

15-3 Evolution by Natural Selection

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SERVES HIM RIGHT...
HE WAS ALWAYS GOING
ON ABOUT HOW HE WAS
MORE EVOLVED THAN
THE REST OF US...

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THIS YEAR,
FOR SURE...

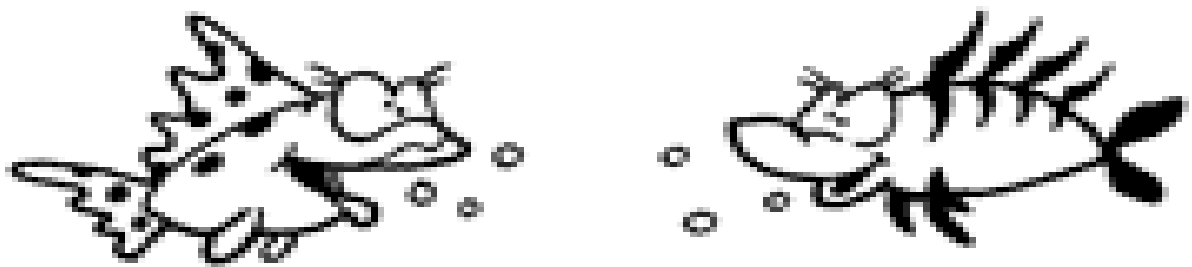
Grow lungs
Grow feet
Learn to walk



NEW YEAR'S EVOLUTIONS

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WE'D GET LOTS OF SHOES!



