Directional Selection

Pre-Industrial Revolution

* Before the revolution peppered moths of the pale variety were more commonly seen. The reason was the bark was a pale color so the pale variety could hide whereas the melanic variety were highly visible. This meant the melanic moths were eaten by birds at a higher rate than the pale variety. This reduced the chances for the melanic variety to mate meaning there were fewer of the melanic variety compared to the pale variety.



During the Industrial revolution

* During the industrial revolution tree bark became dark due to soot deposits. This enabled the melanic peppered moths to be less visible. This then meant the pale peppered moth became much more visible. As such predators targeted the pale moths reducing the number of pale moth offspring as they were eaten before they could produce offspring.





Post-Industrial revolution

* After the industrial revolution peppered moths of the pale variety increased again as the bark became paler. This meant that predators could more easily spot the melanic moths and as such the melanic population declined and the pale population increased. This shows that selection can be directly influenced by human activity. Additionally, this change can also affect other populations of animals in ways we may not be aware of yet.



This shows directional selection where one type melanic or pale moth takes over dependent on the environment. The blackened trees favored the melanic moths and the natural white bark favored the pale moths.

Research Source:

* <http://www.mothscount.org/text/63/peppered_moth_and_natural_selection.html>