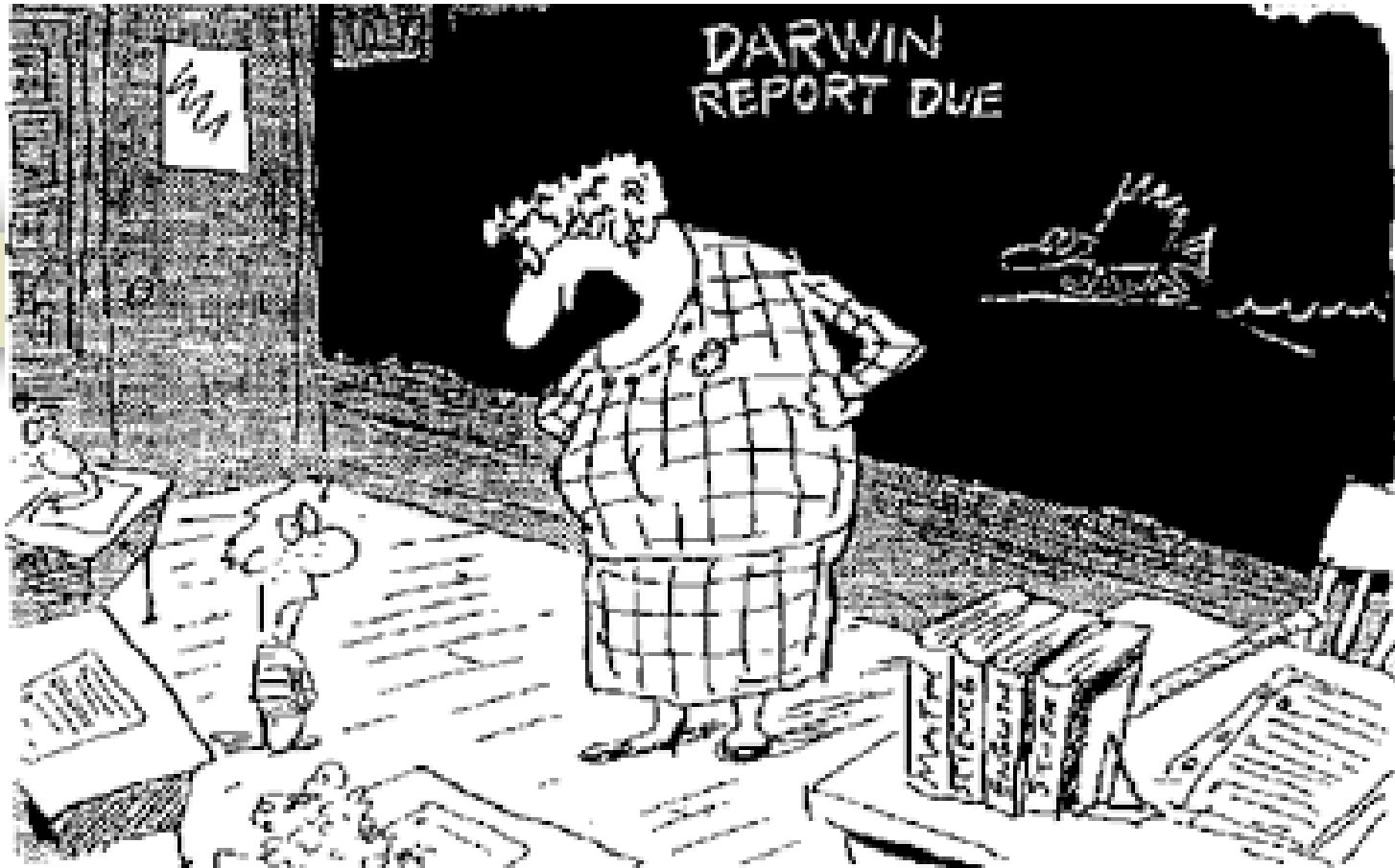
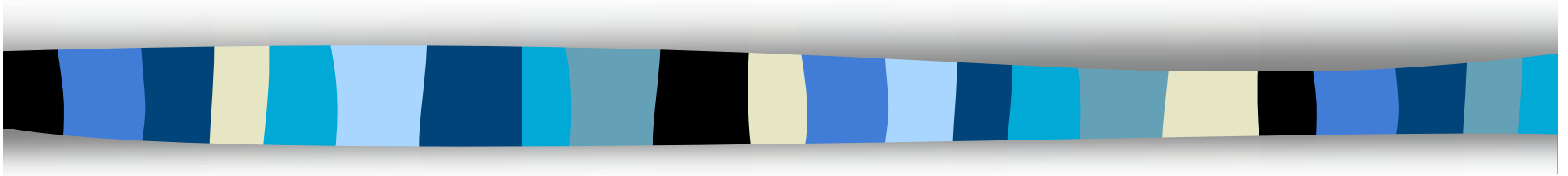


