

ON POLITICAL
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AND
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Essays in honour of

OSKAR
LANGE

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OSKAR LANGE AS A THEORETICIAN OF HISTORICAL MATERIALISM

A VOLUME of collected essays dedicated to the life and work of Ludwik Krzywicky, published in Warsaw in 1938, contained a paper by Oskar Lange entitled *Ludwik Krzywicky as a Theoretician of Historical Materialism*¹. Classic in simplicity, clarity and originality of approach, the paper was as much a presentation of Lange's own social thought and his research methods as it was an analysis of Krzywicky's conceptions.

In vain will the reader search for an analogy between that paper and the one at hand. The similarity of titles should not be construed as an ambitious attempt at matching the model. For the model—Lange's paper—was the product of a scholar whose work is one of the most outstanding testimonies, a testimony unparalleled in many respects, to the vitality and fertility of Marxism for the development of contemporary social science.

The choice of title was, however, not an arbitrary one. It enables the author, by referring to a certain excerpt from Lange's essay on Krzywicky, to introduce at once the basic idea of the role of historical materialism which Lange made the leading motif of his academic work. "Historical materialism is until now the only attempt at a consistent and homogeneous explanation of the causal mechanism of social development. It is a concept which has found fruitful application in many spheres", wrote Lange in the conclusion of his essay on Krzywicky. "Undoubtedly, the theory is incomplete as far as the precision of its concepts and the possibility of explaining certain facts in its field are concerned. But progress in science is not made by throwing overboard old theories and thinking up new ones, but by painstakingly working to enrich and perfect existing scientific knowledge. In so far as the analysis of social development is concerned, historical materialism seems to be the only theory which can provide a basis for the acquisition of further knowledge.

¹ O. Lange, *Ludwik Krzywicky jako teoretyk materializmu historycznego* (Ludwik Krzywicky as a Theoretician of Historical Materialism) in *Ludwik Krzywicky. Praca zbiorowa poświęcona jego życiu i twórczości* (Ludwik Krzywicky. A Collective Work Dedicated to His Life and Work), Warsaw 1930, pp. 89-113. Lange's essay was republished in pamphlet form in 1947 and later included in a collection of his essays, O. Lange, *Pisma ekonomiczne i społeczne 1930-1960* (Papers in Economics and Sociology 1930-1960), Warsaw 1961, pp. 71-86. Quotations were taken from the latter.

Ludwik Krzywicki felt just this way about historical materialism. He was one of its most talented exponents and devoted his entire life to the development and grounding of this theory, adding a great deal to our knowledge of society and helping create a powerful instrument for the further progress of this knowledge"².

Oskar Lange feels the same way about historical materialism. His scientific work and socio-political activities might be characterized in similar terms.

HORIZONS AND INSPIRATIONS

The bibliography of Lange's major economic and social publications includes 120 titles³. Some of them were written in Polish, others in English, German or French; they have been translated from the language of the original copy into many other languages: Arabic, Bulgarian, Chinese, Danish, English, French, German, Greek, Hebrew, Italian, Japanese, Polish, Portuguese, Russian, Serbo-Croatian, Slovak, Spanish and even into Telugu (a language spoken in India). This fact, although it testifies to the reputation Lange has, and to the role he plays in international science and politics, is secondary compared to the range of his interests, the variety of his works, and the intellectual horizons of his thought.

One is used to speaking of Lange the economist. It is true, the major part of his scientific work has been in that field. And yet there are two striking things. First of all, Lange does not merely engage in economic theory; here is a significant statement he made when characterizing the principle he used in selecting the essays to be included in the collection of papers on economic and social problems, published in 1961: "I think ... that the reader will find one guiding idea in all these papers. It is the attempt to combine a precise, scientific approach to economic study with the needs of social practice, and in particular with the working-class movement and socialism. Even the abstract econometric analysis, though apparently so distant

² Op. cit., p. 86.

