

# How could Darwin think of such a thing!

(or, you could have come up with the same idea Darwin had)

Shortly after the Darwin published his book On the Origin of the Species in 1859, a firestorm of controversy raged around the world in the scientific community, which was to spread into everyday life. Darwin's book introduced his "theory of biological evolution," which was to mark a new era in biologic science. It is interesting to note that his theory was based upon scientific observations of life around him, and not on fossils and the fossil record.

Just what did he observe that led him to think of such a theory? Actually his theory embodied no fundamentally new idea, but combined older concepts in a fresh and convincing way, carrying them out to their logical conclusion. There were four concepts of life which were the basis for his theory, and they are:

1. Organisms produce more offspring than will survive to reproduce.
2. Individuals of a species vary more or less among themselves in form (*variability - no two individuals are exactly alike*).
3. Competition for survival, food, living space, and mates (*eat-survive-reproduce*) results in the relentless elimination of the weaker and less well-adapted individuals.  
*(The three observable concepts above account for the principle of natural selection, which has also been called "survival of the fittest.").*
4. The "favorable" traits of the survivors are inheritable, passed on to their offspring. Darwin could observe this inheritability, but could not explain the mechanism that allowed this. Today we call that mechanism "genetics."

The four concepts above you can observe in world today. Working together they logically led Darwin to his theory of biological evolution, which accounted more realistically for the gradual changes in the quality of a population. In time these changes might result in a populations' transformation into a new and different species.