

amount of speculation and illegal activities of various kinds, and to stop the present hyperinflation. Essentially, old ruble notes are exchanged for new currency notes (let us say, "Novy Ruble") according to an orderly procedure. In this process, holders of large amounts of old rubles in cash or on account will be required to account for where they came from, before they are allowed to exchange them. As a result, a large amount of rubles acquired illegally, or without paying taxes, will be discovered or else their owner will burn them to avoid being prosecuted! . . .

In its simplest form, the new National Bank of Russia would generate new credit through the emission of new currency notes in the form of low-interest loans to the state, and to state and private enterprises either directly or in cooperation with other banks. The interest rates will be between 2% and 6%. Most importantly, such loans will be given only for certain precisely defined categories of productive investments, including particularly for improvements in infrastructure and for technological modernization of industry, agriculture, and the construction sector. But the National Bank will not provide credit for investments into the service sector or for purely financial transactions such as trade in commodities or land. . . .

Let us say that we have a machine-building enterprise which produces machinery for railroad construction. We receive a credit from the National Bank of Russia to construct a new modern production line. The local branch of the National Bank will pay money out of the special account only for deliveries of specified materials, machinery, and tools, and so forth. In other words, we never actually see the money ourselves. . . .

Naturally, credit will be available outside the National Bank for the service sector and other uses outside the strictly productive sector. However, these credits will have a higher rate of interest, and banks will only be able to lend to such categories of investment from their own funds. Thus, expansion of lending for nonproductive activities can only occur indirectly. . . .

For some people, this method of credit generation to finance infrastructure and modernization of industry and agriculture sounds like magic. They are accustomed to experiencing shortages everywhere, and cannot imagine anything being created which was not taken away from another place. But there is no magic. If we look at Russia, for example, we see on the one side tremendous reserves of labor, of poorly utilized productive capacity, and especially an extraordinary technological potential; on the other side, we see a nearly endless list of tasks, of necessary things which are not being done, including especially the modernization of infrastructure. The problem is, that the capabilities are not properly matched to the tasks, like an automobile in which the motor is disconnected from the wheels. What the National Bank essentially does, is to put them back together.

How to overcome errors in economics

by Prof. Dr. Taras V. Muranivsky

Professor Taras Muranivsky teaches at the Russian State Humanitarian University and is rector of the new Ukrainian University in Moscow. He actively organized the Oct. 30-31 conference on "Alternative Approaches to Economic Reform," and served as its co-chair. Professor Muranivsky is scientific editor of the forthcoming Russian edition of Lyndon LaRouche's 1984 book, So, You Wish to Learn All About Economics? His paper on that book, prepared for the conference but not delivered for reasons of time, is part of the conference proceedings and is included here in full. The speech has been translated from the Russian, and subheads have been added.

In Russia, as in the majority of the new independent states that arose after the disintegration of the former U.S.S.R., an attempt is being made to achieve the economic level observed in the developed countries of the West today, by means of private property, the market, and certain financial and pricing operations. But the problem is that our notions about the so-called market economy are oversimplified to no small degree, are somewhat "larded" with the ideologies of the recent past, and are essentially mythical. It seems to bother us little, that among countries that have private property and a market, there are economically backward and politically dependent ones alongside the developed.

Evidently those people are correct, who compare contemporary Russia, for example, with Brazil. Just as they are there, we are faced with a comprador bourgeoisie and a wild market. No one has any interest in the development of infrastructure, growth of production, or raising the population's standard of living. Nobody has any use for science, and nobody is worrying about the acceleration of scientific and technological progress. It is to be expected, that in Russia, just as in Brazil and in other Latin American countries, the recommendations of the International Monetary Fund will fail utterly. Perhaps the only thing that is holding us back is the irony of ambiguity, mixed with the cynicism of totalitarian times.

We should seek a way out of this situation, starting with the decisive rejection of primitive notions about economic development. This requires studying various economic theories and conceptions, as well as the accumulated human prac-

tical experience of running an economy rationally.