MARK HANAUER

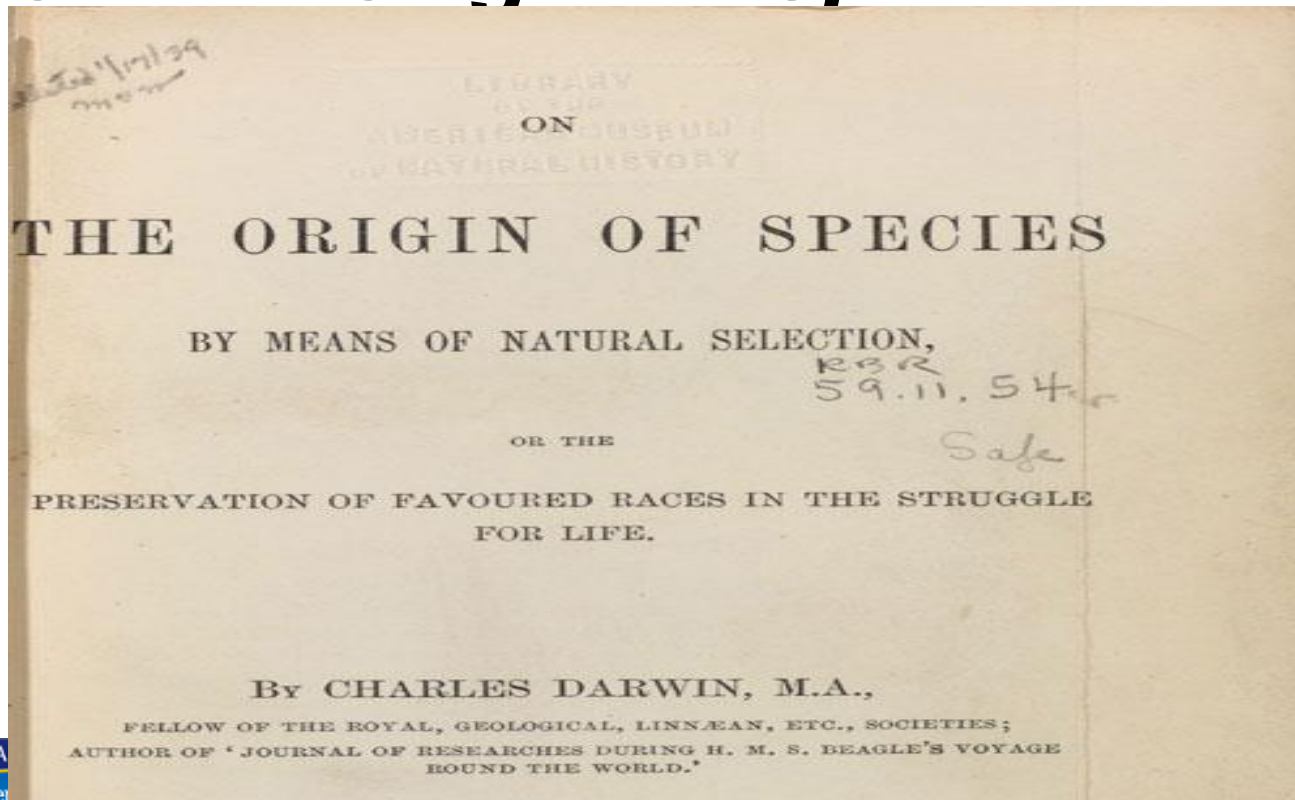
THE FEMALE-INCENTIVE THEORY OF EVOLUTION

LENNY, WE
KNOW YOU'RE
FAKING...



15-3 Darwin Presents His Case → Publication of *On the Origin of Species*

In 1859, Darwin published his book, *On the Origin of Species*.



(c) The Complete Work of Charles Darwin Online

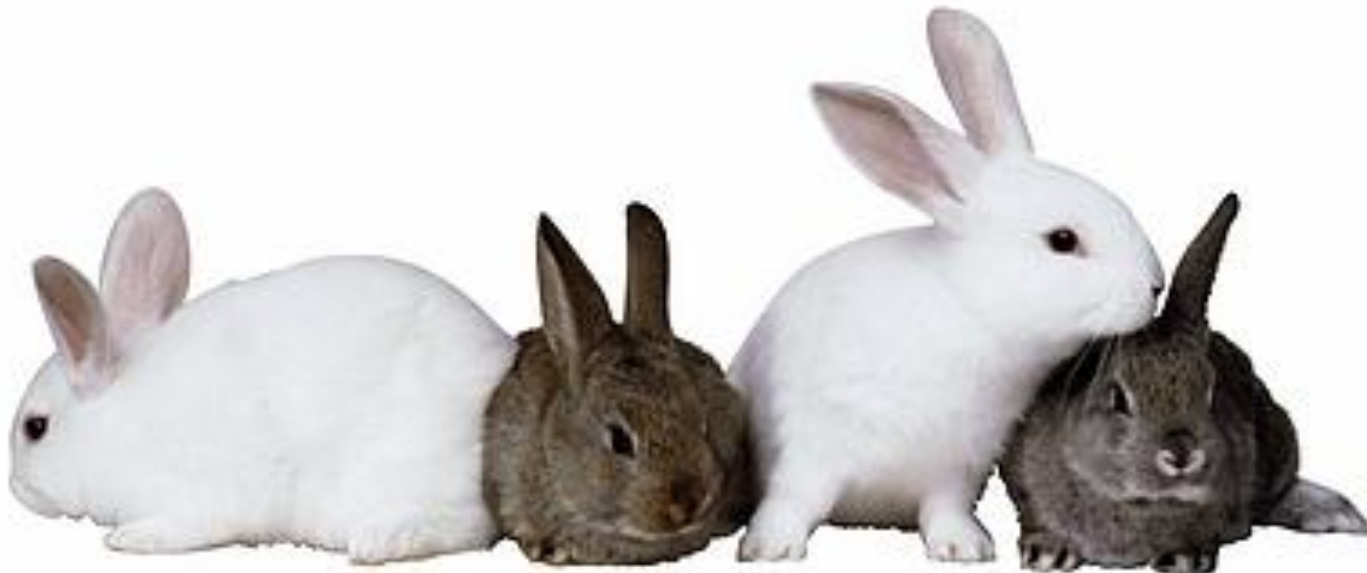
In his book, Darwin:

- proposed evolution by **natural selection**.
- presented evidence that evolution has been taking place for millions of years—and continues in all living things.

Inherited Variation and Artificial Selection

Members of each species vary from one another in important ways.

Darwin said variation mattered.



15-3 Darwin Presents His Case → Inherited Variation and Artificial Selection

Darwin noted that plant and animal breeders would breed only the largest hogs, the fastest horses, or the cows that produced the most milk.

Called = artificial selection.