³ A bibliography of Lange's most important publications was added to the collection of his economic and social essays referred to above, pp. 456-464. According to Lange's introduction to this collection, the bibliography did not include publications of lesser or only momentary significance or publications of a purely political nature. The bibliography goes up to 1961. It does not include the extremely important work *Całość i rozwój w świetle cybernetyki*, published in Warsaw in 1962 (English translation—*Wholes and Parts. A General Theory of System Behaviour*, to be published in 1964), and "Społeczny proces produkcji i reprodukcji" (Social Process of Production and Reproduction) published in *Ekonomista* in 1962, which is Chapter One of the second Volume of Lange's *Political Economy*, now in preparation, nor does it include "Rola nauki w rozwoju socjalistycznego społeczeństwa" (The Role of Science in the Development of Socialist Society), published in *Nauka Polska* in 1962, and other papers by Oskar Lange. Lange is now at the peak of his creativity. At the moment this paper is being written, his book *Optymalne decyzje. Zasady programowania* (Optimum Decision-Making. Principles of Programming) is in print and another book, *Wstęp do cybernetyki ekonomicznej* (An Introduction to Economic Cybernetics) has already been submitted to the publishers.

from social policies, serves that purpose"⁴. Lange, the economist, not only develops economic theory, but formulates practical propositions and principles to be followed in the field of economic policy; indeed, this is the essential part of his personality as a political man also when he deals with matters not directly concerned with economics.

Secondly, the range of theoretical and political interests of Lange, the economist is unusually diversified, probably for three reasons: because it must serve the changing requirements of social practice; because Lange, the academician, has made the socialist ideal the supreme value of his life; and because Lange, the revolutionary, cannot imagine social progress without a permanent revolution in science, without a constant perfection of scientific methods. Analysis of the capitalist economy, the economic theory of the socialist economy, the theory and history of economic development, the theory of reproduction and accumulation, the theory of economic growth and economic problems of underdeveloped countries, econometric models, the application of cybernetics to political economy, econometrics, the application of statistical theory to economic research problems of the co-operative movement, methods of management in the national economy—these are but a few of Lange's fields of interests as an economist. There are many more, and that is perhaps the secret of the originality and the intellectual value of the great synthesis Lange presented in his *Political Economy*.

But Lange is not, and never was, an economist only. To be sure, the greatness of his economic thought has been determined by his wide intellectual horizons, his erudition, the scope of his scientific interests, and his efforts to couple the role of the academician with that of the politician serving the cause of socialism. Hence, the economist is also a philosopher, historian of economic, social and political thought, sociologist, mathematician, statistician, cyberneticist, theoretician of political relations, theoretician of science and scientific policy problems, even a historian of legal systems. Each of these fields has benefited from the contribution of a scholar who moves with equal freedom also among other social and human sciences, not to mention a great many disciplines outside this range, vast though it is.

Thus Lange is not just an economist. Nor is he just an academician. He is a political and social leader. From the earliest years of his manhood he has been closely connected, both intellectually and organizationally, with the socialist movement, with its leftist, Marxist wing. He has spared neither energy nor time to serve the cause of the socialist movement. Ideologist and propagandist, journalist and organizer, teacher and leader—he was all of these in each of the political actions he initiated by the uncommon flight of his theoretical thought. Like the founders of Marxism and all their outstanding followers, Lange believed that political and organizational activity of the workers calls for high intellectual standards. These

⁴ O. Lange, *Pisma ekonomiczne i społeczne 1930–1960* (Papers in Economics and Sociology 1930–1960), Warsaw 1962, p. 7.

products of Lange's political and organizational activity were, after all, hardly ephemeral; in fact, quite a few of them would deserve to be reconstructed, collected and published.

Lange's scholarly activity, on the other hand, is saturated with political thought. It corresponds nearly perfectly to the model prescribed by those who insist that the academician should concentrate on the "central and continuing task of understanding the structure and the drift, the shaping and the meanings ... of human society"⁵.