Among the scientific conceptions unfamiliar to a broad circle of our specialists are the views of the major American scholar, economist, and public figure, Lyndon H. LaRouche. Considering that one of his books, which came out over a decade ago, was entitled *Imperialism, the Final Stage of Bolshevism*, it is not difficult to understand the reasons for official Soviet economic science's negative attitude toward him. He was tagged with all sorts of labels and accused of all sorts of sins. Unfortunately, in some places the inertia of

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such "exposés" has been preserved up to the present.

Let us try calmly to examine the views of this scholar. We will be assisted by the just-finished translation of L.H. LaRouche's book into Russian. It has a somewhat convoluted title: *So, You Wish to Learn All About Economics?* As the scientific editor, I proposed to give it a more precise title, *How to Overcome Errors in Economics*. This would have expressed the main idea of the book and its urgency for our readers. But, unfortunately, German and American scholars from the Schiller Institute decided to keep an almost literal translation of its English title.

One may accept the author's views or disagree with him, but it would be a profound error to ignore such a serious and multi-faceted body of scientific investigation. All the more so, in that LaRouche takes a very non-traditional approach to the development of economic science and gives non-trivial evaluations both of economic practice and of state policy in the economic and social spheres.

Economics as 'natural science'

In my view, the methodological aspects of his substantiation of the formation and development of economic science and his identification of its essential character as a natural science, including a fundamentally new treatment of several key concepts and categories, are of great theoretical interest.

We know that Academician Landau subdivided all sci-

ences into two groups: natural, and unnatural. LaRouche has his own classification, which is also unusual for us. Above all, he distinguishes the natural sciences, which include biology, economic science, and mathematics itself, as well as the history and investigation of new manifolds. But he rejects the necessity of conducting scientific research in such areas as "psychology, sociology, anthropology, and kindred 'ologies' of so-called 'social' science." Such a categorical condemnation is unjustified, I think, since it is indeed necessary to study the social sphere. Everything depends on what methods are employed and to what extent science is independent from politics and ideology.

The author himself examines a broad spectrum of social problems. Most valuable from a practical point of view is his frank and comprehensive analysis of the system of social relations in western countries (economic ones, first and foremost), which people in our country often look at as some kind of ideal, or as the latest version of "the shining future." It is important to note, however, that the author makes his critical analysis of that system not from Marxist or from other class, race, or party positions, but from a profoundly scientific standpoint.

With respect to its scientific content, there are at least three aspects of LaRouche's book that impress me: the creative character of his analysis of various processes and phenomena; the consideration of science as an organic whole, and of the interaction of its various branches; and the logical consistency and historical continuity in the presentation of the theoretical conception chosen by the author.

Hypothesis of the Higher Hypothesis

As the fundamental scientific research method, LaRouche chose the principle called by Plato the Hypothesis of the Higher Hypothesis. Chapter 5 of the book, almost in its entirety, is devoted to this method. The author emphasizes that an investigation begins when some existing conception is subjected to doubt, and subsequently may be refuted.

The researcher experiences such doubts, when he "is annoyed by a noticeable smell of falsehood or superficiality" in some scientific axiom or doctrine. The researcher attempts to discern, in what state of mind such a doctrine or conception would have been advanced and elaborated, and what false assumption underlay its formulation. It is especially important to establish, how it is contrary to the lawful ordering of the universe.

Then a blow has to be struck against the "Achilles' heel" of the conception that has been cast into doubt. Here, neither intuition nor any feeling like that will help. The goal that has been set can only be reached on the basis of and by means of comprehensive knowledge and deep understanding of the problem. LaRouche demonstrates these qualities with the example of his own investigation.

A characteristic example is his comparison of two views of the problem of the derivation of words: that of the famous Sanskrit philologist Panini, who argued that all words derive

from the verb, and that of the well-known ancient Greek philosopher Aristotle, who asserted that nouns were primary. Using the methods of Plato, Kepler, and Riemann, and certain specifics of the development of science, LaRouche criticizes the position of the Aristotelians, for whom “science is stringing imaginary self-evident things, like beads on a string, on the latticework of a nominalist’s deductive-theorems or, similarly, chopping small things into ever-smaller constituent things.”

