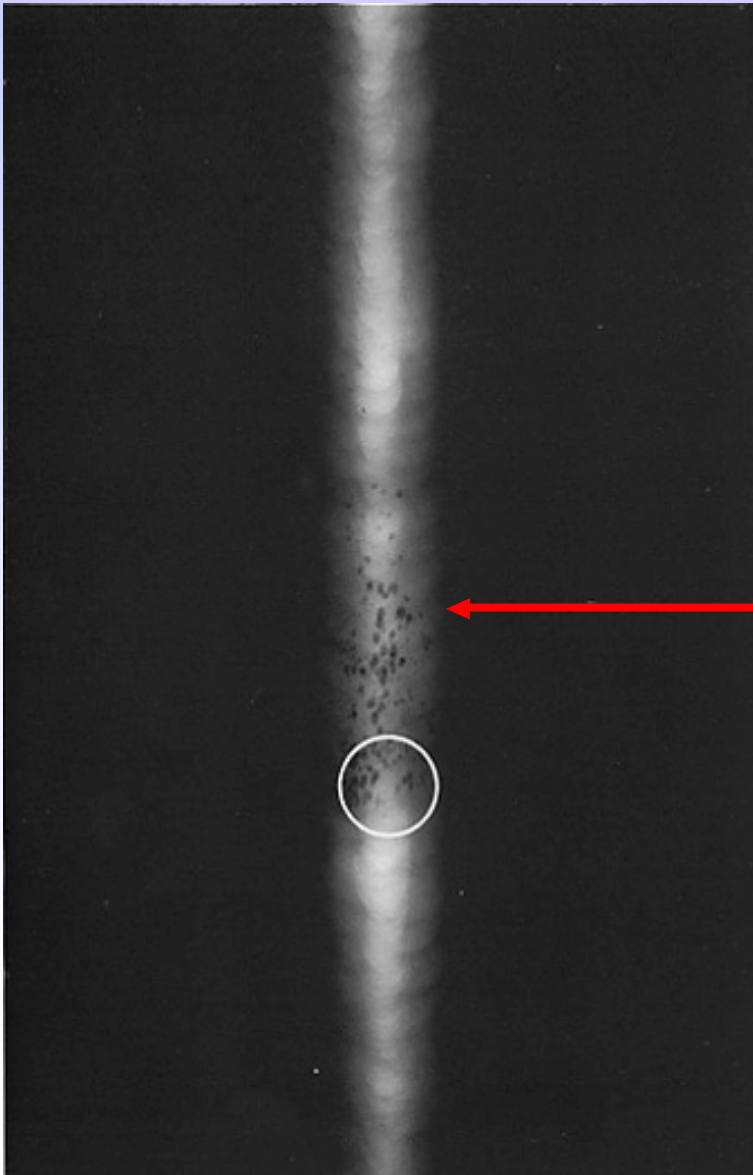
What's the defect?



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Radiographic Interpretation of Welds



Cluster porosity

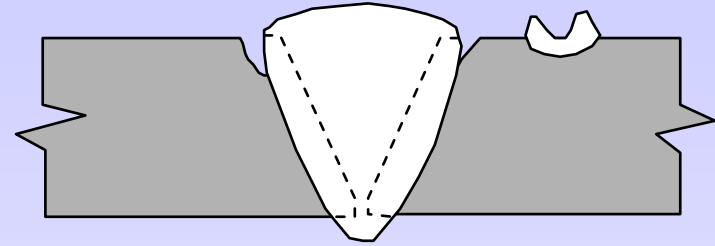
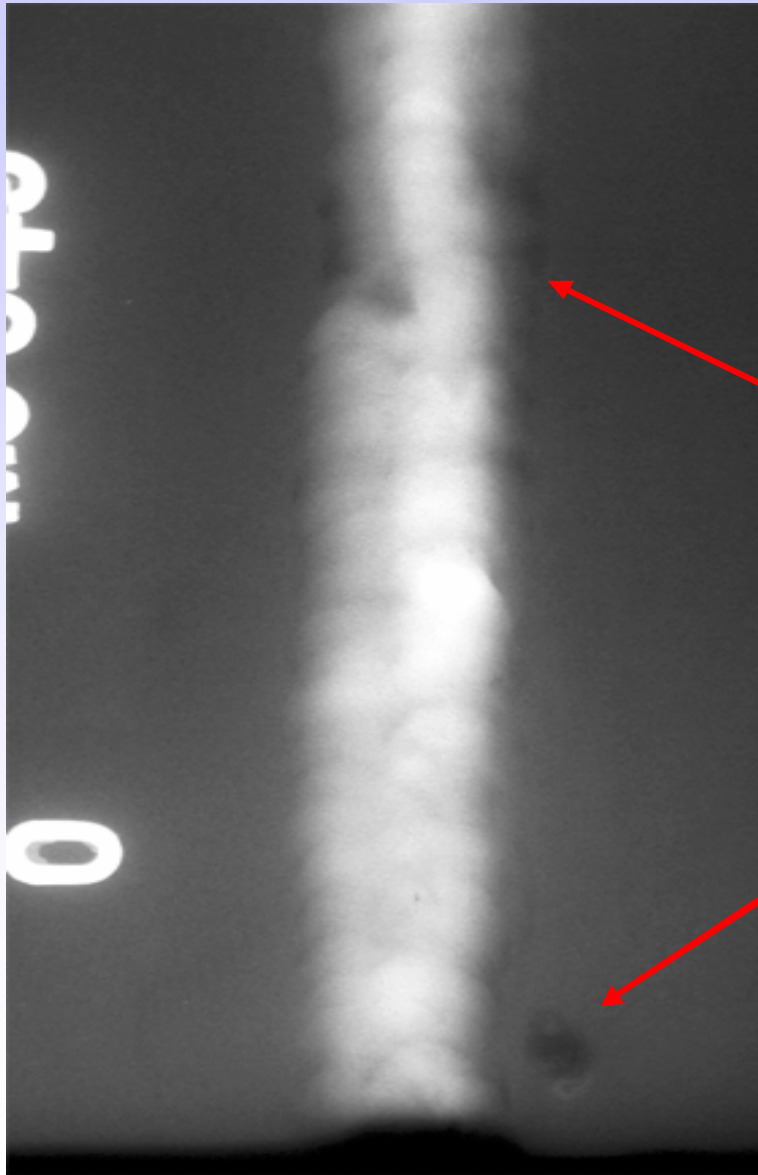
What's the defect?



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Radiographic Interpretation of Welds



Cap undercut

Arc strike

What's the defects?



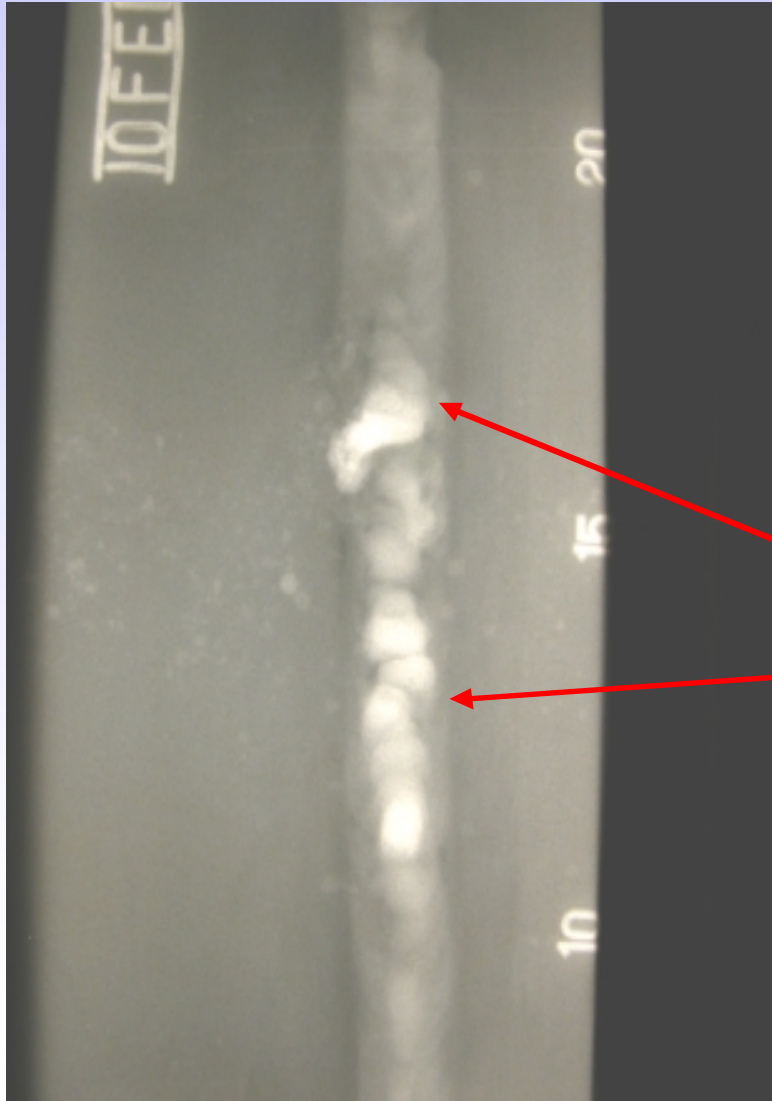
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Radiographic Interpretation of Welds

Do you see anything else?