The wide intellectual horizons, the broad interests ranging over the whole variety of social sciences, nearly each of them being paid enough attention to leave a lasting mark in it, the combination of high mathematical skills and vast knowledge of natural sciences with socio-economic specialization, the inseparable bond between the roles of scholar and political leader—all these were once typical for the most outstanding Marxists of the period which E. J. Hobshawm called "the Golden Age of Marxist Science"³.

The "Golden Age" names include Kautsky and Plekhanov, Mehring and Cunow, Lenin and Rosa Luxemburg, Labriola and Krzywicki. There were other prominent Marxists in those years, thinkers who left behind original theoretical concepts, inspired by Marxism but already differing from it. In Poland, besides Krzywicki and Rosa Luxemburg, we had Krusinski and Kelles-Krauz, Brzozowski and Abramowski.

The path of Marxism-inspired, original theoretical concepts leads beyond the "Golden Age of Marxist Science". Among those who followed that path were Bauer and Max Adler, Lukacs and Gramsci, Dobb and Hill. But the closer to the present day, the more that path diverges from the classical tradition. Lange, however, despite the modernity of the problems which focus his interests, despite the purely contemporary perfection of research methods which he uses and which he may often have pioneered—Lange belongs almost entirely to the classical Marxist tradition.

Actually, he has an expert knowledge of this tradition. He is its historian and propagator. On reading Lange's works today it is easy to see how concerned he is not to lose a single idea that was ever born in Marxist polemics and marked the path of "open Marxism", not to miss any occasion to remind the reader that the issues important and often discussed nowadays, used to be the subject of deliberations, disputes and solutions among Marxists of an earlier era. One sees how hard Lange tries to demonstrate how to proceed to enriching and perfecting the existing achievements of Marxist science, which he referred to in the concluding section of his essay on Ludwik Krzywicki.

⁵ C. W. Mills, *The Sociological Imagination*, New York 1959, p. 225.

⁶ I regret not to be able directly to quote the source which, while writing this paper, was unavailable to me. The Hobshawm quotation is from my own article, "Kelles-Krauz marksizm 'otwarty'" (Kelles-Krauz's "Open" Marxism) printed in *Nowa Kultura* 48/401, 1957.

Marxism, the classical Marxism started by Karl Marx and Friedrich Engels, is the foundation of Lange's scientific work and political activity. But there are certain trends within that ideological sphere which seem to have had a particularly strong impact on Lange's work. They include German orthodox Marxism, especially as formulated by Kautsky, Mehring, Hilferding and Cunow; Russian orthodox Marxism, expressed by its magnificent exponent, Plekhanow; Austro-Marxism, especially in the interpretation of Bauer and Max Adler; Italian Marxism, the original Marxism of Labriola and Gramsci; and Polish Marxism, the one that gave Rosa Luxemburg to the international workers' movement, as well as the Marxism of Ludwik Krzywicki and, to a certain degree, of Kazimierz Kelles-Krauz.

But when we discuss the sources of inspiration which have shaped and are still shaping Lange's work, we must not forget Lenin. First of all, Lenin continues to belong to the classical tradition, to the period when ideological disputes between Marxists, sharp though they were, remained within the same school of thought. Secondly, Lenin's theoretical and political prestige was recognized not only by the communists; in particular, it powerfully influenced the left-wing socialists, and it was left-wing socialism which formed Lange's views. The rest was done by Lange's active participation in the socialist construction of People's Poland.

There was a period when Lange was under the influence of Guild Socialism⁷. It proved to be an influence of a rather lasting nature. For, while justly criticizing the misunderstandings inherent in some versions of Guild Socialism, Lange revealed the values it might have, especially when considering certain important sociological aspects of managing the national economy.