Mechanisms for Evolution



**I grant you evolution was a theory to begin with...
but it evolved into a fact a long time ago!**

Our intro movie



[http://www.xtranormal.com/watch?
e=20090701140134593](http://www.xtranormal.com/watch?e=20090701140134593)

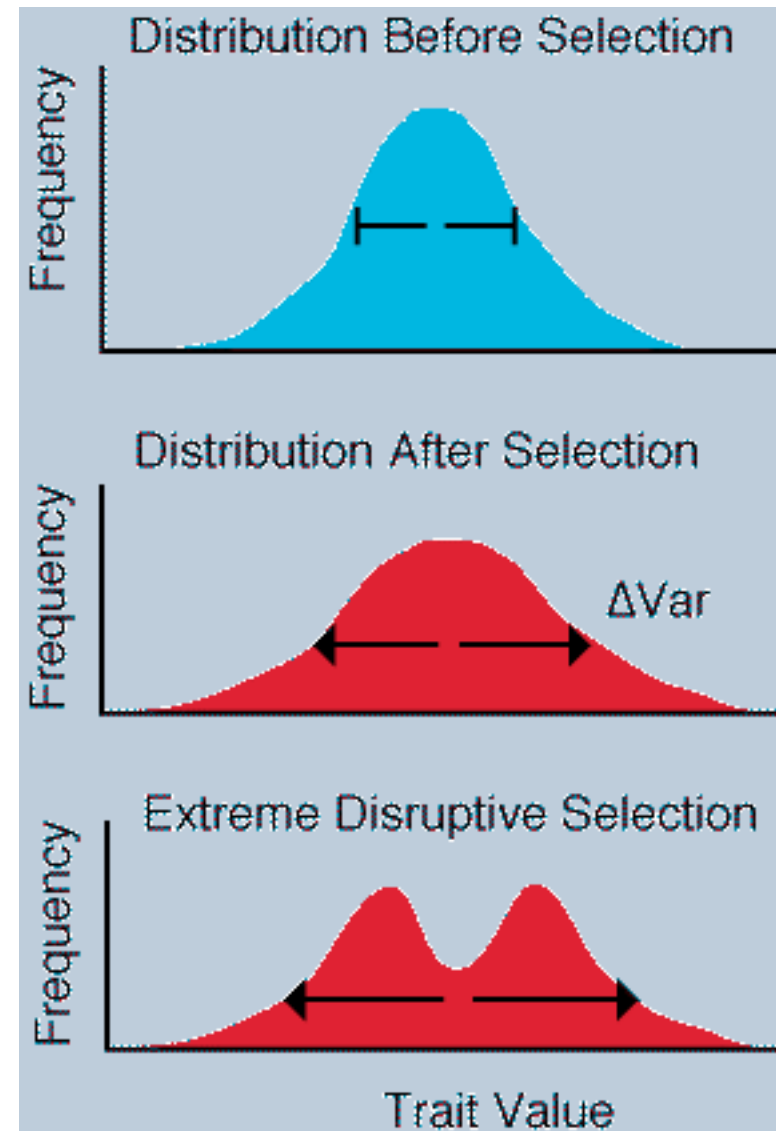


Populations evolve... individuals don't

- Within a lifetime of one individual, new features cannot evolve in response to natural selection
- Natural selection operates **only** on populations over many generations