Spatter / Debris



Excess Root Penetration

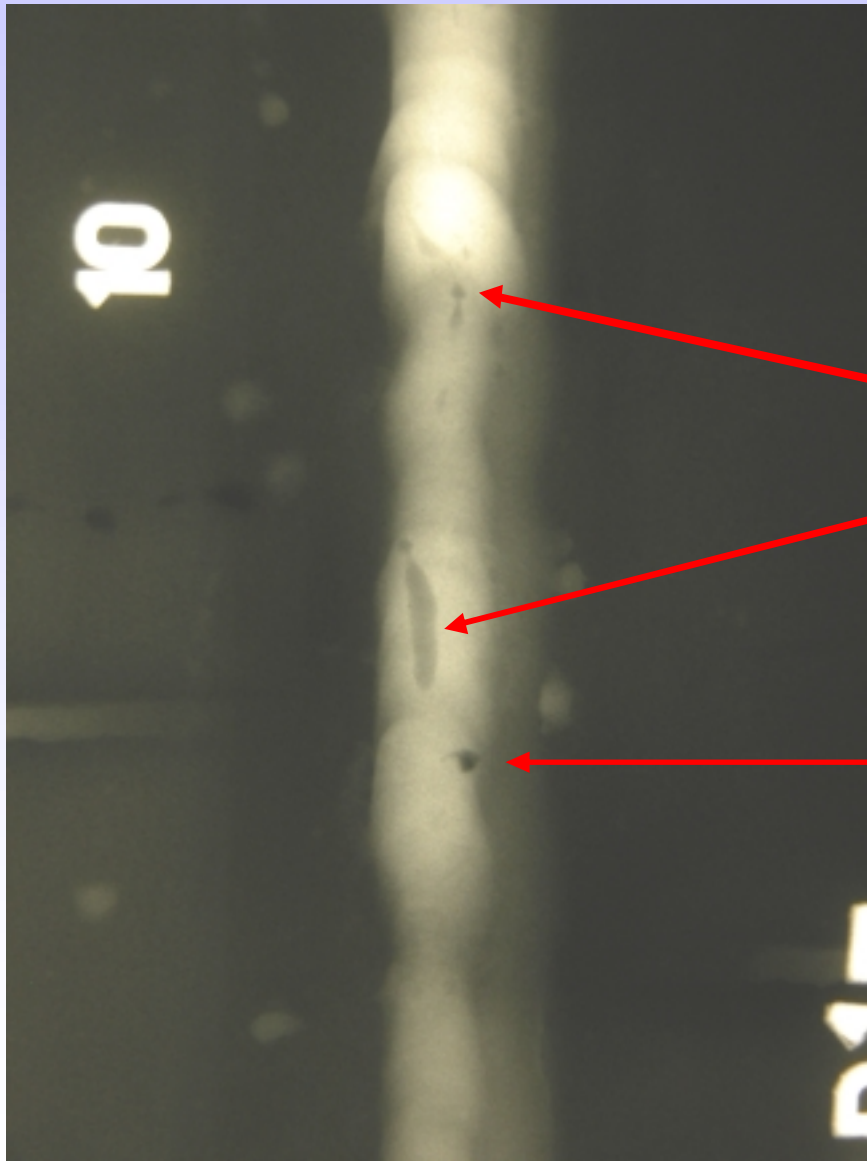
What's the defects?



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Radiographic Interpretation of Welds



What else can you see ?

Spatter

Piping

Gas pore

What's the defects?



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Radiographic Interpretation of Welds



Root undercut

What's the defects?



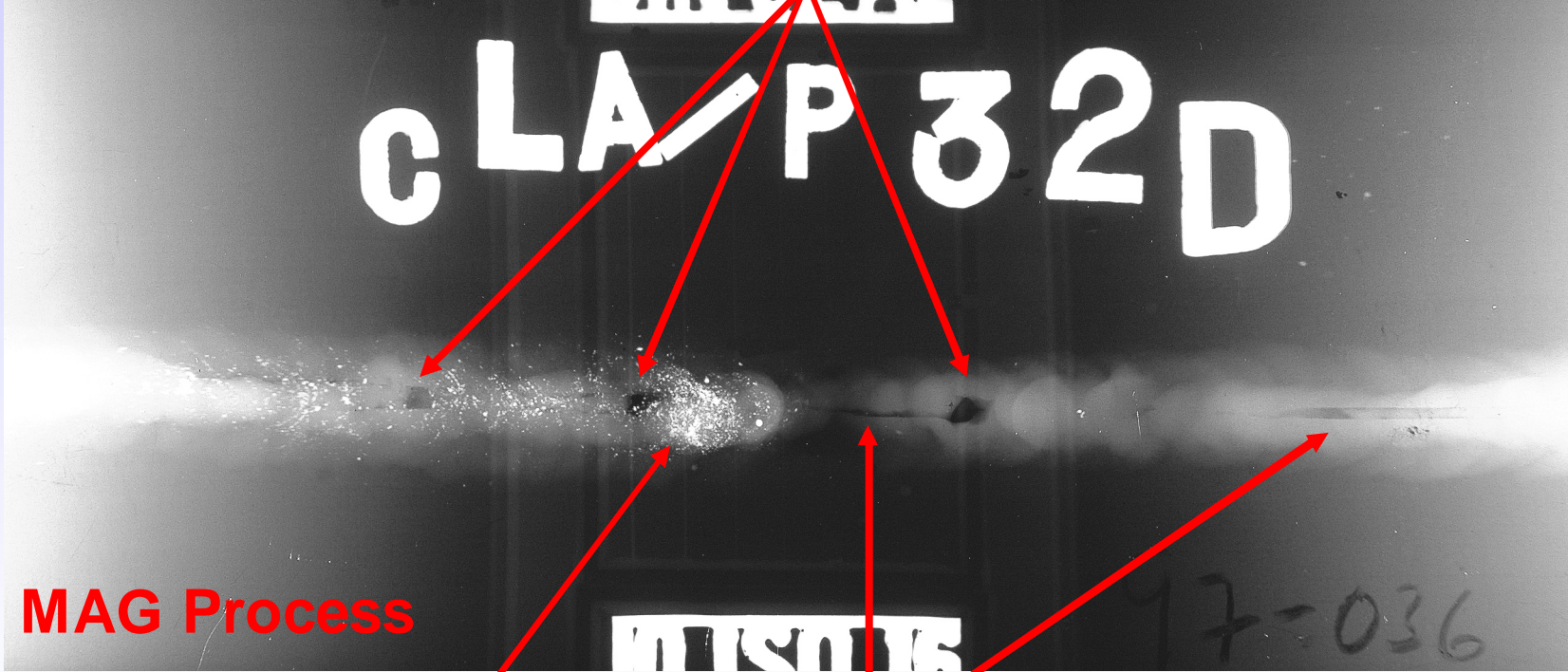
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TECHNOLOGY

Radiographic Interpretation of Welds

What's the defects?

Burn Through



MAG Process

Copper inclusions

Lack of Root Penetration

Can you see anything else?



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Radiographic Interpretation of Welds

What's the defects?

