

Civilization in Spite of Ourselves

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Welcome to the special issue, *Dynamics of Civilizations*. This issue was not planned in the usual sense. Rather it self-organized beginning with a cluster of articles that arrived in the editorial office in finished form around the same time. The Editorial Board then issued a call for papers on relatively short notice to complete a special issue. Our authors were ready with three topic areas: spatial distribution of settlements, human ecology, and authoritarian behavior. We should take a few moments to consider the broader implications of each area.

The United Nations (1997) projected a modest increase in the number of people living in cities of 1 million people or more in most continents by 2013, although a large surge was anticipated in Asia amounting to 2.5 times the 1993 level. One would anticipate a sudden impact on the infrastructure of growing cities and regions as a result, including transportation and industrial employment (Guastello, 1999). The studies in this issue on the spatial distribution of settlements show where the large population centers are likely to appear (Sambrook, 2008) and how they might spread (Gligor & Gligor, 2008). The growth of urban centers appears to be more closely tied to fractal percolation than the principle of central places. Cities offer a large variety of interactions among agents, i.e., trade. Increasing the complexity of trade accommodates the participation of more agents, but greater disparities in the distribution of wealth can result (Epstein & Axtell, 1996). It thus remains to be seen how increased urbanization will affect the distributions of wealth, education, and access to health care.

In the early 1990s it was already understood that poor nations had bifurcated again into countries that were experiencing growth in their Gross Domestic Product (GDP), and those that were stagnant. According to simulations by Lucas (1988), a globalized economy would make rich nations richer and poor nations poorer. The United Nations (1997) reported the growing divergence of national GDP, although it was not yet possible to assess any impact of the GATT treaty of 1995. The studies in this issue describe two bifurcation systems inherent in predator-prey dynamics are relevant to social welfare. Basener, Brooks, Radin, and Wiandt (2008) found a bifurcation where a population's utilization of resources promotes the extinction of the population, and thus might explain the disappearance of societies that flourished long ago

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then disappeared rather suddenly. Populations also expend effort to produce prey (e.g., agricultural commodities), and another bifurcation describes whether the population embarks on a trajectory of maximizing its population size while consuming maximum resources or limits its population to maximize its ratio of resources per capita (Efferson, 2008). The international impact of the bifurcation has yet to be determined, although previous predictions have been more often grim than encouraging (Guastello, 1995).

The third pair of studies addresses what the members of societies sometimes do to each other. Within a social system, one can see forces of centrism and the periphery where social change and lack of it are likely to be located (Douglas & Wildavsky, 1982). Psychologists have documented an authoritarian personality that is highly centric at best and intolerant and violent all too often. It now appears that some aspects of the centric tendencies could be genetic. Guastello and Guastello (2008) examined the impact of generational transmissions of authoritarian attitudes to determine their long-run impact in the US. Sometimes conflicts are violent and deadly rather than simply ideological. In the final paper for this group, Spohn (2008) shows how a theory for the development of violence within individuals can be adapted to describe the escalation of violence within societies. Principles of nonlinear dynamics are then used to identify specific violent patterns in some well-known international settings.

We hope the contributions in this issue will spur new avenues of nonlinear dynamics research. As always we welcome new contributions on these and other topics related to the dynamics of civilization.

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