At the same time, the author argues that any empirical fact, described from the standpoint of the transitive verb, defines a corresponding transformation, which occurs during a given time, in a given place. An in-depth analysis of this problem brings LaRouche to the conclusion, that “*physical* has the meaning of *transformation* (as opposed to static, particular existence instantaneously). Transformation exists only in finite time and finite spatial displacement. Hence, neither matter, nor space, nor time can be separated as existing independently of the other two. Matter in itself, space by itself, and time in itself, are meaningless constructs of a deluded mind. Only *physical space-time* exists.”

Thus, from the standpoint of transitive verbs, the author reaches philosophical generalizations, from which follow new evaluations and conclusions of a universal character, such as, “The universe created itself as a continuing process of negentropic self-transformation.”

LaRouche subjects the laws of thermodynamics to devastating criticism, especially the second principle, entropy. He considers the second law of thermodynamics to have been refuted in advance by the work of Kepler, published in the early seventeenth century. And Kepler’s astronomical laws, discovered by him on the basis of arguments and calculations based on the Golden Section principles of Pacioli and Leonardo da Vinci, were of decisive significance. Later, Gauss proved the universal character of Kepler’s laws, from which it follows that the universe as a whole is essentially negentropic.

The author conducts his analysis of these and other researches in the history of science, in order to prove the unity of science and the universal, general scientific significance of the most important scientific discoveries, regardless of what area they were made in.

The heritage of Leibniz

Thus, mathematical conceptions (synthetic geometry, the ontological transfinite, and others) directly affected economic science. LaRouche considers G. Leibniz to have been the founder of the new tendency in this field.

Based on the research methods employed by G. Leibniz in the area of heat-powered machines, Lyndon LaRouche has formulated the principles and methods of physical economy, whose subject-matter is the functional dependency between the perfection of productive processes (improvements in machinery and technology of production) and the growth of the productive power of operatives in production.

The essence of physical economy, it appears, may be understood from the interconnection between energy and economic systems.

An important indicator identified by LaRouche for the analysis of technological systems is the concept of energy flux-density. Analyzing this flux and the losses of energy in the process of work by the machine fed by that energy, made it possible to discover new phenomena. Of greatest interest is the conclusion, based on observations and on mathematical calculations, about the interdependence of energy flux-density, energy losses, and work performed. It turns out that with a high energy flux-density, comprising only a portion of the total power supplied to the mechanism, it is possible to perform a greater volume of work, than using the entire energy flow at a relatively lower energy flux-density. And so, given a powerful energy flow, waste of energy is not such a terrible thing as is usually supposed.

LaRouche generalizes this conclusion to the economy as a whole, and considers it to be one of the characteristics of economic science. In particular, this makes it possible to solve in a new way, the important socio-economic problem of raising the level of capital expenditures (wages, in particular) per operative employed in production.

The book shows that the idea of flux-density has been employed for a long time in agriculture, where crop productivity is measured by yield per hectare or by the quantity of product per worker employed. It is not difficult to see how these indicators are coherent with the technological characteristic of energy flux-density.

The next measurement indicator is the contents of a “market basket” (of means of production, as well as of consumer goods). The use of this indicator as a standard makes it possible to introduce at least two more causal relationships: the correlation of the volume of output (or contents of the basket) and the social expenditures on producing it, and the interrelationship of these volumes with the area occupied by all the people living in a given territory.

Finally, these indicators, based on the idea of energy density in machinery, may be linked among themselves, through population density, i.e., the number of inhabitants per square kilometer of land.

Further analysis leads to posing a new task: to identify the limits (or ceilings), beyond which the increase in energy flux-density and capital expenditures (per operative, per unit of production, or per area) no longer leads to a rise in functional efficiency of the system as a whole. In an economic sense, it is a question of the economy of general (or average) expenditures of human efforts, in such a way as to preserve (or even improve) the content of the “market basket,” without increasing social expenditures on the production of goods. In order to achieve this goal, resource-conserving technologies must be employed, the study of which is a subject of economic science.

