

# Consilience, The Unity of Knowledge

By Edward O. Wilson

A Book Review by Lee Daniel Snyder



**ISCSC**

This book in its own way is a masterpiece that should be read by every person interested in the nature of civilization. It celebrates the triumph of modern science and its ability to take a common and integrated approach to every level of phenomena in nature, from atoms to civilization and the arts. It starts from the bottom up, breaking down each level into its basic components and their interactions, concentrating only on elements that can be clearly seen. Atomic physics lays the groundwork by identifying all the components in the atom, but then molecules emerge as atoms combine. Physics, thus, evolves into chemistry. Then chemistry generates cellular biology, when certain large molecules begin interacting in the cell. All of the elements in the cell can be analyzed as chemical compounds and nothing else, but somehow a unique interaction creates life and the ability to be reduplicating. Then cells differentiate and cluster into different plants and animals, guided by evolution, i.e. the ability to survive in different environments.

The next big innovation is the emergence of the human mind, that Wilson believes can be explained as chemical processes in the brain and nothing else, selected as useful changes by the environment, just like all the other major changes. In other words, biology produces sociobiology, and sociobiology generates human society through the chemical processes in the brain, which in turn create knowledge and art, i.e. culture and civilization. All will shortly be explained on a “solid” and coherent foundation of science, according to the principles of evolution, without any controlling design. Science is universal and transcends cultural differences. What can not be seen in the end is fantasy.

While science has obviously made major advances in understanding the components of the physical and biological world and their patterns of interaction, Wilson does recognize that some key areas are not yet properly analyzed, but he is very optimistic that all these areas will eventually be integrated by science. Psychology follows biology (again through the chemistry of the brain). Anthropology follows psychology and explains civilization. In other words, building comes from the ground up without need of any other explanatory device. Wilson does not even mention history in his grand vision of the integration of knowledge. The trials and errors of society are not perhaps for him “knowledge” in themselves; only successful adaptations really count. One might say that unique events in time are turned into the regularities of

nature by scientific analysis.

Where are the fundamental problems? Wilson reluctantly notes the obvious problematic transitions, the emergence of the living cell, and the appearance of a self-directing mind, but not the revolutionary appearance of civilization. These leaps in the process of evolution, in my view, can not be explained by any bottom up approach. The innovation is more radical than simply a better organization of the previous interactions. While this fundamental reality is perhaps difficult to see in working at the cellular level, one can not understand civilization without seeing how the development of the system comes from the top down in powerful ways. In my view, evolution begins to work for the cultural system as a whole rather than for its components, and it is able to adapt in a rapid and creative way without waiting for genetic changes. The needs and successes of the whole shape the parts and even create new parts and new structures. Civilizations create institutions, traditions, and values that transcend individual minds, though some individual is ultimately responsible for all innovations. In my view, in living systems the whole is greater than the parts. The natural sciences are a powerful and useful body of knowledge that transcend culture, but human societies are governed by cultural systems, their unique history, organization, and values. They cannot be explained by brain chemistry alone.

Moving backwards, I would suggest that the emergence of the creative and governing human mind can not be explained by chemical processes alone either. The whole “person” takes charge, though still bound by physical limitations, and shapes the brain to serve its needs, especially seen in the creation of complex languages. Humans learn to cooperate in complex societies, but still create strikingly different individual personalities. The whole is greater than the parts.

The other key transition is, of course, the appearance of the living cell. Wilson agrees that the cell is a marvel of interacting elements, all of which have now been identified and understood in terms of their interactions. He insists that there is no more, no missing element that can be identified as life. Life is only the interaction of parts. He does admit, however, that scientists should be able to group the parts together and see them interact, i.e. begin to live. This has not happened, but Wilson is optimistic that it will be accomplished in the near future. Indeed, creating life, whatever it is, would be an exciting advance, but I am pessimistic. In my view, the cell is just like the human mind and civilization, brought together as a living system by the whole as the primary actor, from the top down, not the bottom up, even though no separate new element can be

detected. The uniqueness of the governing whole must be present before the assembled physical elements will become a living cell under its direction, and not just an assembly of parts that come together by chance. Scientists can not just add another part to make it live. No one has yet defined "life". The unity of the physical sciences and the human sciences has not yet been achieved.