In depicting the intellectual horizons of Lange's work we mentioned his mastery of mathematics, mathematical statistics and cybernetics. We also mentioned his interest in philosophy, sociology, social psychology, social anthropology and political science, and his vast knowledge of several of the natural sciences. It is not only a question of intellectual horizons but intellectual inspirations as well. Throughout Lange's work we can trace the idea of an ever better and wider application of mathematics, mathematical statistics and cybernetics to social research. It is actually the idea of the unity of science, a unity which manifests itself so powerfully today, "when mathematics and technology invade the humanities, when technology leads directly to long-range social effects, and when the cybernetical way of thinking is gaining an increasingly wide application in technology and the control of social processes"⁸. Thus it would be an error in judgement to think that Lange, like many

⁷ One of Lange's earliest works, *Socjologia i idee społeczne Edwarda Abramowskiego* (Sociology and the Social Ideas of Edward Abramowski), Kraków 1928 (reprinted from *Przegląd Współczesny* 1926-1927) is not directly connected with the influence of Guild Socialism, although the influence can be seen indirectly in some judgements made in that paper.

⁸ O. Lange, "Rola nauki w rozwoju socjalistycznego społeczeństwa" (The Role of Science in the Development of Socialist Society) in *Nauka Polska* 5(41)1962, p. 42; published in English in "The Review of the Polish Academy of Science". Vol. VII, 1962, No 4(28).

others, uses mathematical models and the methods of mathematical statistics simply for the sake of obtaining greater accuracy in the definition of certain formulae of political economy and certain propositions within other social sciences. The essential thing for Lange is to work out the intellectual apparatus required for the precise presentation of the dialectical theory of social development and some of its basic philosophical premises⁹.

This discussion of the intellectual horizons and intellectual inspirations of Lange's work has brought us now to a matter which is of basic importance for the interpretation of his work—namely, Lange's approach to the theory of historical materialism.

HISTORICAL MATERIALISM

Everyone interested in Lange's systematic interpretation of the theory of historical materialism is referred by Lange himself to Chapter II of his *Political Economy*, Vol. I¹⁰. Actually it is not the only source of information about Lange's conceptions in this field. Chapter II of *Political Economy*, Vol. I, will be much better understood by reading the whole volume which is devoted to general problems. Lange also published Chapter I of *Political Economy*, Vol. II¹¹, as an article in "Ekonomista"; the chapter includes, among other things, an interesting analysis of two kinds of production relations—co-operation relations and ownership relations. One important contribution, in spite of its special nature, to the dialectical theory of social development as conceived by Lange is his above mentioned work *Całość i rozwój w świetle cybernetyki* (Wholes and Parts). Many of his essays printed in the volume *Pisma ekonomiczne i społeczne 1930–1960* (Papers in Economics and Sociology 1930–1960) dealt with issues directly connected with historical materialism; all of its Part I and some essays printed in Parts II, III and IV are relevant. One should also not forget in this enumeration the article, mentioned previously, on sociology and the social ideas of Edward Abramowski. The fact remains, however, that Lange himself, seeking to make the readers understand his conception of historical materialism, directs them to a concrete text, a text of a systematic and synthetic character.

I have written elsewhere¹² that it is not quite clear to me whether Lange really places an equation mark between historical materialism and the form of contemporary sociology which should be cultivated by Marxists. He defines sociology

⁹ Cf. O. Lange, *Całość i rozwój w świetle cybernetyki* (Wholes and Parts), Warsaw 1962, pp. 9–11, 86–87.

¹⁰ O. Lange, *Political Economy*, Vol. I, Warsaw 1963, pp. 15–48. The footnote referred to here is in *Pisma ekonomiczne i społeczne 1930–1960*, ed. cit., p. 71.

¹¹ O. Lange, "Społeczny proces produkcji i reprodukcji" (The Social Process of Production and Reproduction), *Ekonomista*, No. 1, 1962.