In Leibniz’s times, new technologies were based on the application of coal-fired, heat-powered machines. Leibniz

compared the benefits derived from the work of these machines, with the cost of mining the coal. This approach served as the point of departure for Leibniz in creating a new economic science. He saw the purpose of heat-powered machines in that, by using them, each operative could perform the same volumes of work, which it required whole groups of workers to do without those machines. These indicators of the economy of labor are compared with the cost of the machines and the coal they consume, including the cost of mining, transporting, and utilizing the coal.

An important step on the path of establishing a new economic theory will be to introduce a special course in physical economy, as a special subject of study at the Ukrainian University in Moscow. This and other books by LaRouche will be used as textbooks for students and graduate students of the university.

The study of differences in the productivity of various types of machines, using the same quantity of energy, is important in physical economy.

Lyndon LaRouche writes about his own contribution to the development of economic science, that he was the first to realize the importance of Riemann's contributions in mathematical physics, for the quantification of the relationship between rates of technological progress, and the consequent growth of intensity of economic development. This was the origin of the LaRouche-Riemann method. Furthermore, economic investigations intersected the most promising directions of research in the field of controlled thermonuclear fusion and plasma physics.

Economy of labor

The American economist Henry Carey, whom LaRouche cites, proposed to measure the value of man's productive activity, by the growth of the economy of labor, which is achieved through technological progress.

This interpretation differs from the Marxist definition of value with which we are familiar, in that value is attributed not to the object (commodity, for example), but to the process (productive activity). This is a new definition of the category of value, one conditioned by technological progress, on which economic progress depends. The economy of labor is impossible, without technological progress.

The growth of man's mastery over nature is easy to measure, with the indicator of the reduction of the area of inhabit-

able land, required to maintain the life of one average individual. This is an effective way of measuring the economy of labor. LaRouche terms this measure population density, which is defined by the number of people per square kilometer, able to subsist by means of their own labor. In practice, this expresses the level of technology in a given society.

The indicator to be measured is the rate of growth of population density. In this way, LaRouche proposes to measure the rate of growth of economy of labor, at which growth of the productive power of labor occurs.

Calculation of the magnitude of the economic category of value is based on this. Its measure is the rate of growth of potential relative population density, in comparison with its existing level.

In mathematical terms, this definition of value may be precisely expressed, using C. Gauss's functions of a complex variable.

No 'post-industrial society'

This is why the *leitmotiv* of LaRouche's book is a protest against all sorts of proposals to reduce the rate of technological progress.

LaRouche harshly criticizes the policy of the "post-industrial society," which, due to the decline of the productivity of labor, expressed as a reduced output of physical goods, will lead during the next 40-50 years to a chain reaction of outbreaks of famine, epidemics, and the death of around 4.5 billion people in the world, as well as a fall in potential relative population density.

The "post-industrial society" policy began to be implemented in the U.S.A. in the mid-1960s. LaRouche terms Zbigniew Brzezinski's well-known theses on the "technetronic society" a reflection of the linkage between the utopian strategic thinking of American Presidents beginning with Lyndon Johnson, and social and economic policy.

LaRouche identifies the Harvard Business School, working along lines charted by Robert McNamara of Ford Motor Co. and the Pentagon, as a center that influenced the transformation of industrial management philosophy. The idea of "buy cheap, sell dear," became a doctrine of economic science.

To dress this doctrine up in a scientific costume, ideas were used from the book *Mathematical Economics* by John von Neumann (1903-57). The phrase "opportunity cost" attained magical popularity. LaRouche thinks that the philosophical views of von Neumann are close to those of Laplace, Clausius, Helmholtz, and Boltzmann. Worst of all, in his view, was the application of von Neumann's theory of games to economic processes, which were thereby reduced to solutions of systems of linear inequalities. The notion that the economy was in a state of zero technological growth and that tendencies of the technological level to fall could be ignored, was most absurd.