Lack of root fusion

Incomplete filled groove



Lack of root Penetration

Lack of root Penetration



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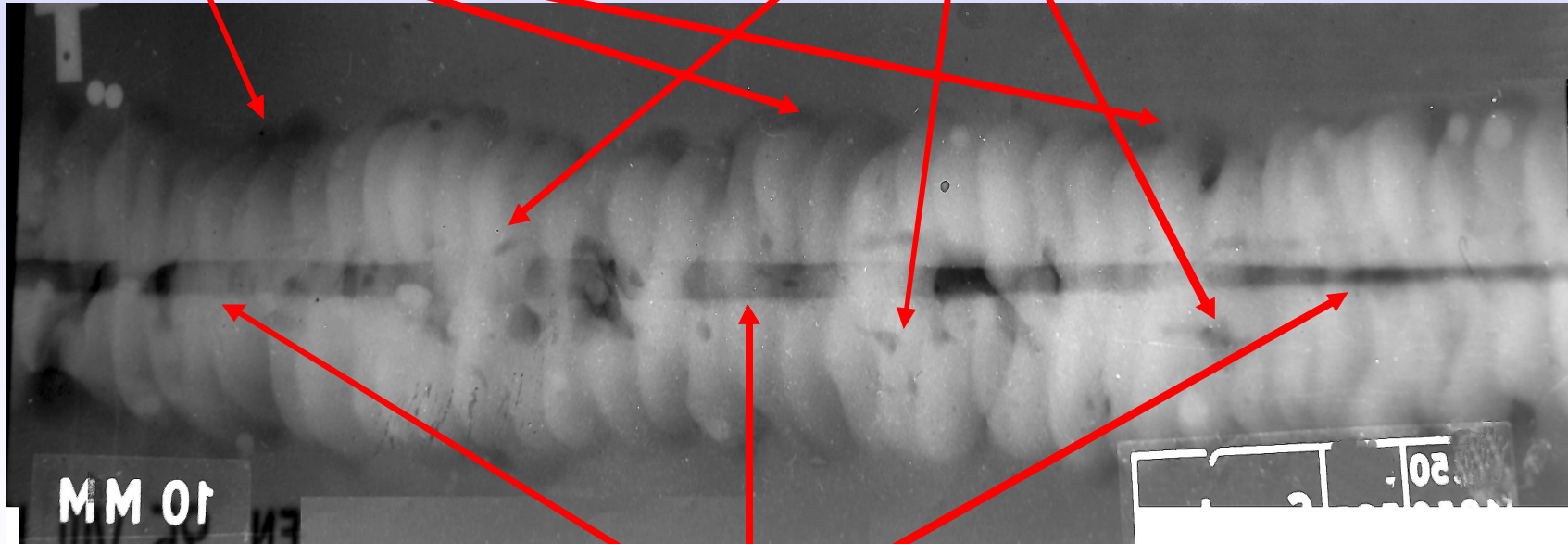
TECHNOLOGY

Radiographic Interpretation of Welds

What's the defects?

Cap Undercut

Wormholes/piping



Lack of Root Penetration



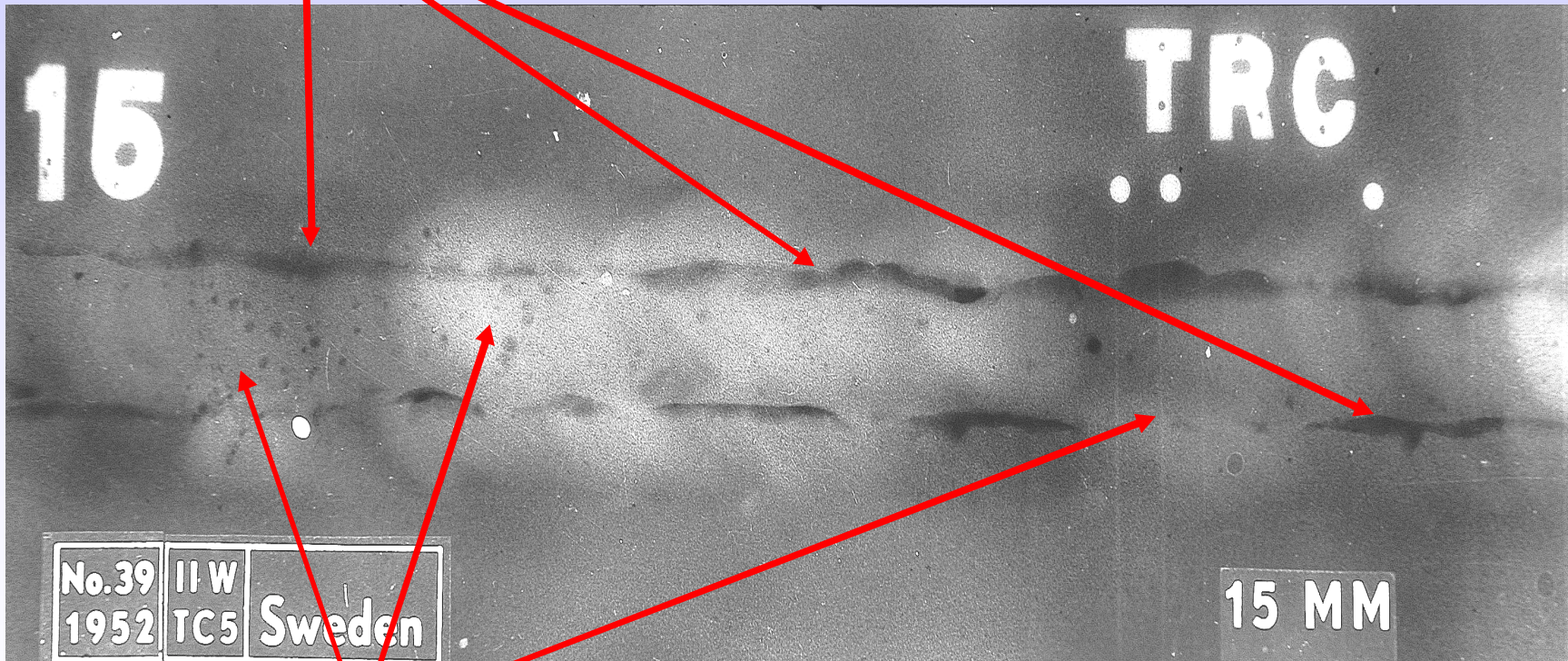
SWI 3.2

TECHNOLOGY

Radiographic Interpretation of Welds

What defects can you see?

Parallel slag lines



Porosity

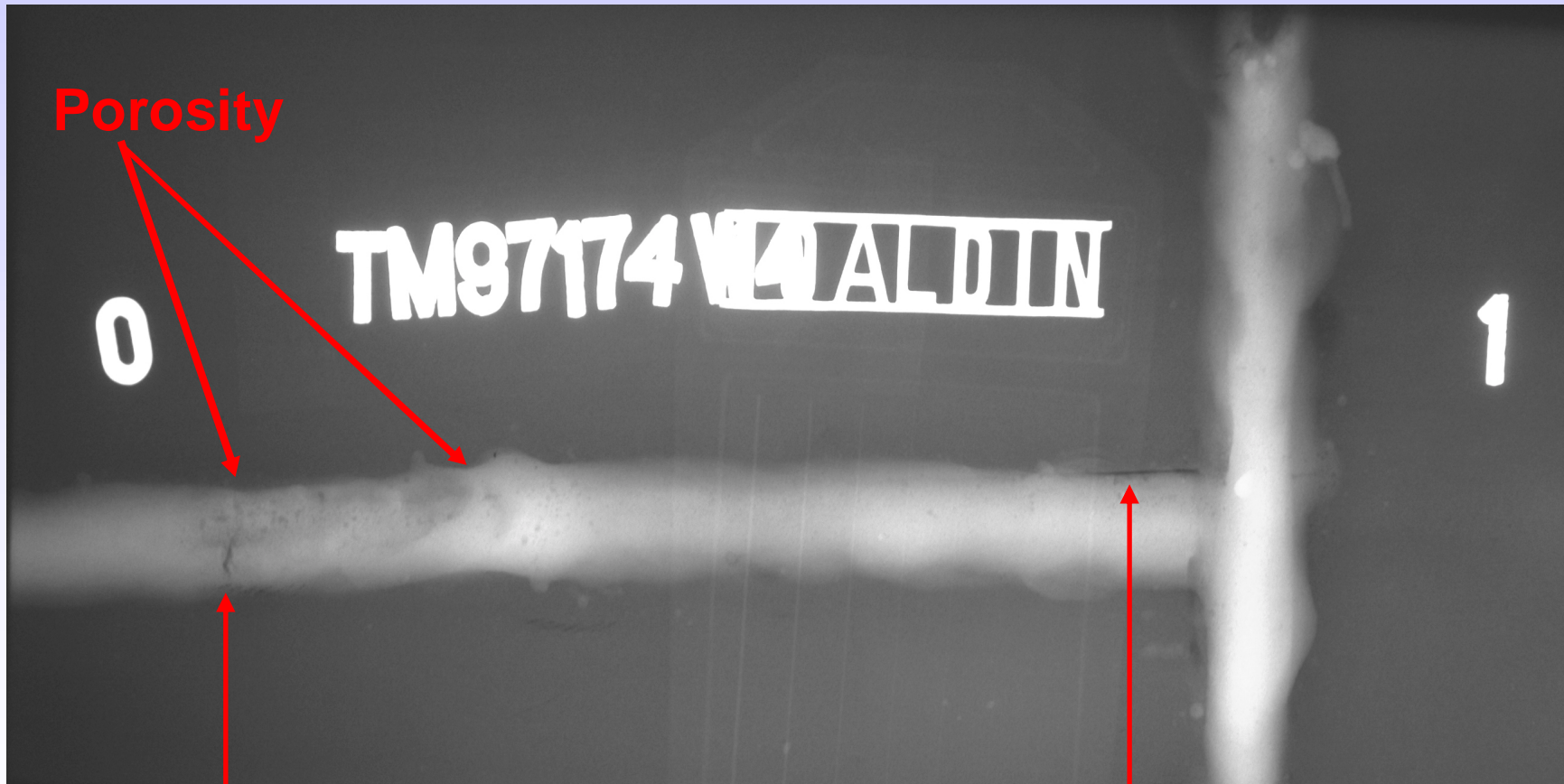


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TECHNOLOGY

Radiographic Interpretation of Welds

What defects can you see?



