

A. Pre-Darwin

1. many writers, from many different cultures, have had at least quasi-evolutionary ideas about the relatedness of different organisms. None, however, proposed a mechanism (at least that became widely known) by which such change could occur.
2. Jean-Baptiste Lamarck proposed a mechanism in his 1809 book *Philosophie Zoologique* that involved inheritance of acquired characteristics. Lamarck supposed that lineages did not branch nor become extinct.

B. Darwin (Charles Robert Darwin, 1809-1882)

1. Darwin, on a voyage around the world on the surveying ship *H. M. S. Beagle*, noticed the relationships among organisms in various parts of the world and wondered about those relationships. After reading Malthus' essay "On Population", Darwin realized that most offspring die. It was also clear to Darwin, as to everyone who took the time to observe, that offspring differ at least slightly from one another. Darwin realized that those that survived must have been, on average, better suited for survival by reason of their differences from the rest of the offspring. Since offspring resemble their parents more than organisms not their parents (by whatever mechanism — Darwin proposed one, but had little evidence and did not waste much time on the mechanism), over time, organisms must change in such a way so that the ones with traits more suited to survival take over the population. This is what we now call "natural selection".
2. The importance of Darwin's work is twofold: first, the massive amounts of evidence for organic change, and second, the proposal of a convincing mechanism for such change.

C. In 1900, DeVries, Correns and Tschermak started the field of genetics. Each had discovered particulate inheritance on his own, and only thereafter, while surveying the literature, came upon Mendel's forgotten work. Each properly gave credit to Mendel, but these three, not Mendel, really started the field of genetics. To early geneticists (1900-~1930), it was difficult to reconcile Darwin's natural selection mechanism of evolution with the genetic mechanisms known to exist. Many early geneticists refused to accept natural selection as the mechanism of evolution, though the **fact** of organic evolution was never in doubt after Darwin published "*The Origin*."

D. The modern synthesis. In the early 1930s, three mathematically trained biologists, Fisher, Haldane, and Wright, proved to everyone's satisfaction that Mendelian change over time due to natural selection could explain the majority of evolutionary change. This bringing together of evolution and mendelian genetics was called the "modern synthesis".

E. Since the 1930s. Much of what has been done in studying organic change since the 1930s has been basically amplification and examples of the modern synthesis. However, cladistics, punctuated equilibrium and molecular studies have enriched, and sometimes challenged, the original interpretations of the modern synthesis. These new ideas have enriched and broadened our thinking about evolution.