

5.4.2 Differential aeration corrosion

Occasionally, we find a situation wherein, a metal is exposed to different oxygen environment. The mechanism of corrosion of such metals can be explained by differential aeration environment.

'Differential aeration corrosion' occurs when one part of the metal is exposed to a different air / O_2 concentration from the rest of the part. It can be noted that a portion of the metal surface exposed to less oxygenated acts 'anodic area' and gets corroded; while the more oxygenated part of the metal is protected (cathodic area).

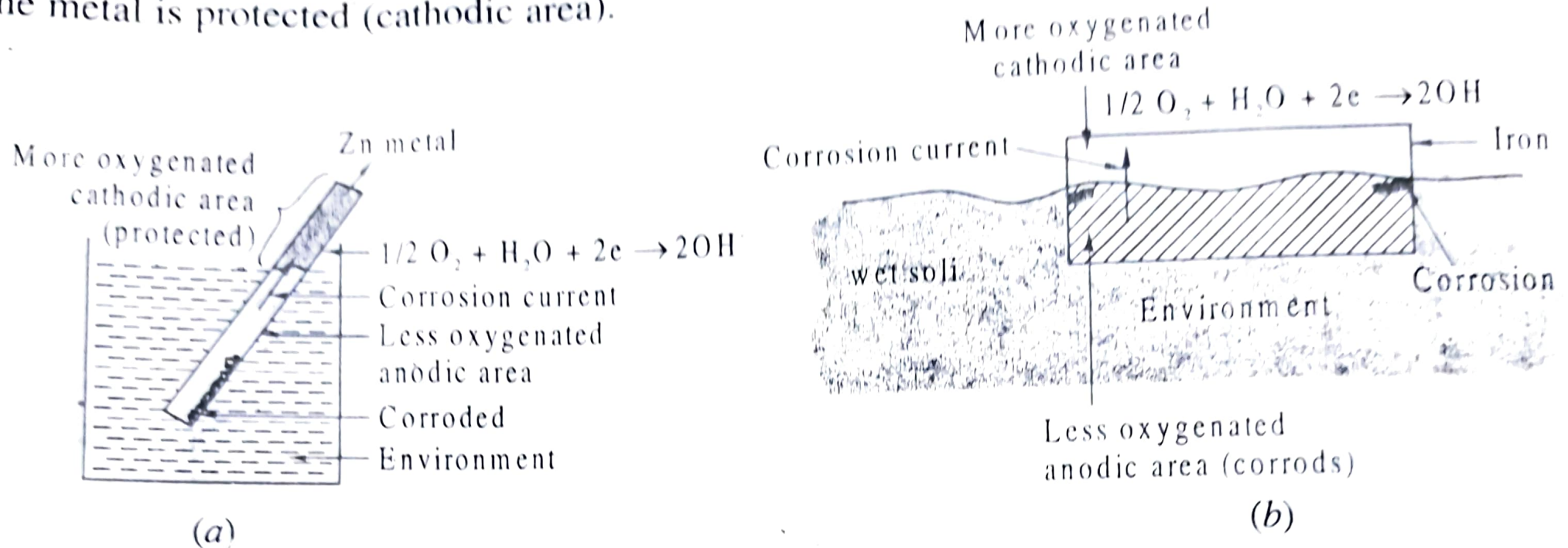


Fig 5.2 Typical examples of differential aeration corrosion

According to the electrochemical theory of corrosion, the anodic part of the metal ($M = Zn$ or Fe) gets corroded in a corrosive environment due to oxidation process, liberating electrons