¹² J. Hochfeld, *Studia o marksowskiej teorii społeczeństwa* (Studies on the Marxian Theory of Society), Warsaw 1963, pp. 34–35.

as "the science of the laws governing the development of human societies"¹³, and names the "law of the necessary conformity between production relations and the character of the productive forces" and the "law of the necessary conformity between the superstructure and the economic base" as respectively the first and the second "basic laws of sociology"¹⁴. But it is historical materialism which is the Marxist theory of social development, and the two propositions on the necessary conformity between production relations and the character of the productive forces and between the superstructure and the economic base are considered to be the tenets of historical materialism.

However, a careful analysis of Lange's other statements on the nature of science leads to the conclusion that Lange is far from oversimplifying his conception of the relationship between the separate scientific disciplines and the general theoretical systems which make up the scientific basis for studies of reality. The possibility and need of such general theoretical systems follow from the unity of science. These systems are meta-scientific only in the sense that they go beyond each individual scientific discipline taken separately, forming a set of propositions which refer to certain important aspects of reality as a whole, or of some of its wider sections, being the subject of study for several scientific disciplines. But they are also scientific systems, in that they are supposed to be the basis for any scientific analysis; for they start from such analysis, come back to it, are tested and verified by such analysis, and accordingly call for extremely precise, often highly formalized analytical procedures.

According to Lange, historical materialism is just such a system. Lange writes: "It (historical materialism) explains the entire development of human society as a complex of dialectical processes in which the primary, incessantly repeated stimulus is the interaction between man and his material environment in the social process of production. Marx's discovery of this pattern and the further study of its principal consequences by Engels laid the *foundations for a scientific analysis of the development of human society* (italics mine — J.H.)"¹⁵.

Lange emphasizes that historical materialism cannot be separated from philosophical materialism. Consequently he rejects every "monoeconomic" interpretation of the materialist conception of history, he rejects every interpretation of this system as a theory of the priority of the "economic factor" in social life. Lange writes: "According to historical materialism, the primary and decisive stimulus in social development is not economic relations, nor even that part of economic relations which constitutes production relations: it is the dialectic process of interaction between man and his material environment—that is the development of social productive forces. It is, quite literally, a materialist interpretation of history"¹⁶.

¹³ O. Lange, *Political Economy*, ed. cit., Vol. I, p. 23.

¹⁴ *Ibid.*, p. 30.

¹⁵ *Ibid.*, pp. 44-45.

¹⁶ *Ibid.*, p. 47.

Noting that some interpreters of historical materialism deny its association with philosophical materialism and the materialist view of the world, Lange adds: "But historical materialism originates from this materialist view of the world: not, of course, a primitive, metaphysical materialism, but dialectical materialism which takes into consideration man's active role in knowing and changing the material world ... The materialist interpretation of history cannot be treated in isolation from the view of the world from which it sprang. The interaction between man and his material environment, which manifests itself in the development of productive forces, is man's grappling with what really and objectively exists, independently of his will and consciousness. It is man's grappling with his objective material environment, with matter, and not with products of his own imagination, mind or will. Human activity is also part of the real, objectively existing world. It changes the objective world and adapts it to man's needs. Without the premise that the material world is an objective reality transformed in the social process of production, any scientific analysis of the laws governing the development of human societies would be devoid of all sense, it would be a mere figment of human fantasy"¹⁷.

The systematic presentation of the theory of historical materialism conceived as a general dialectical theory of social development and, on the other hand, as the basis for a scientific analysis of the development of human societies, that is as a set of general methodological directives necessary for a detailed study of various aspects of social life—this systematic presentation as conceived by Lange in principle follows classical models. But at the same time it takes cognizance of everything which, during a century of theoretical discussion and political experience, turned out to be a genuine contribution to the development of historical materialism. It also classifies, complements and brings precision into a great many important details.