Crack

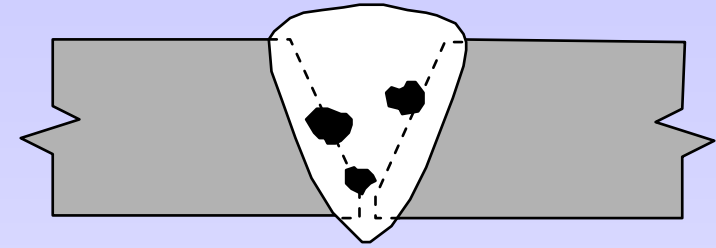
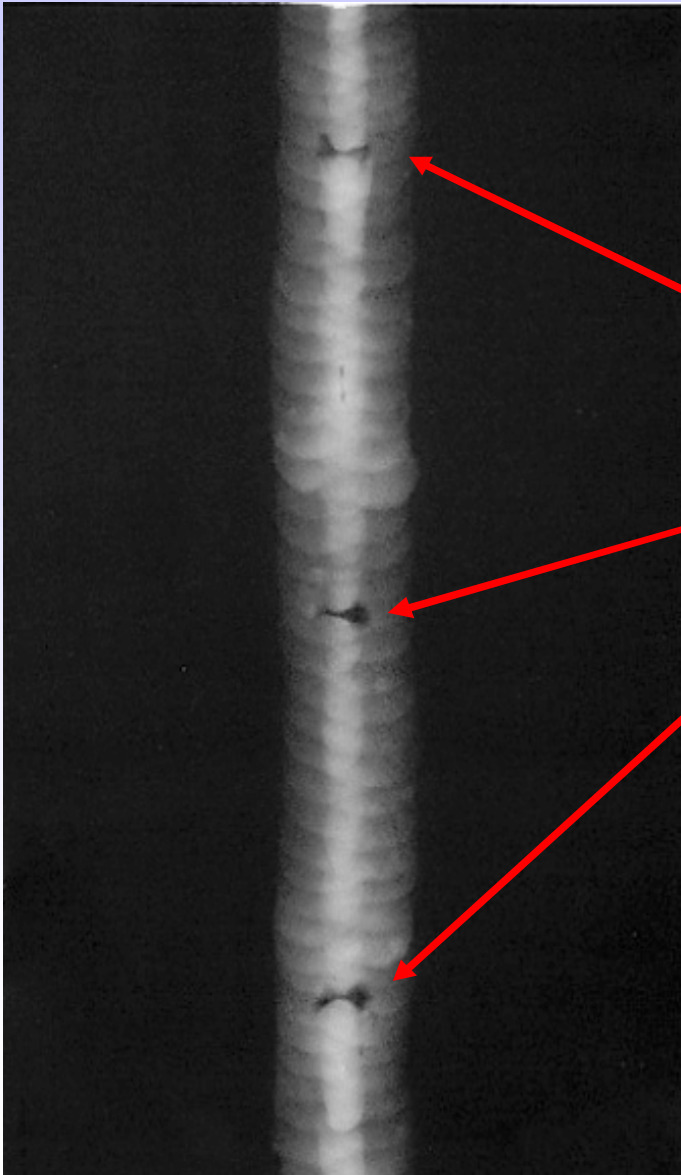
Lack of sidewall fusion



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Radiographic Interpretation of Welds



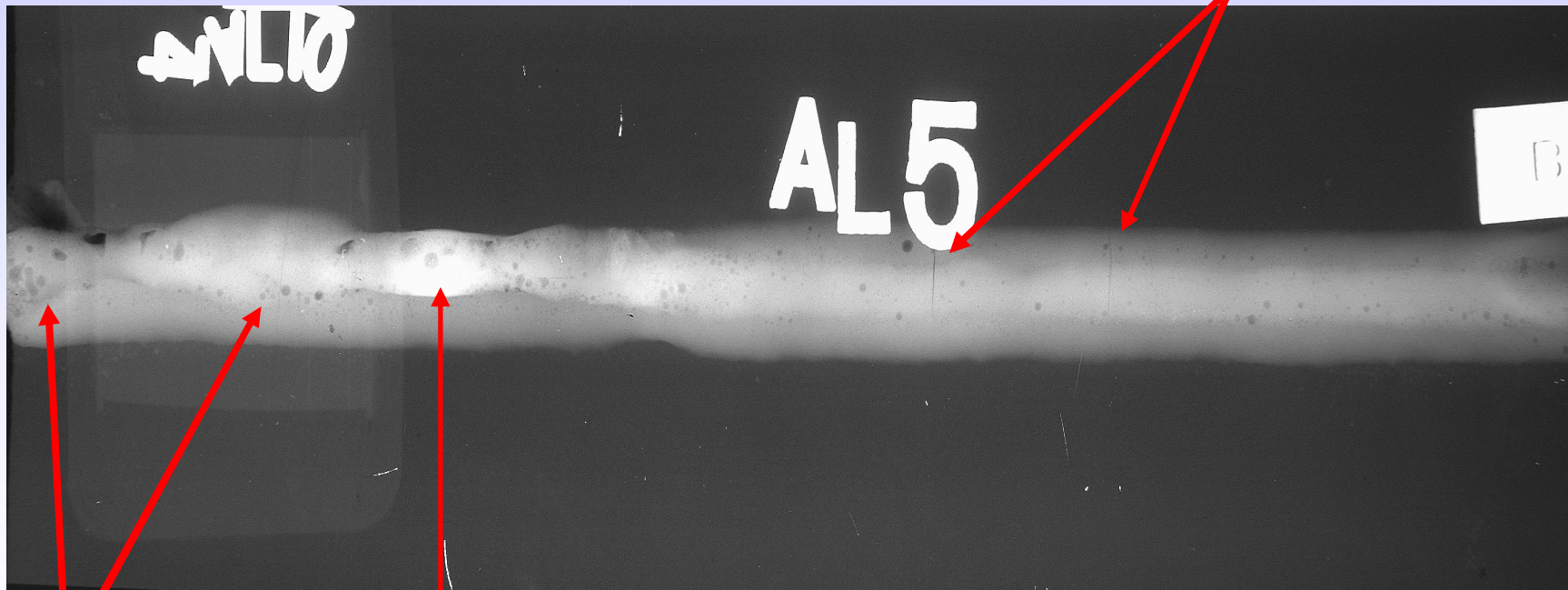
**Interpass slag
inclusions**

What's the defects?

Radiographic Interpretation of Welds

Re-Shoot Lead letter in weld area

Transverse Cracks



Porosity

Excess penetration

What's the defects?