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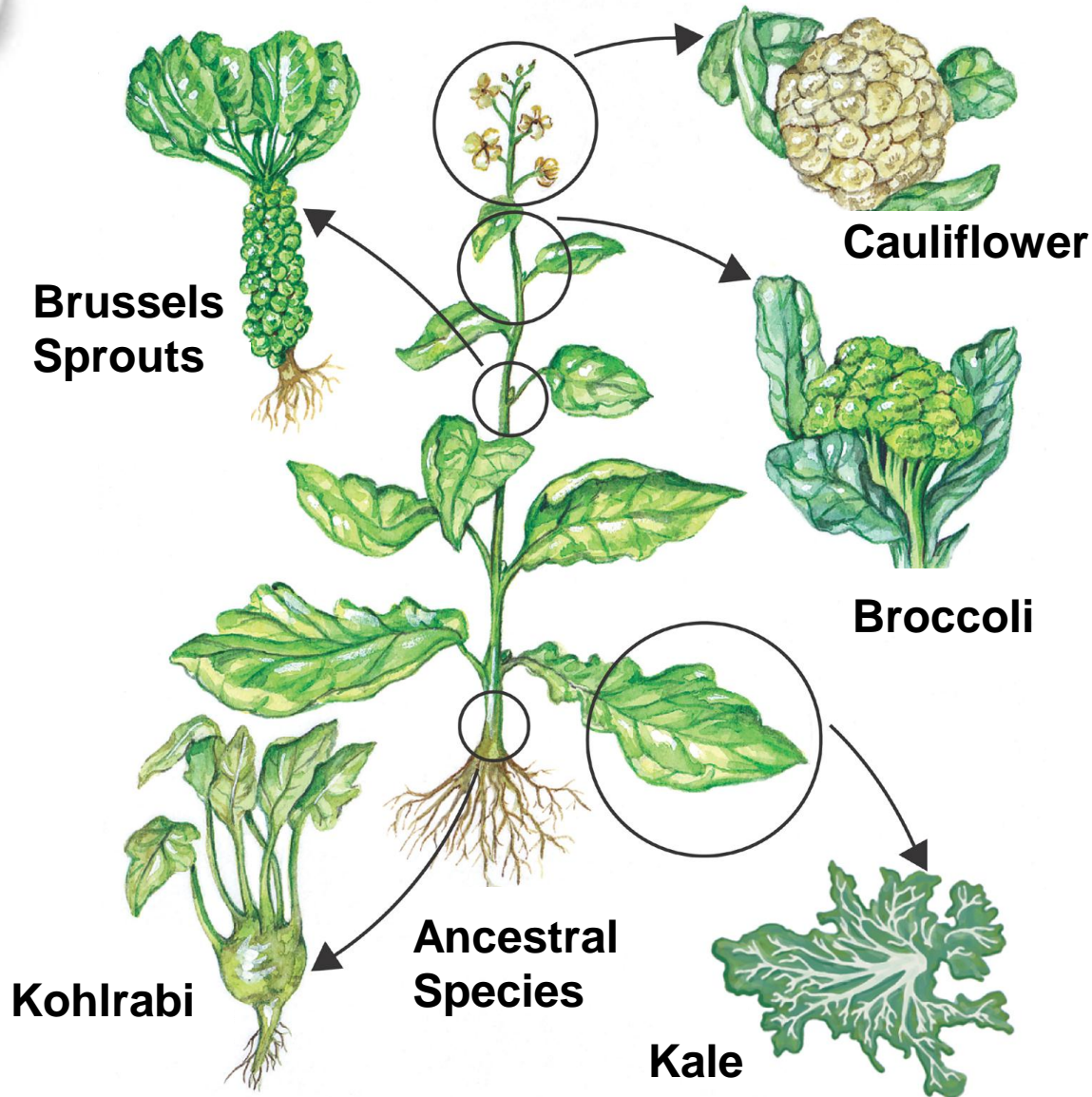
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15-3 Darwin Presents His Case → Inherited Variation and Artificial Selection

active art

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Evolution by Natural Selection

Darwin compared processes in nature to artificial selection.

The Struggle for Existence

high birth rates and a shortage of resources would force organisms to compete for resources. (food, living space, and necessities of life)





15-3 Darwin Presents His Case → Evolution by Natural Selection







Survival of the Fittest

The ability of an individual to survive and reproduce in its specific environment is **fitness**.

An **adaptation** is any inherited characteristic that increases an organism's chance of survival.

adaptations allow for better survival and reproduction.





















Over time, natural selection results in changes in the inherited characteristics of a population. These changes increase a species' fitness in its environment.

Descent With Modification

Natural selection produces organisms that have different structures, establish different niches, or occupy different habitats.

Each living species has descended, with changes, from other species over time.

Darwin referred to this principle as **descent with modification**.

Descent with modification implies that all living organisms are related to one another.

This is the principle known as **common descent**.