Lange begins from the "exchange between man and nature", from an analysis of that peculiar process which is the unique characteristic feature of the way of life of the human species. This "exchange", formed spontaneously along with the human species as its own, unique way of living, conceals the whole secret of social dynamics, the secret of the stimuli to social development. In the course of this "exchange" certain types of interaction are created, which, owing to their repetition, assume a kind of permanence; they are also dynamic, i.e. they cause movement and change, thanks to the continuing man-nature relationship in the life process indigenous to the human species.

The active attitude of man to nature in this process is expressed in the social productive forces, i.e. the means and methods of man's action upon nature in the process of production, and the formation of man related to that action. "Within the category of social productive forces", writes Lange, "we place the technical methods of production, the means of production and especially the instruments

¹⁷ *Ibid.*, pp. 47-48.

of labour, tools ..., human experience and man's ability to make use of the means of production, together with the men themselves who are experienced in this way and possess such ability. In other words, the social productive forces are a complex of all those factors which determine the social productivity of labour at a given stage in the historical development of society: they express the productive potential of society"¹⁸.

Lange follows Cunow in making a distinction between physical productive forces and human productive forces, both being developed in close interdependence, since "it is human beings who create the means of production and the technical methods of applying them, while human abilities are themselves developed in the process of producing things and in the use of the means of production"¹⁹.

Production is social in nature. During the process of work, men not only effectuate an "exchange" with nature—expressed in the social productive forces, but they also co-operate and enter into definite relations with one another. These relations, the relations of production, correspond to the requirements of co-operation and the division of labour, which in turn depend on the stage which the historical development of the social productive forces has reached at any given moment. Production relations and distribution relations together constitute the category of economic relations. The characteristic feature of economic relations is that they represent man-to-man relations "via things". "Things, material objects, here constitute a binding social link between men"²⁰. "In the process of production", Lange continues, "these relations between man and thing appear as the relationship between the labour exerted and the quantity of products resulting, i.e., the productivity of labour. In the process of distribution they appear as the relationship between human needs and the various products, i.e., utility, also called use value"²¹. This purely physical aspect of economic relations is not the object of direct interest of the social sciences (including political economy). The physical aspect of these relations between man and thing in the production process "is the concern of technology (industrial technology, agronomy, transport technology, etc.) while in the distribution process it is the concern partly of technique (e.g., trading technique, the expert knowledge of commodities), and partly of biology, medicine, psychology, and so on"²².

Production requires co-operation and a division of labour. Whatever the conditions it takes place in, it also requires some sort of management. In societies based on class antagonism, management turns into a weapon of exploiting the working men by the owners of the means of production; it is necessary, therefore, to expose the dual character of management. Co-ordination of production processes is required in all types of societies, but only in some types of societies is this accom-

¹⁸ *Ibid.*, p. 10.

¹⁹ *Ibid.*, p. 11.

²⁰ *Ibid.*, p. 8.

²¹ *Ibid.*, p. 9.

²² *Ibid.*, p. 9.

panied by the function of organizing the exploitation of the working man²³. It is in this context that Lange makes a distinction between two types of production relations. "One type of production relations arises during co-operation in the labour process; we call these co-operation relations. The other type of production relations arises from the ownership of the means of production, recognized by the given society; call these ownership relations. ... Co-operation relations and ownership relations affect each other and are mutually dependent. The technological conditions of production and the state of the productive forces determine the co-operation relations, and these in turn determine the scope of ownership relations consistent with their existence. Ownership relations have an impact on co-operation relations either directly, by determining which relations of co-operation are possible within the given relations of ownership, or indirectly, by affecting the technology used in the production process. The main lever of the direct influence of ownership relations upon co-operation relations is the fact that it is the ownership relations which decide who is the co-ordinator of various actions in the process of productions—that is, they decide who is entrusted with the management of this process and in whose interest he discharges his functions"²⁴.