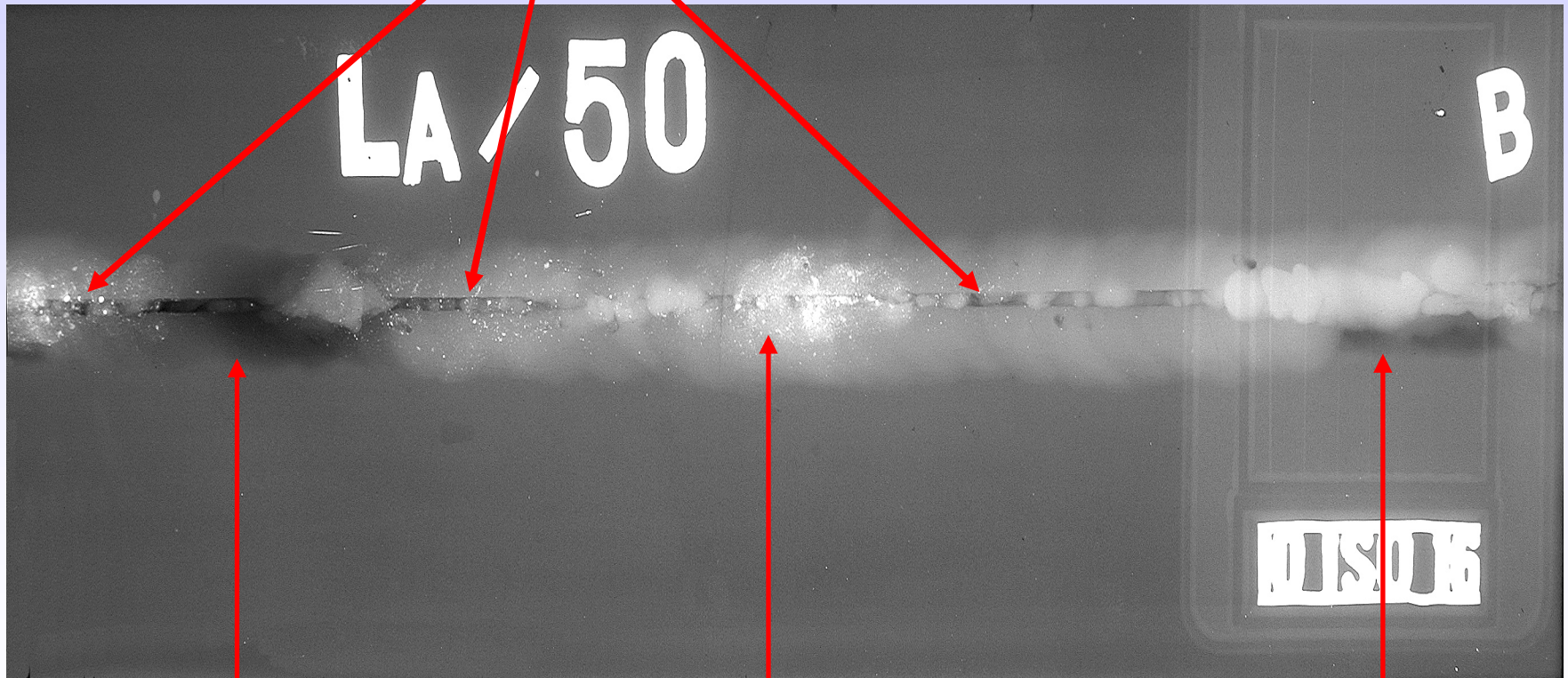
SWI 3.2

TECHNOLOGY

Radiographic Interpretation of Welds

What's the defects?

Lack of root penetration



Incomplete filled groove

Copper inclusions

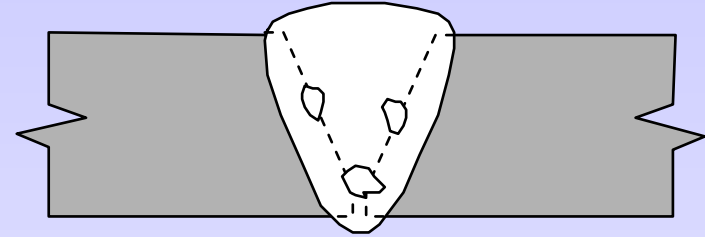
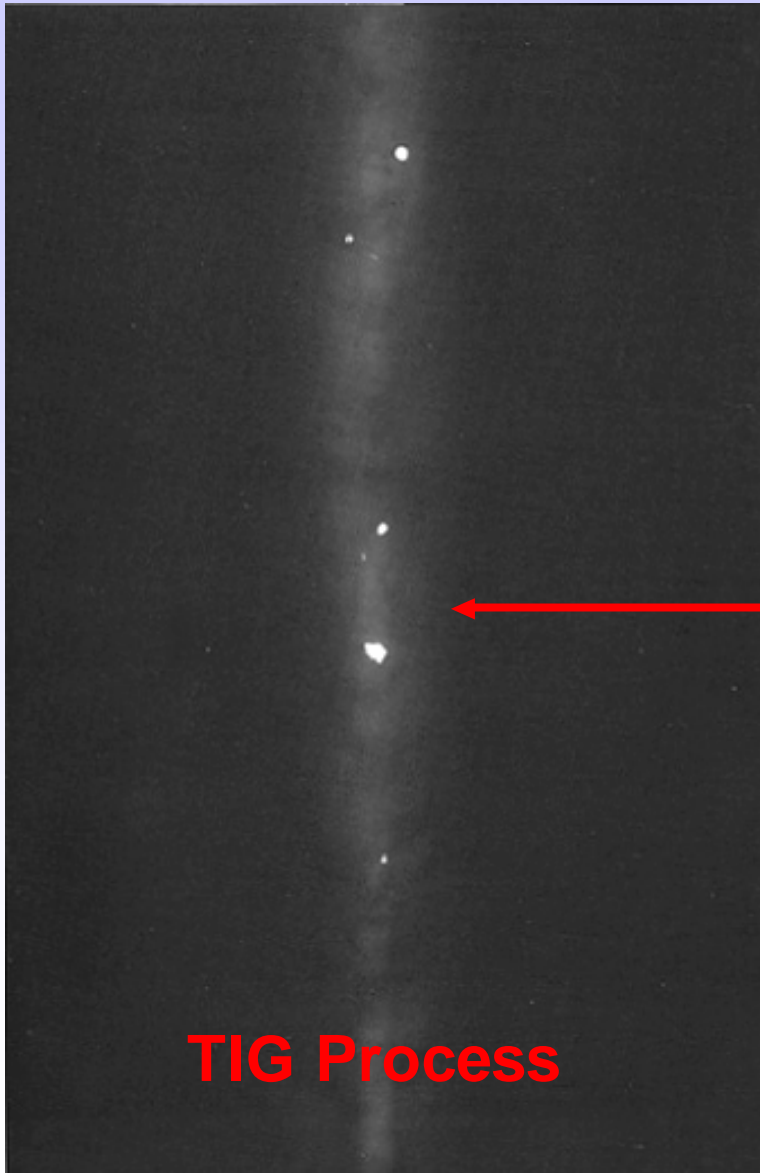
Incomplete filled groove



SWI 3.2

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Radiographic Interpretation of Welds



Tungsten inclusions

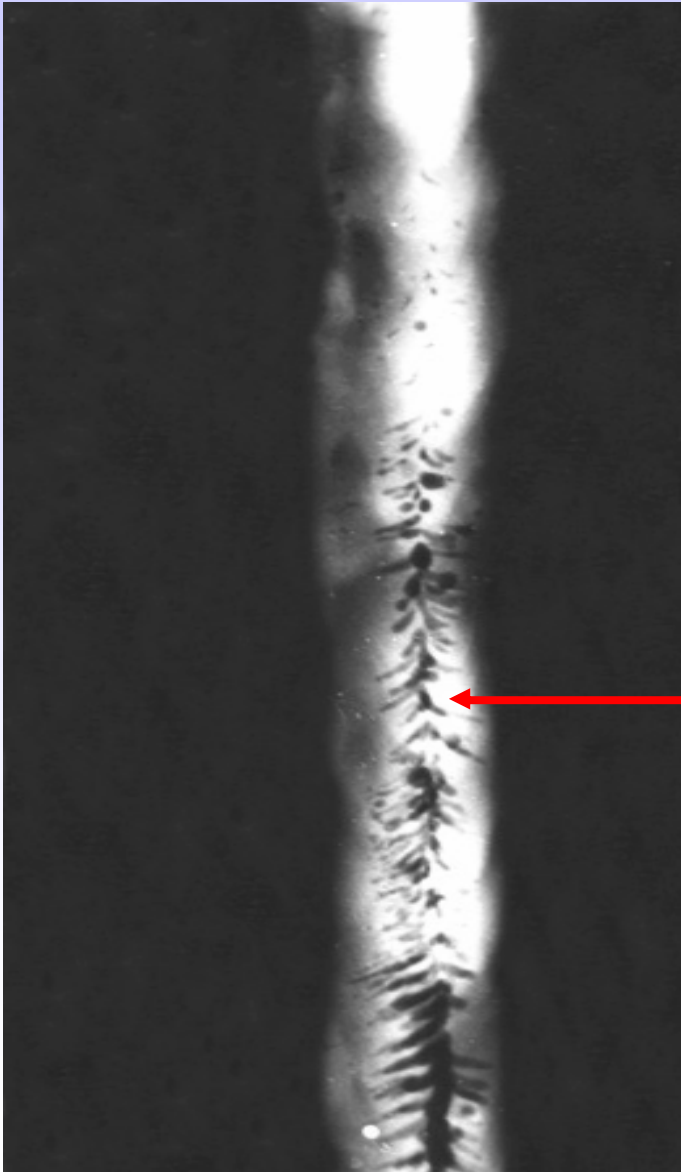
What's the defects?



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Radiographic Interpretation of Welds



Herringbone porosity

What's the defects?



