

# The meaning of the term 'physical economy'

by Lyndon LaRouche, Jr.

*The following array of descriptive definitions was provided as background for a press briefing by Lyndon LaRouche on May 26, 1994, on his return from a six-day visit to Moscow.*

For the convenience of participants in this special report-back conference, the following relevant definitions are supplied by me in third-person mode:

1) Lyndon H. LaRouche, Jr. is a specialist in physical economy, a field to which he contributed some original fundamental discoveries during his work over 1948-52. LaRouche was designated a Corresponding Member and later a Full Member of the Moscow Universal Ecological Academy for his published work in this field.

2) Physical economy is a branch of physical science founded by Gottfried Leibniz. It addresses the problem of defining functions for increasing the per capita physical productive powers of labor in ways which are independent of measurements of monetary valuations. Although modern physical economy was an outgrowth of the development of what was called "cameralism," from the work of George Gemisthos (Plethon) during the 15th century, through the work of such as Jean Bodin, and through the circles of Jean-Baptiste Colbert, Leibniz, Alexander Hamilton, et al., physical economy itself may be said to come into existence with Leibniz's 1672 paper on "Society and Economy," and was developed by Leibniz thereafter around the themes of the interdependent roles of heat-powered machinery and transformations in technology in increasing the productive powers of labor per capita and per square kilometer.

3) The influence of Leibniz's work in physical economy was introduced into the American English-speaking colonies and the United States during the 18th century through networks of Leibniz's functioning then in England and France. Exemplary channels of influence include the relevant writings on currency and economy by Cotton Mather, Benjamin Franklin, and Alexander Hamilton. The relevant portions of Article I of the U.S. Federal Constitution, and corresponding features of the reports of U.S. Treasury Secretary Alexander Hamilton to the U.S. Congress on the subjects of Credit, a National Bank, and Manufactures are

exemplary of this influence.

4) LaRouche's qualifications in this field are derived principally from his study of the work of Leibniz and his work of the late 1940s and 1950s in refuting the relevant work of Norbert Wiener and John Von Neumann. LaRouche's original discovery was motivated by the intent to show that it was fraudulent to employ Wiener's representation of so-called "information theory," or Wiener's dubious definition of "negentropy" as a method for interpretation of the communication of ideas among persons. LaRouche employed the empirics of investment in new technologies to increase the productive powers of labor as the typical expression of the nature of original ideas developed and communicated by individual persons.

5) This original discovery was refined by 1952 studies of the work of George Cantor and of works by Bernhard Riemann. His purpose in studying the work on the so-called *alephs* by Cantor was to discover the apparently mathematically anomalous character of that characteristic function of economic growth which LaRouche had developed in opposition to the arguments of Wiener and Von Neumann. Riemann's life's work, premised on recognizing the nature of the so-called continuum paradox of all formalist mathematics, guided LaRouche in developing practical applications of the original discovery.

6) Since the result employed work by Riemann to modify his original discovery, this contribution to Leibniz's science of physical economy was named "The LaRouche-Riemann Method" of forecasting and related analysis.

5) The formalities of the science of physical economy may be described as centered upon refining and scaling the following set of inequalities:

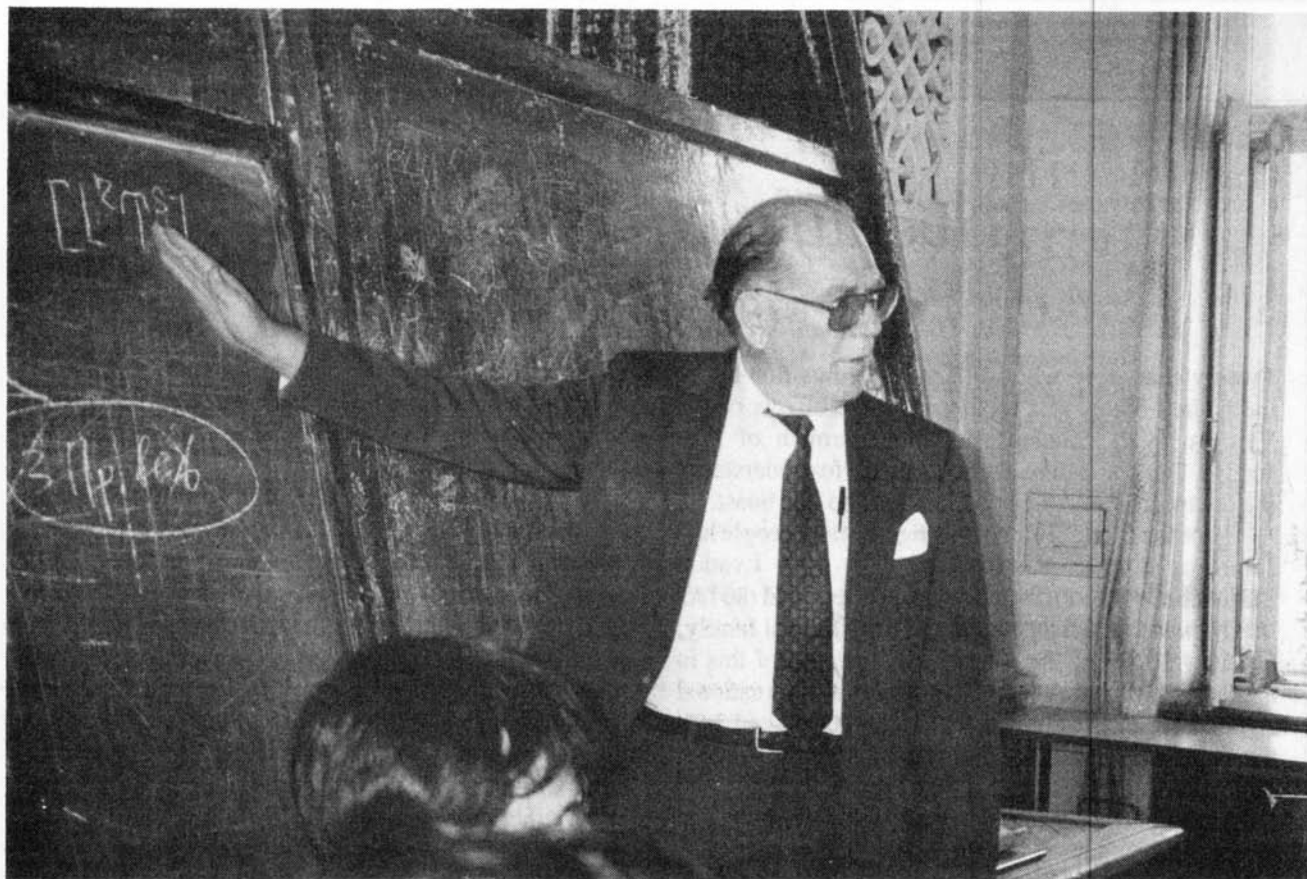
a) The Primary Inequality: The description of the characteristic not-entropic function of all successful physical economies.

b) The set of inequalities which define the changes in state of the division of labor in society produced by the action expressed in terms of the primary inequality.

The division of labor can be illustrated by histograms. Thus, in the case of successful economy, the changes in the allocation of the full histogram will be consistent with the set of inequalities b). In that case, the primary inequality, a), describes the action which produces this successful result.

The practical primary work of the physical economist is devoted principally to determining, through aid of empirical studies, the appropriate scaling, and refining of this twofold set of inequalities. The secondary practical work of the economist is to map the interaction between physical economic processes, on the one side, and financial and monetary processes, on the other.

6) The crucial feature of the practice of physical economy today is the not-entropic quality characteristic of the primary inequality. The following summary suffices for purposes of



Lyndon LaRouche addresses a meeting of P.G. Kuznetsov's "President" program at the Russian Academy of Sciences in Moscow, April 28, 1994.

broad definitions.

The characteristic feature of successful physical economies is the increase of the potential population-density of society, in per capita, per household, and per square kilometer terms. The cause of this increase is predominantly those changes in the productive powers of labor which are typified by investment in improved technologies, as the possibility of such (physical) investment is conditioned by requirements for use of sources of power and improvements in the development of the environment used for this purpose.

This measurement defines individual productive labor in terms of biophysical and cultural demographic functions of households, and defines existence of households, of individual productive labor, and of output of productive and other labor in terms of per household, per capita, and per square kilometer terms. What is measured in the production of the per capita productive powers of labor by means of the process of production so defined.

The measurement to be made chooses any instant of a continuing process of production of the productive powers of labor through the medium of the reproduction of those products which are the essential inputs for the households and productive processes represented. The adequate param-

eter for measurement of these products and services is the total of (i) Physical Products consumed by households and production entities, plus only three categories of services essentially (demographical and otherwise) to maintaining the rising productive powers of labor: science, health care, and education.

The input at any instant is a magnitude corresponding to "energy of the system." At that same instant, the net of output less input corresponds to **estimated** "free energy."

In these terms, the characteristic inequality, is:

That the continuing increase of the ratio of "free energy" to "energy of the system" is contingent upon a continuing increase of the intensity of "energy of the system" per capita, per household, and per square kilometer.

The increase in the productive powers of labor in this way, correlates with required increases in power- and water-density, with a shift from a primarily rural production, a continuing increase in basic physical infrastructure of production, and with a shift within the composition of the urban labor-force increasing relatively the ration of producers' goods over households', of machine-tool component of producers' goods, and with an increase in the ration of employment in "pure science and technology."