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REVOLUTIONS, COUNTER-REVOLUTIONS, AND ECONOMIC DEVELOPMENT

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The very highly regarded English economist Barbara Ward in the early 1960s identified four revolutions that differentiate rich nations from poor nations:

- (1) the biological revolution that brings with it the benefits of modern medicine and public health;**
- (2) the intellectual revolution that substitutes hard work and reason for the mystery and magic that is characteristic of tribal societies;**
- (3) the political revolution of equality that replaces the hierarchical order of king, warrior, and land lord of tribal and class society all of whom subordinate the merchant with one in which the young do not have to wait their turn to express their ideas to the elders;**
- (4) the scientific-technological revolution in which the physical matter of the universe is manipulated by the human intellect to better provision human needs and wants, and in which savings are accumulated to build the infrastructure necessary for economic development.¹**

More than 30 years later, Nobel laureate Amartya Sen asserted that “no major famine has ever taken place in any country with a multiparty democracy with regular elections and with a reasonably free press.”²

However, all four revolutions are vulnerable to counter-revolutionary forces. The biological revolution can be undone by environmental factors that threaten all living things including human beings and by infectious diseases that are drug-resistant and easily transmitted via modern intercontinental transportation systems.³ In this regard, the WHO in 2000 issued the following warning: “The potential of drug

¹ See Ward's *The Rich Nations and the Poor Nations*, New York: W.W. Norton, 1962, pp. 40-41.

² See Sen's "Rationality and Social Choice" in *American Economic Review*, March 1995, p. 16.

³ See, for example, Michael Osterholm, "Preparing for the Next Pandemic," *New England Journal of Medicine*, May 5, 2005, pp. 1839-1842.

resistance to catapult us all back into a world of premature death and chronic illness is all too real.”⁴

Notice, for instance, the impact that HIV-AIDS has had on economic development in sub-Saharan Africa, and the enormous cost of developing new drugs to replace the ones that no longer are effective in treating such killer diseases as HIV/AIDS, diarrhoeal and respiratory diseases, tuberculosis, and malaria.⁵

The intellectual revolution can be reversed by a gambling mentality that proclaims that it is not reason and hard work that determine a person’s material well-being but luck – a roll of the dice, a turn of a card, a series of numbers on a lottery ticket. It is also threatened by educational processes that lock students into a conventional paradigm, especially one that originates in scripture, thereby dissuading them from challenging that paradigm. Cheating by university students, grade inflation, and dumbing down of textbooks undermine the intellectual revolution by a gradual erosion of the ideals of hard work and reason.

Ward’s third revolution, the political revolution, can and to some extent is being thrown back by youth gangs that vie for territorial control not through public discourse and the ballot box but by tribal codes and automatic weapons. And, as is all too well known, this revolution is under attack internally by powerful self-interest groups that use money to manipulate the legislative process and externally by terrorist groups who despise democracy, freedom, and equality.

The scientific-technological revolution can be upended by educational systems that fail to teach students even the rudiments of the math and science necessary to sustain that revolution. In this regard we call attention to the poor performance of American elementary and secondary school students as compared to their international counterparts and the declining numbers of American college graduates with degrees in science or engineering.

Further, gambling attacks the scientific-technological revolution in that it siphons off the personal savings of gamblers that otherwise could be used to energize genuine economic development, especially high-tech economic growth that is driven by bright and persistent entrepreneurs. In effect instead of meeting human needs and satisfying human wants through economic enterprises that sell something of real value for the money that the consumer gives in exchange, casinos exploit a basic human weakness by promising a huge payoff and then confiscating the savings of gamblers, providing nothing of substantial value in return.

America’s economic development and wealth are a direct consequence of having embraced over a long period of time the biological, intellectual, political, and

⁴ World Health Organization, *The World Health Report 2004, Changing History*.

⁵ Tufts University in 2003 estimated that it cost roughly \$900 million to develop a new drug, perform the trials to demonstrate its efficacy, and win FDA approval for use therapeutically. See Center for the Study of Drug Development, “Tufts Raises Estimates of the Cost of Drug Development,” May 2003.

scientific-technological revolutions and having harnessed successfully their energies. However, there is no ironclad guarantee that these revolutions cannot be undone and that the lofty standard of living that Americans enjoy today will last for generations to come. The future belongs to those with a firm grip on these revolutionary forces.

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