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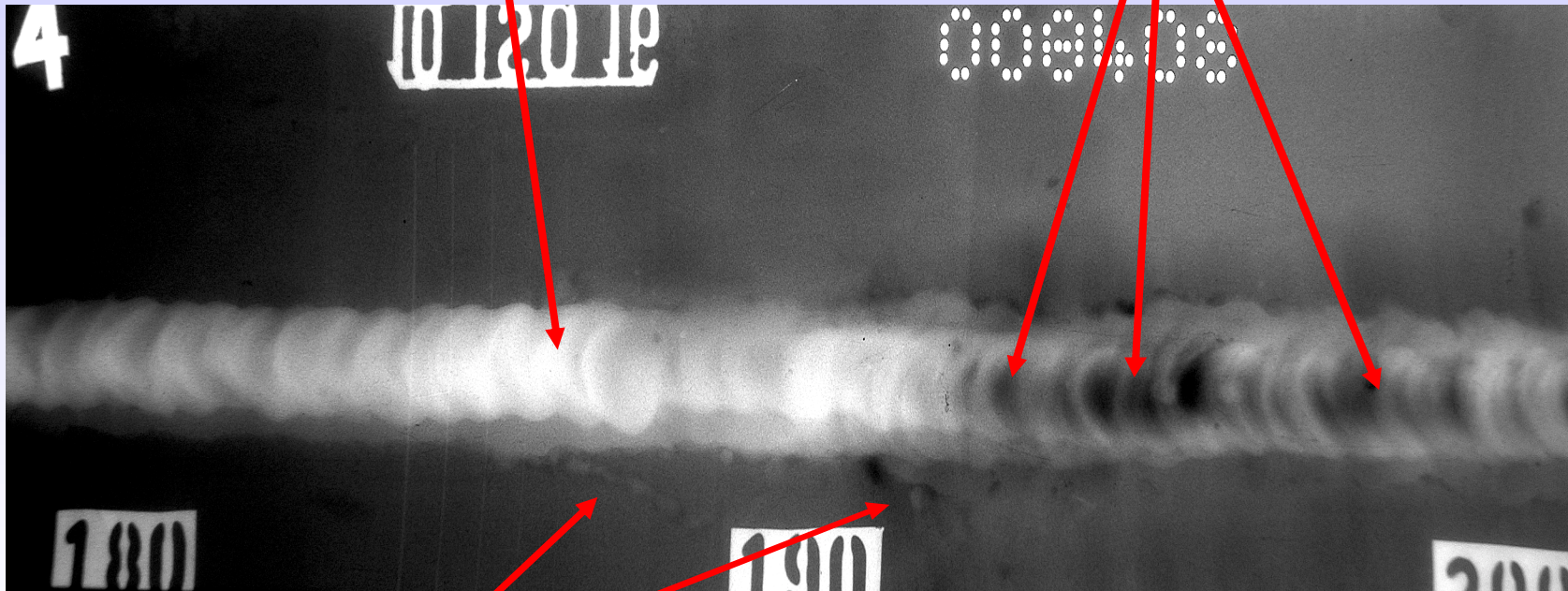
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Radiographic Interpretation of Welds

Note: Grinding marks

Note: weld repair

Root concavity



Arc strike

What's the defects?



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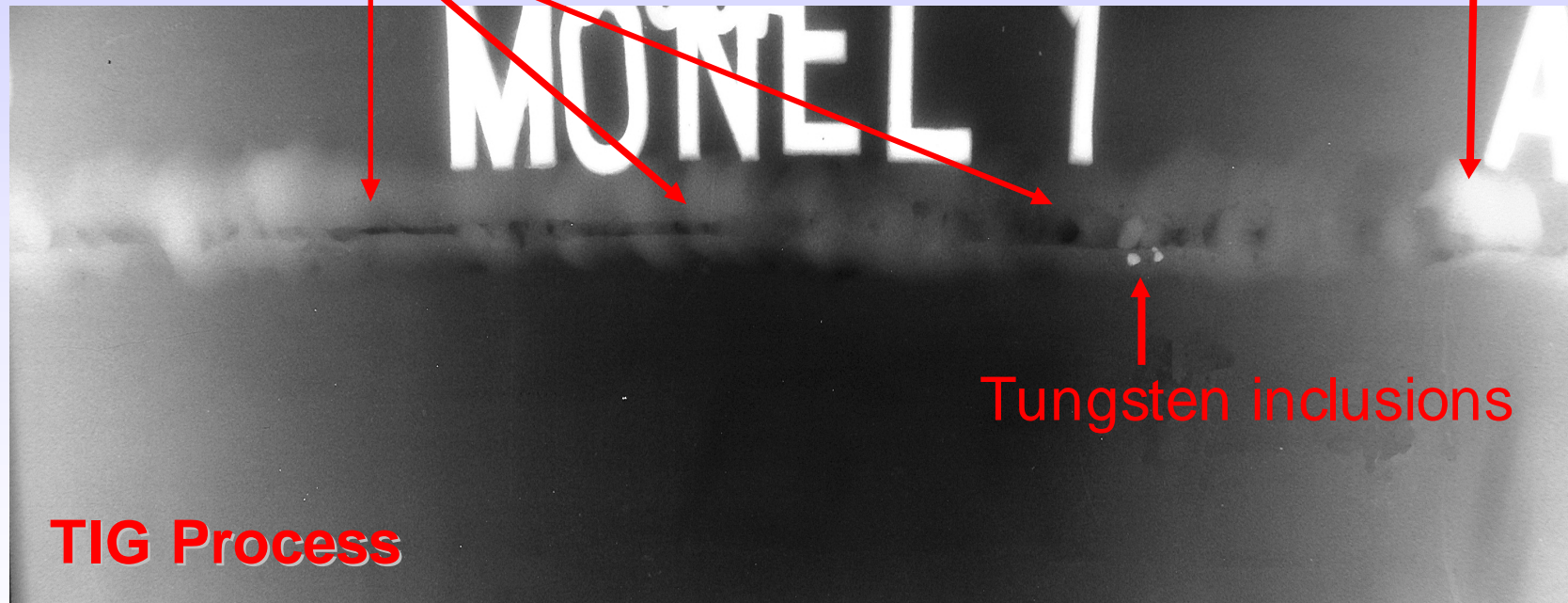
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Radiographic Interpretation of Welds

Note: Re-shoot lead letter in weld area

Lack of root penetration

Excess penetration



What's the defects?



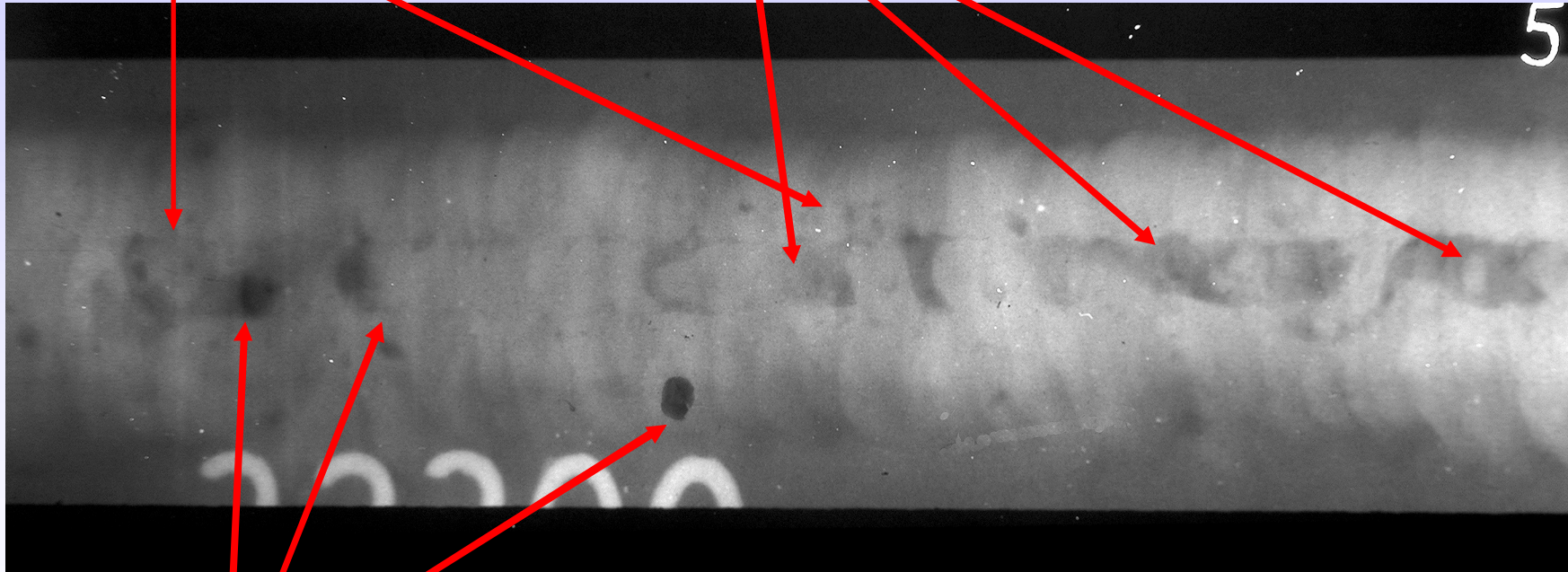
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Radiographic Interpretation of Welds