3 types of Natural Selection

- Stabilizing
- Directional
- Disruptive

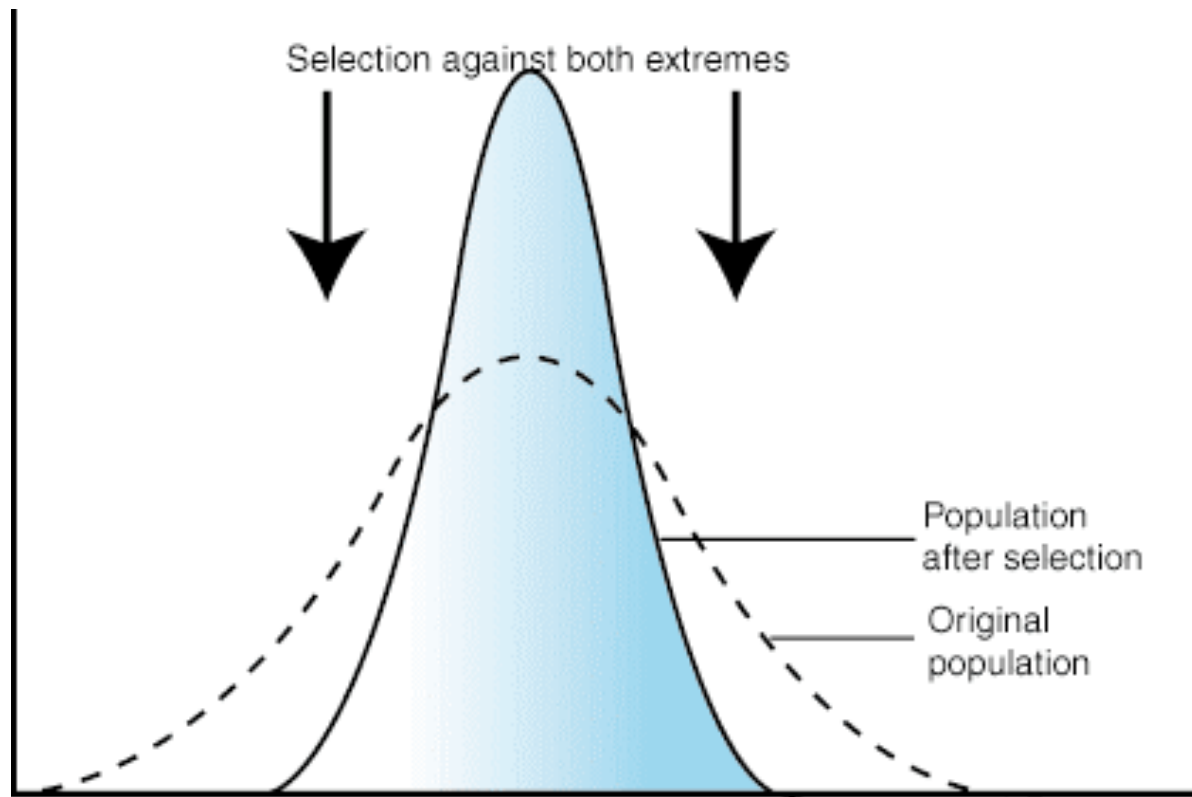




Stabilizing selection

- Selection favoring average individuals, resulting in the decline of variations in a population
- Consider spiders where average size is an advantage in survival and reproduction
 - Spiders that are too big are captured by predators
 - Spiders that are too small can not get enough to eat
 - Thus average spiders have the advantage

Stabilizing selection





Directional Selection

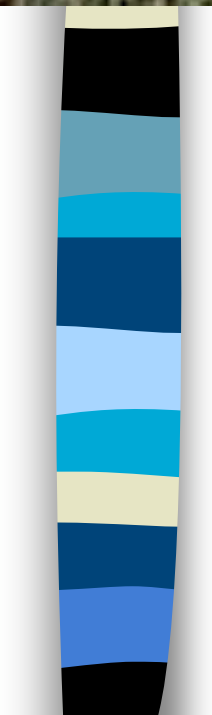
- Selection favoring individuals with extreme forms of a trait
 - Can lead to rapid evolution of a population
 - Often, shifts in environmental conditions, such as climate change or the presence of a new disease or predator, can push a population toward one extreme for a trait.



