Review: *Entropy: Into the Greenhouse World*

By Jeremy Rifkin

Reviewed by Alfred Steffens, Jr.
Rockwell International

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Rifkin, Jeremy. ENTROPY: INTO THE GREENHOUSE WORLD, Revised Ed., New York: Bantam Books, 1989. 354 pp. US$9.95 paper ISBN: 0-533-34717-9.

ENTROPY: INTO THE GREENHOUSE WORLD is a readable, well-documented book about pollution and the Greenhouse Effect. The author, Jeremy Rifkin, disusses the scientific concept of entropy as it relates to energy consumption and pollution. The underlying themes of his discussion are how overpopulation contributes to the rise of technology, and how the increase of energy consumption leads to an increase in world pollution.

Rifkin's thesis is that human populations always consume the most easily available energy first. They are then forced to develop more sophisticated technologies to consume energy that is more difficult to obtain. In pre-industrial Europe, as people outgrew supplies of renewable energy such as timber and animal fuels, they developed technology for mining and burning coal. This is what precipitated the Industrial Revolution. Rifkin contends that each successive step up the ladder of energy consumption means more expensive technological development and consequently, more pollution.

He also argues that physics explains how the resulting pollution is "built-in" to the increased energy consumption; that is to say, whenever energy is converted from one form to another, as in energy consumption, only a part of that energy can be used, while the other part takes the form of entropy, or "disorder." Rifkin's example is coal, which actually contains less energy per pound than timber when the cost of technology and the increase in pollution levels are taken into account.

Rifkin's conclusion contradicts the theory that growth in technology will combat our pollution and population problems, as well as the coming energy crisis. Although the book does discuss energy and the Greenhouse Effect, its real message is the crisis posed by the world population explosion. As long as our energy sources cannot be renewed

(due to overconsumption), we must find dirtier energy supplies. Unfortunately, the human population outgrew natural energy renewal from the sun centuries ago.

Having an education in physics, I find the book's discussion on entropy to be fairly solid. Rifkin makes a good case based on history, and each of his paragraphs contain at least one citation. Although his thesis should be more closely examined by the experts, it is one with which everyone should be familiar.

Alfred Steffens, Jr. <apsteffens@val.net> is a member of the Technical Staff, Rocketdyne Division, at Rockwell International, in Canoga Park, California, USA.