LaRouche also holds that a Gaussian synthetic-geometrical interpretation of negentropy suffices for "rejecting the

incompetent Wiener-Shannon 'information theory' dogma."

Analysis of the mathematical conceptions that influenced the development of economic science led the author to the conclusion, that the basic principles of such contemporary scientific fields as econometrics, operations research, and systems analysis are "consistent failures." I am not prepared to accept this conclusion "on faith," without special studies to back it up. But a comprehensive analysis of these areas would go beyond the framework of economic science and would require serious, complex research.

The science-driver

LaRouche advocates an economic policy of rapid growth in the economy of labor, on the basis of a science-driver for the economy. This requires political methods that stimulate mutual understanding between scientists and leaders of the economy.

For the next 50 years, the author considers three areas of fundamental research to be the most promising:

1) Controlled plasmas with a very high energy flux-density, obtained in experiments on thermonuclear fusion as the main energy source for mankind.

2) A related problem—the development of coherent radiation with a high energy flux-density, considered as a means of production and an implement for other applications. This area is represented by work on improving lasers and on particle beam experiments.

3) New directions toward a fundamental breakthrough in biology, a very important feature of which, though not the only one, will be achievements in microbiotechnology.

The author's proposed classification of various types of expenditures on social production, from the standpoint of their role in making up the national income, is of great theoretical and practical interest.

According to LaRouche, the essence of the economic category of value is the transmission of negentropy to the economy and to society as a whole, by means of productive activity. But the decisive role is played by the participation of scientists and specialists in transferring negentropy from science to production.

LaRouche in Russia

Let us suppose, that LaRouche's ideas will find partisans among influential economists and governing circles in Russia. Will they be able to be implemented swiftly? I think that we have an array of obstacles to this.

Above all, our poverty, against the backdrop of western abundance, creates the illusion that we should not seek anything new, but just skillfully copy the experience of the developed countries.

Another serious obstacle is the weak theoretical training of economists in our country. For decades, former Soviet students and graduate students had no opportunity to study any economic conceptions other than Marxist-Leninist ones. Now the situation is changing, and it has become possible to

get acquainted with the conceptions of LaRouche and other views, but time is required to master them.

Unfortunately, many constructive proposals contained in this book have not been carried out in practice. Therefore it is entirely possible that objections will arise, that Russia would become a "test range" for the latest experiments thought up in the West.

And there will also be those who discern a superficial resemblance between LaRouche's conception and Marxist principles, with respect to state regulation of production, for example, and the preferential attitude to the growth of means of production over mass consumer goods. But really, there are essential differences here.

While Marxism rejects private property ownership as such, in LaRouche's conception, "the basic productive functions remain the prerogative of private investment." While in Marxist political economy, the basic branches of industrial production are subjected to planned regulation, physical economy leaves to the government chiefly the functions of maintaining basic areas of productive infrastructure and utilities, such as water supply, transport (ports, railroads, highways, airports), production and distribution of electric power, the development and managed utilization of natural resources, and urban infrastructure, including basic services.

The most serious obstacle to economic transformations in Russia and the other newly independent states is the Bolshevik way of thinking, which permeates society from bottom to top. People are upset right now, because prices have risen catastrophically. But nobody is upset, that we are producing very little and, where we are producing, not what is needed. At the top, people are still convinced that it is possible on such-and-such a date to introduce a market, or to ban atomic power stations (which are continuing not only to be used, but to be built, around the world).

Society's life depends to a significant degree on the development of economic science. During the years of totalitarianism in our country, many sciences suffered a mortal blow. But while, say, cybernetics or genetics have begun to make up for what they lost rather intensively, this has not occurred with economics. The "generals" of economic science and the collectives they headed spent decades giving a scientific glaze to party slogans and resolutions.

As a result, economic science lost the most important characteristics and methodological principles, which are inherent in any normal science, whose goal is to seek the truth. LaRouche's book, in my view, makes an important step for economic science to acquire this quality. This makes it possible to overcome deep errors, both in economic research, and in the practice of running an economy.

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