In the system of social relations which emerge in the process of production, ownership is the relation which determines the character of the entire complex of human relations. Lange defines ownership as the possession of the means of production which is recognized by members of society, which is protected by generally respected social standards in the shape of laws and customs, and which is guarded by the existence of sanctions against the violation of these social rules²⁵. Ownership forms the "organizational principle" of production relations and distribution relations in their entirety. It follows that economic relations must be classified according to the type of ownership of the means of production. It can be either social or private. Private property may be owned by individuals or it may be vested in groups of people. Lange also names a form of ownership which occupies a half-way position, being neither purely social nor purely private, such as the property of a co-operative²⁶.

²³ O. Lange, *Spoleczny proces produkcji i reprodukcji*, ed. cit., p. 30.

²⁴ *Ibid.*, pp. 31–32. Cf. also *Political Economy*, ed. cit., p. 16.

²⁵ *Political Economy*, ed. cit., p. 16. In his definition of ownership relations Lange stresses possession which is protected by social standards and sanctions. I am inclined to think that what is characteristic for Marx and Engels' position in this issue is not a narrow conception of property title based on law or custom, but the conception of institutionalization of certain inter-group relations, the conception of superior control, qualified in a way, over the labour process and the distribution of products. I believe that it is the relations of ownership of the means of production which determine the principle, whatever it may be, a principle guarded by a set of laws and sanctions, which fixes the system of rule of certain human groups over the labour process of other human groups, of possession and distribution of the product, and of inheritance of related privileges. Cf. J. Hochfeld, *Studia o marksowskiej teorii społeczeństwa*, ed. cit., pp. 161, 164, 220–221.

²⁶ *Political Economy*, ed. cit., p. 16.

Adequate correspondency between the state of the social productive forces and the type of the prevailing production relations is the basic law of social relations; it is called the "law of the necessary conformity between production relations and the character of the productive forces". This regular interconnexion between the particular productive forces and the particular production relations results in the emergence of consistent wholes which Marx termed modes of production. Following the tradition of the Marxist doctrine, Lange names five modes of production: the primitive community, slavery, feudalism, capitalist production, and socialist production, which are supposed roughly to coincide with consecutive periods in the historical development of mankind. But Lange notes that there are transitional stages between these periods and that, moreover, the predominance of a particular mode of production does not exclude remnants of former modes or incipient forms of new modes of production. Lange also mentions a mode of production which, although never dominant in any period, continually appears in various areas. This is small-scale commodity production.

The modes of production may be antagonistic or non-antagonistic. In the primitive community and under socialism the mode of production is non-antagonistic, because social ownership of the means of production predominates in both. Lange believes that the mode of production would also be non-antagonistic in the case of small-scale commodity production should it ever dominate society. Slavery, feudalism and capitalism represent antagonistic modes of production because the ownership of the means of production is the privilege or the monopoly of one part of society only, which unavoidably results in splitting society into a class made up of the owners of the means of production and another class comprising those deprived of the ownership of the means of production.

Apart from economic relations there are other social relations which result directly from man-to-man interaction. These include family relations, moral, political, legal relations, etc. They are characterized by the fact that they are always conscious, while the economic relations are conscious only sometimes²⁷. Social ideas are the intellectually articulated form of the awareness and evaluation of social relations by men; a systematized set of such ideas is called an ideology²⁸. If the social relations become the stimuli of such reactions in the human psyche as do not directly take on an intellectually articulated form, then we are dealing with psychological attitudes which belong to the sphere of social psychology. This

²⁷ *Ibid.*, p. 23. The point is, of course, that men are or are not conscious of the character of interplay between those actions in which the particular type of social relations is revealed. In fact, Lange feels that the distribution relations are, as a rule, conscious, and even the production relations are often conscious, especially under socialism. The dichotomic division of the social relations into economic and "other" relations, a division which lingers on, here and there, in Marxist literature, is hardly helpful, especially in view of the fact that it is not quite clear whether men are always conscious of the character of those "other" relations.

