



“Summary of article by Juan Martinez-Alier with Klaus Schlüpmann: The History of the Future” in Frontier Issues in Economic Thought, Volume 1: A Survey of Ecological Economics. Island Press: Washington DC, 1995. pp. 25-27

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### Unified Science and Universal History

Economics should include physical aspects of human ecology, as well as the study of cultural, social, and ethical influences on production and consumption. Ecological political economy must be integrative, bridging some of the gaps between the natural and the human sciences; economic propositions should not be made without consideration of the physical, sociological and psychological factors affecting economic activity. For example, analysis of the market for automobiles must include consideration of many issues, including the efficiency of the internal combustion engine, petroleum geology, the social forces leading to urbanization, moral issues such as global inequity and the increase in mortality associated with auto accidents, environmental impacts, the contribution to global warming, and so forth. Several of these issues involve intertemporal and intergenerational issues that are especially hard to fit into a reductionist, chrematistic framework. Otto Neurath realized already in the 1920s (in the context of the debate on the rationality of a socialist economy) that elements of the economy were *incommensurable*. Neurath's proposal for a "unified science" that would attempt to clarify relationships such as these, based on contributions from the individual sciences involved, might also be viewed as a form of "universal history."

One example from agrarian history of using such a unified science approach would be to go beyond economists' assertion of rising productivity in agriculture to investigate the declining energy efficiency and loss of biodiversity of modern agriculture. This analysis would take into account solar radiation and photosynthesis, the cultural and biological history of food, and the ideology of ever-increasing yields through use of chemical fertilizers. An identification of those propositions of economic science that are contradictory or doubtful from an ecological standpoint would emerge from this kind of analysis (a task undertaken by Nicholas Georgescu-Roegen, among others).

The concept of a universal science echoes the work of utopian socialists such as Saint-Simon, and therefore came under attack from Lenin and other orthodox Marxists, as well as from conservative theoreticians such as Hayek and Karl Popper. However, much can be learned from various "utopian" writings. They explore the connection between technological imperatives and social organization, suggesting new and desirable social relations based on moral values of equality and freedom and on feasible productive bases.

## **Marxism and Ecology**

Marxists have no commitment to market-determined prices or interest rates, and Marx wrote of capitalism misusing natural resources. However, Marxists also tend to view ecological protest against capitalism, like the moral and aesthetic protests of Ruskin, Morris, and other utopian socialists, as being of little analytical value. There is no analysis of exhaustible resources and intergenerational allocation in either the Marxist or the Sraffian schemes. Marx did favor Liebig's argument for small-scale, nutrient-recycling agriculture, although he rejected the Malthusian analysis of food supply. Moreover, he did not consider energy flow, and his limited ecological observations have not been integrated into the Marxist view of history.

Engels did consider energy flow and the entropy law, as well as the "squandering" of energy resources, but he considered a specific energy analysis to be of little value. Marx showed his awareness of the importance of physical factors underlying the economic process in his critique of Ricardo, arguing that Ricardo's theory of agricultural rents ignored the further development of agricultural fertilizers. Marx and Engels did not, however, pursue Podolinsky's effort to develop an ecological Marxism, and their followers have moved further away from this approach. Lenin rejected Ernst Mach's "empirio-criticism," despite its potential for integrating the history of science with Marxism, and in so doing created (for Marxists) a cloud of suspicion around social energetics. Bogdanov and Bukharin both considered energy analyses of production; Bukharin foresaw a communist utopia based on abundant energy. However, ecological Marxism never took hold, a fact that had significant adverse effects on the theory and practice of economic planning in the Soviet Union.

## **Ecological Anthropology**

The historical (rather than functional) school of ecological anthropology has much in common with ecological Marxist approaches. Leslie White, a founder of modern ecological anthropology, analyzed human history in terms of the interplay between technological development, the social system, and the cultural-symbolic level. Cold War restrictions, however, prevented the development of an American school of thought dealing with the relations between Marxism and ecology. Nonetheless, Podolinsky's ecological Marxism still provides much of the inspiration for this volume.