Gas cavities

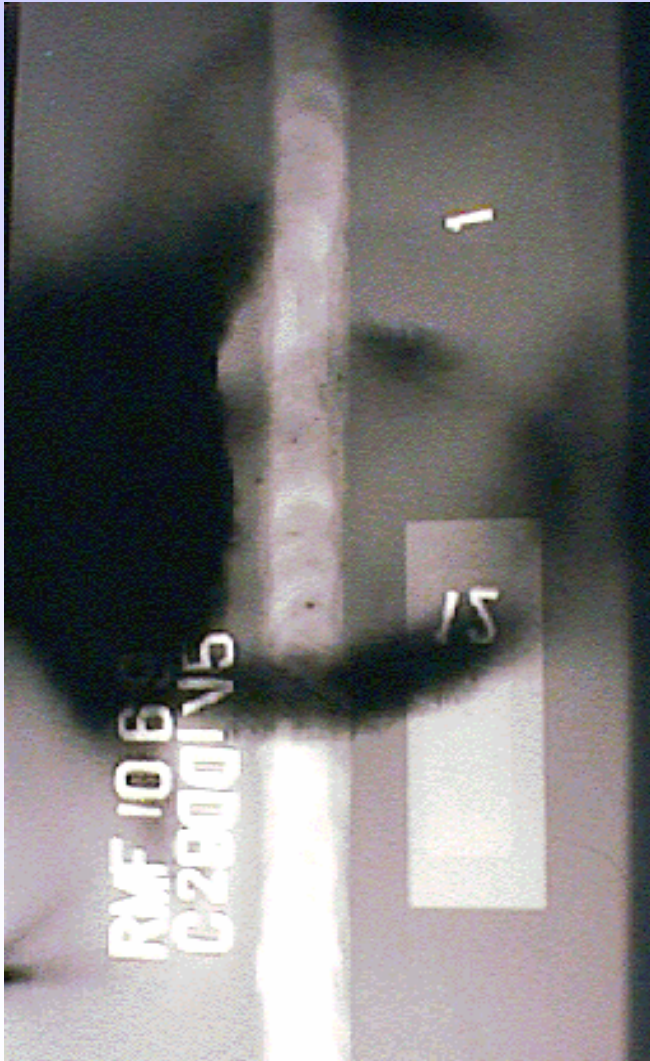
Concave root intermittent



Slag inclusions

What's the defects?

Radiographic Interpretation of Welds



Light Fog

Light Leaks

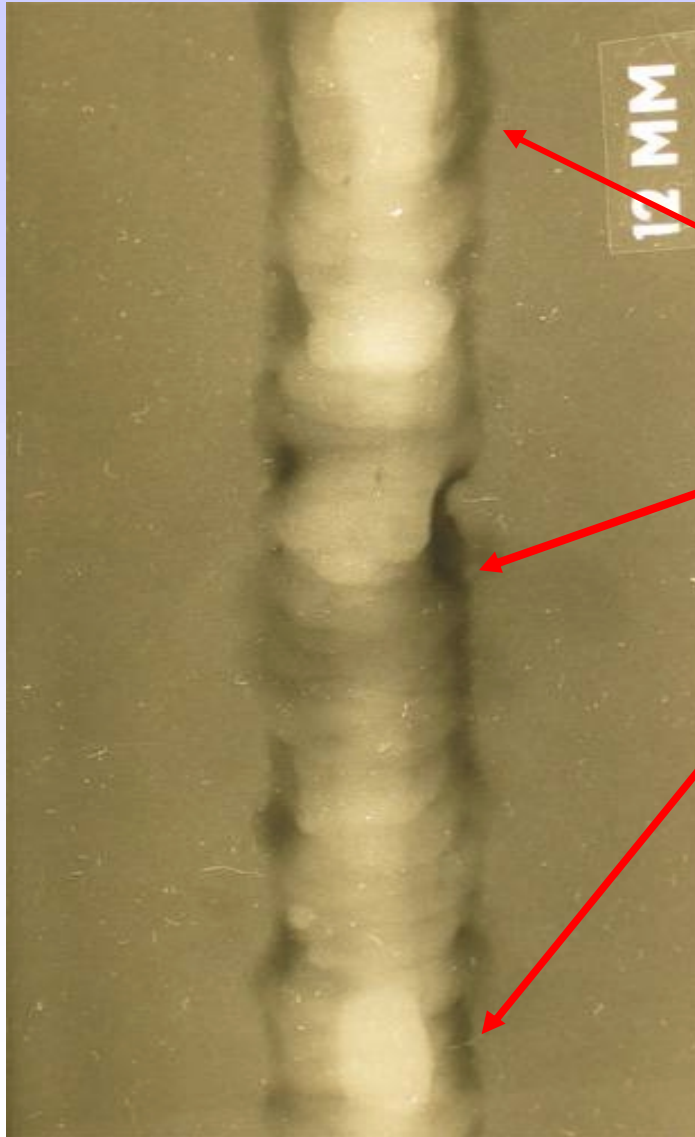
What's the Artefact?



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Radiographic Interpretation of Welds



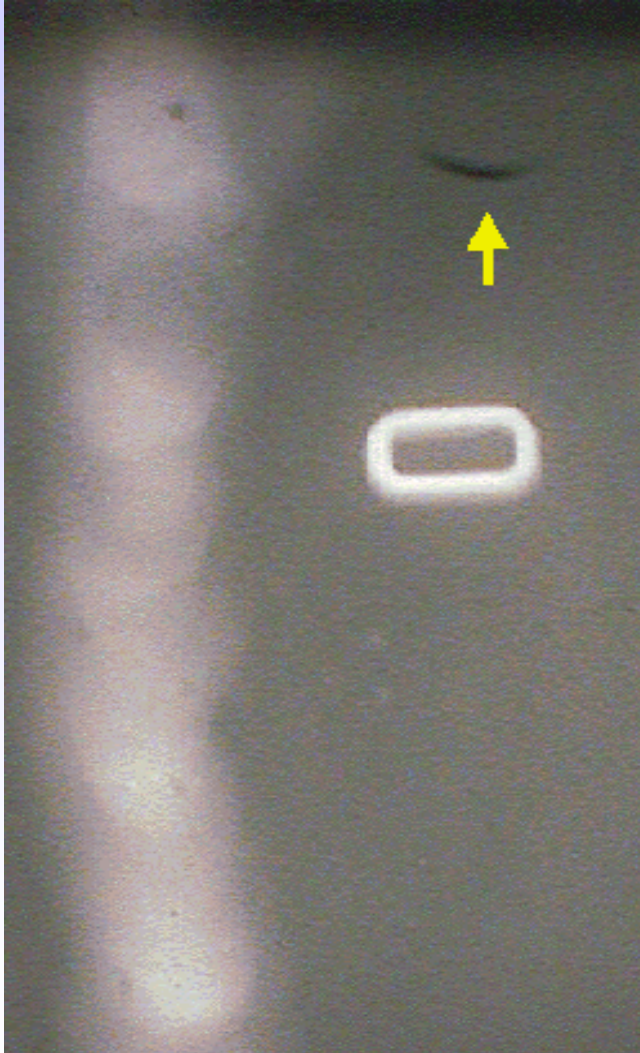
What's the Defect?

Cap undercut

Yellow Fog

What's the Artefact?