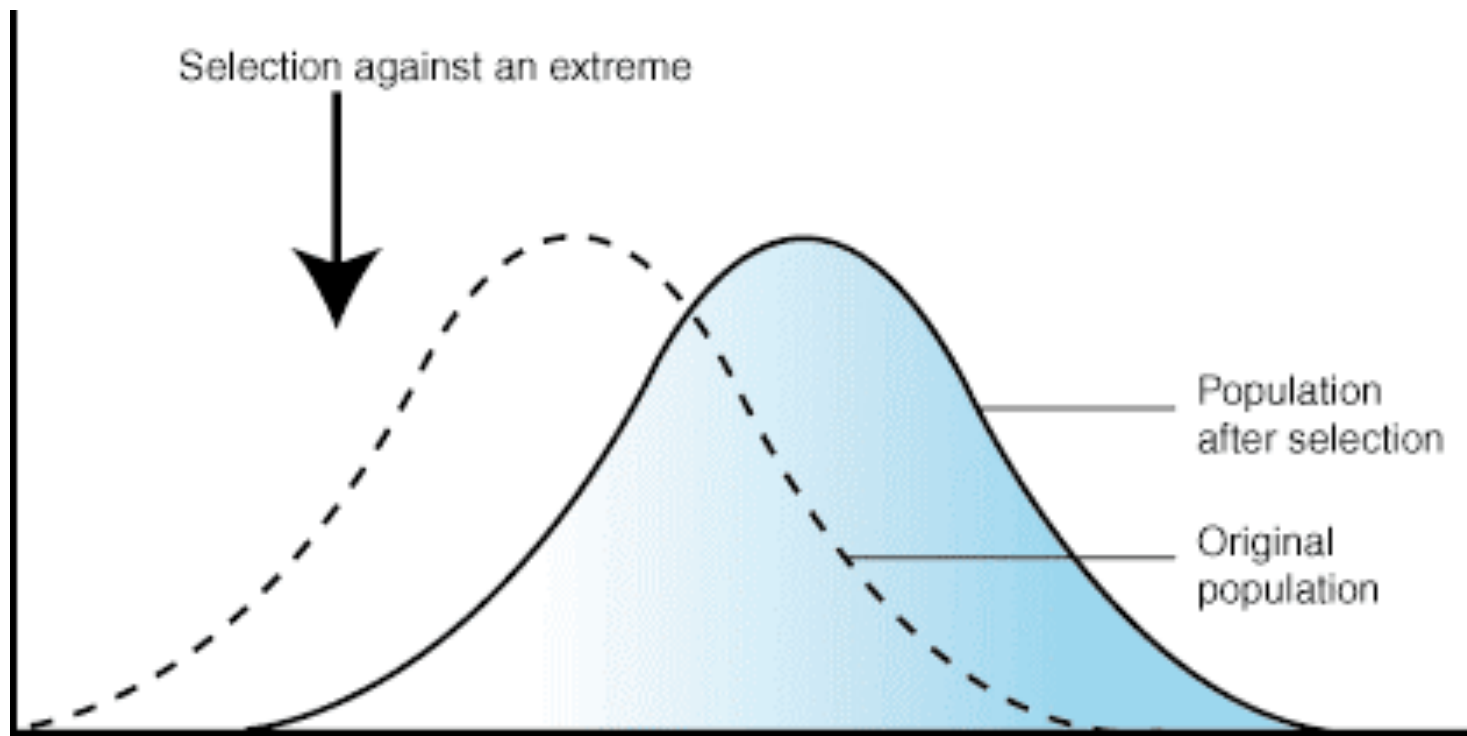
Encarta Encyclopedia, Rafi Ben-Shahar/Oxford Scientific Films



Encarta Encyclopedia, David Fox/Oxford Scientific Films



Directional Selection





Disruptive selection

- Selection favoring individuals at both ends of extreme forms of trait
- Can lead to the evolution of two new species

Disruptive selection

