

Dio Oggi. Con Lui o senza di Lui cambia tutto
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QUARTA SESSIONE – DIO E LE SCIENZE

GOD AND EVOLUTION

Martin A. Nowak

Professor of Mathematics and of Biology
Harvard University

ABSTRACT

Evolution is the organizing principle of all of biology. Evolution has led from a world of bacteria, which existed on Earth about 3.5 billion years ago to what we see today. Evolution occurs whenever there is a population of reproducing individuals, where reproduction is subject to mutation and selection. Selection is based on competition between individuals. In recent years, I have proposed to add “cooperation” as a third fundamental feature of evolution. Cooperation occurs whenever one individual sacrifices (some of) its reproductive potential in order to aid another individual. Natural selection favors cooperation only if specific mechanisms are at work. I will discuss five such mechanisms, which lead to five basic rules of cooperation. I will argue that without cooperation there is no construction in the evolutionary process. Cooperation is needed for the evolution of the first cell, of multi-cellular organisms and of animal and human societies.

Evolution is best seen as a search process. But we do not know at present what creates the space of possibilities that is being searched. For example, I would argue that evolution does not “invent” intelligent life, but “discover” it. Evolution cannot operate without guiding constraints. The biologist must ultimately turn to the laws of chemistry and physics to find such constraints, but it is unclear at present how this could be done. Like for any other scientific discipline, our current understanding of evolution is incomplete.

Evolution does not constitute a problem for Christian Theology. God uses evolution to unfold the living world around us. In a similar way, God uses gravity to unfold the universe on a large scale. Neither gravity nor evolution present challenges for Christian Faith. God is the ultimate cause of all that exists. God is that without which there would be no evolution at all. God is both Creator and Sustainer of the universe. In my opinion, God does not only set the initial conditions for the evolutionary process, but instead lifts an entire trajectory into existence. The entire trajectory is known to God, who exists outside of time, eternal and a-temporal, all-knowing and all-loving.