Radiographic Interpretation of Welds



**Crimping Mark
After Exposure**

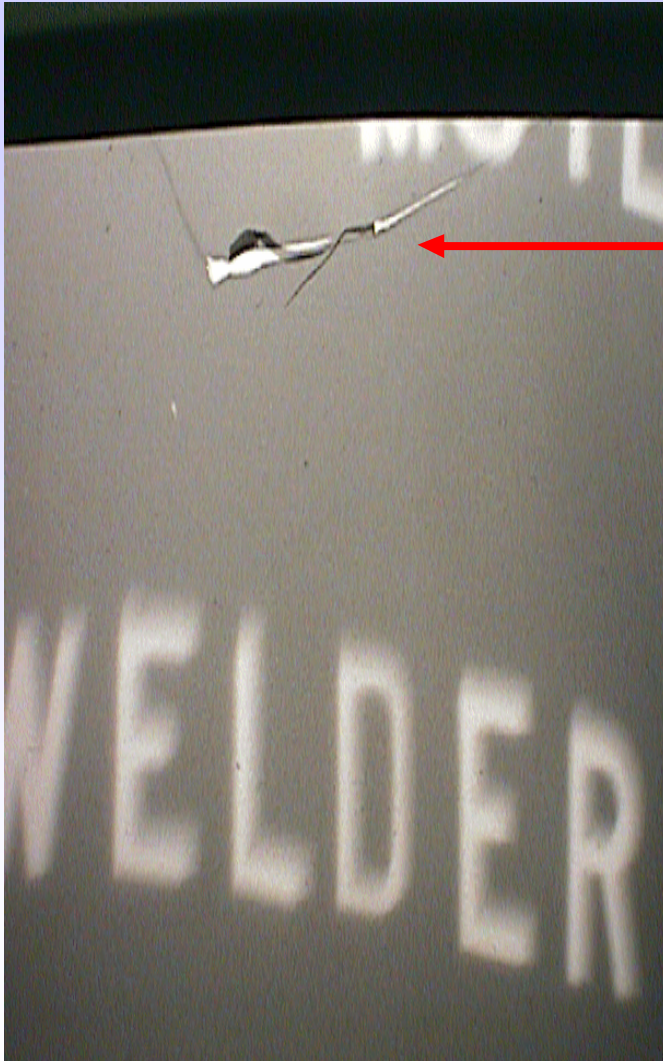
What's the Artefact?



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Radiographic Interpretation of Welds



Film Scratch

What's the Artefact?



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Static Discharge

What's the Artefact?



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Chemical Mark

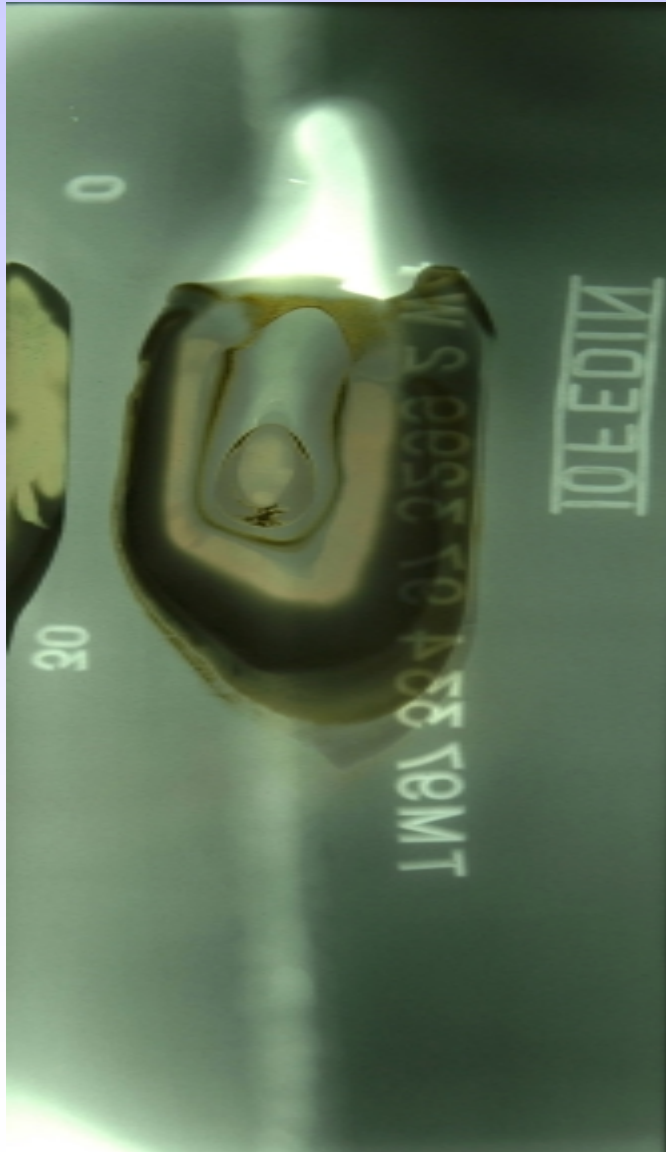
What's the Artefact?



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Chemical Mark

What's the Artefact?



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Water Marks

What's the Artefact?



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Dust/Grime Marks

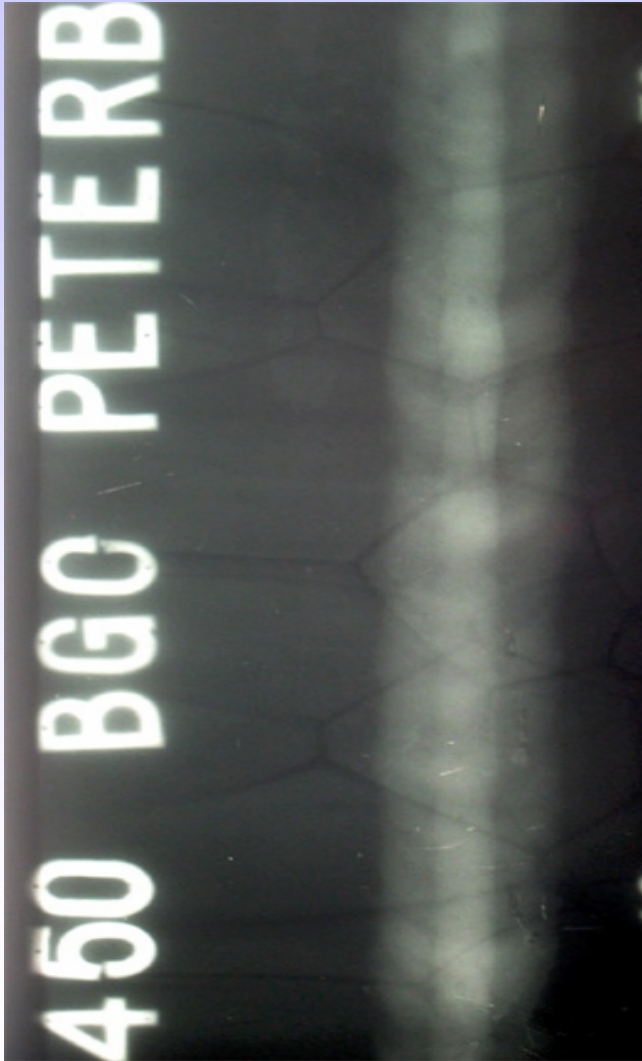
What's the Artefact?



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Reticulation

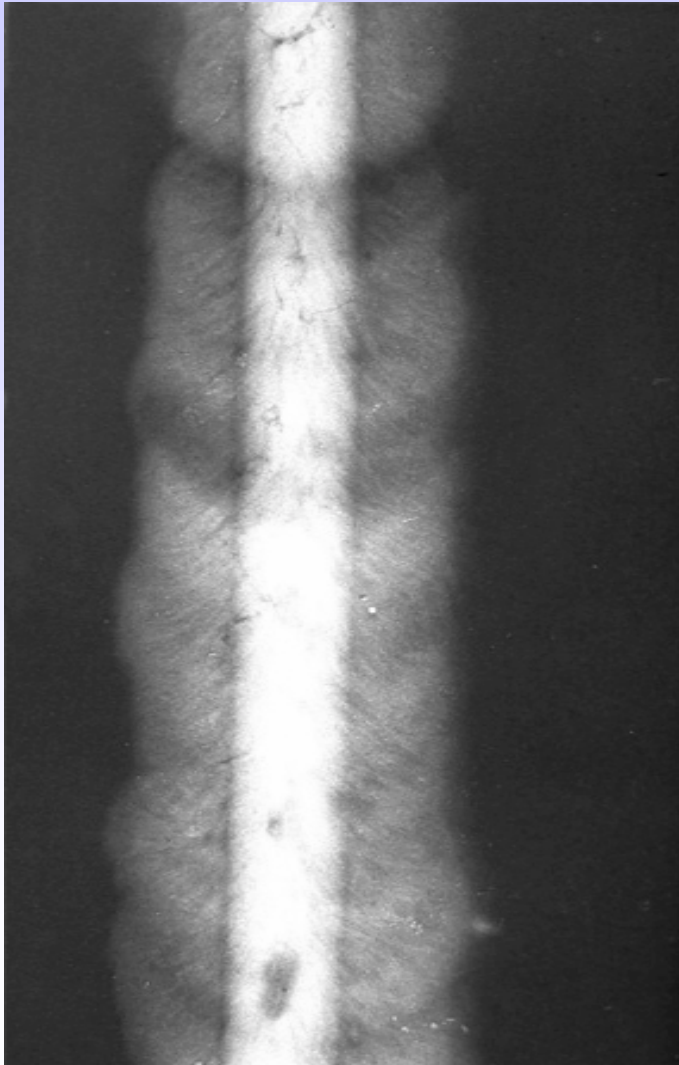
What's the Artefact?



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Diffraction Mottle

What's the Artefact?



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Any Questions

