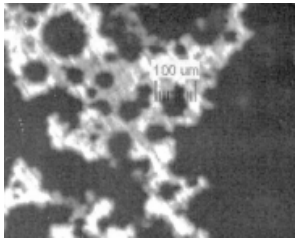
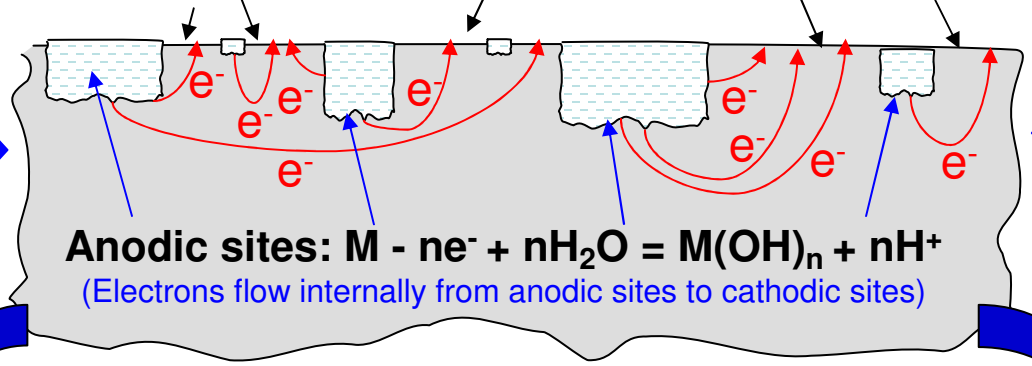
Principle of Coupled Multielectrode Sensors and nanoCorr™ Analyzers



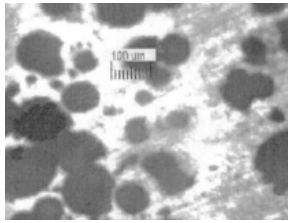
Typical localized corrosion

Cathodic sites: $O_2 + 4e^- + 2H_2O = 4OH^-$



Anodic sites: $M - ne^- + nH_2O = M(OH)_n + nH^+$

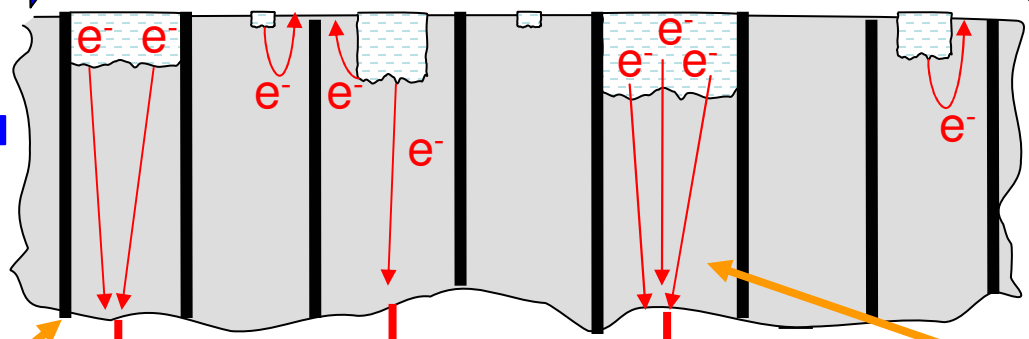
(Electrons flow internally from anodic sites to cathodic sites)



Anodic & cathodic sites

Anodic sites are separated from cathodic sites.
Anodic electrons are forced to flow externally

Anodic electrodes simulate anodic sites



Most corroded electrode simulates deepest pit

Insulators

Most Corroded Electrode

Circuit Coupled to Cathode
Anodic Electrons Are Measured

nanoCorr calculates the penetration rate based on the electron flow from the most corroded electrode