²⁸ *Ibid.*, p. 24.

complex of social ideas and socio-psychological attitudes together is named "social consciousness"²⁹.

Lange calls the superstructure of a given mode of production those social ideas and socio-psychological attitudes which are necessary for the existence of the given mode of production. The superstructure also embraces institutional correlates of the particular conscious social relations which are necessary for the functioning of the existing mode of production; they include state authority, church organizations, etc. The mode of production together with its superstructure is called the social formation (social system). The production relations proper to a given social formation Lange calls its economic base³⁰. "A social formation", Lange writes, "is an internally balanced and harmonized whole, a definite objective historical fact"³¹. The formations correspond to the historical sequence of the modes of production. The Asiatic social formation which Marx named in the first place in his famous list of the historical periods dominated by antagonistic modes of production, is regarded by Lange as a separate formation; the mode of production corresponding to it is not included in the list of the five basic modes of production, being a peculiar combination of state ownership of land, large-scale collective irrigation works undertaken by the state, compulsory labour and slavery³².

The existence of a social formation is the result of adequate correspondency between a given mode of production and the superstructure corresponding to it. This is called "the law of necessary conformity between superstructure and the economic base" and constitutes the second basic law of social relations.

Lange does not equate social consciousness with superstructure³³. The social consciousness at any given time and place also embraces remnants of the past, which are sometimes included in the superstructure of a new formation, and the incipient forms of the superstructure of the emerging social formation. Lange believes that the structure of social consciousness becomes much more complicated in the periods of transition between social formations, when different modes of production co-exist and so do superstructures of different existing economic bases, together with surviving remnants of the past and nuclei of the future.

²⁹ *Ibid.*, p. 25.

³⁰ *Ibid.* p. 26. A somewhat different approach to this categorization (mode of production, economic formation, economic system, socio-economic formation, ideological and institutional superstructure, class structure and developed class structure) is presented in my essay *Marxistowska ogólna teoria klas społecznych* (The Marxist General Theory of Social Classes) in *Studia o marksowskiej teorii społeczeństwa*, ed. cit.; cf. also a different concept of the category "ideology" in my essay *Socjologia a ideologia* (Sociology and Ideology) in the same book.

³¹ *Political Economy*, ed. cit., p. 27.

³² Cf. *ibid.*, pp. 27-30.

³³ *Ibid.*, pp. 26-27, 32-33. Lange says that Marx identified the superstructure with the whole of the manifestations of social consciousness. In formulating his own views Lange quotes Krzywicki, Kautsky and also Stalin.

The two basic laws of social relations described here are the expression of internal balance, of the "conservation" of the wholes which are termed social formations. The repeated actions of men, from which the social relations originate, are characterized—in agreement with the general pattern of behaviour of bio-psychical organisms—by a peculiar routine, peculiar inertia, peculiar "conservatism". But the process of production is invariably the least routinized. For in the process of production man acts on nature and is himself affected by it, and in the course of this interaction a new "artificial environment" is created which consists of man's own products. This is "a stimulus towards changes in behaviour" in the further process of social production³⁴. The change is revealed in a new development of the productive forces, which in turn creates a new stimulus towards the adjustment of the production relations to the changed character of the productive forces. This again leads to a change in the mode of production, which gives birth to new social ideas and new psychological attitudes, thus creating a new superstructure. Finally, the former social formation is replaced by a new one. The primary source of this process is the interaction between man and nature, an interaction which continually generates new stimuli towards the development of productive forces. The law of the progressive development of productive forces, the law of the necessary conformity between production relations and the character of the productive forces, and the law of the necessary conformity between superstructure and the economic base govern the whole process of social development. But it is the law of the progressive development of productive forces which is the cornerstone of the dynamics of this process. It is a dialectical process in which the transition from one formation to another takes place through the emergence of contradictions followed by a series of adjustments which lead to the disappearance of these contradictions.

"The development of human society", writes Lange, "consists of three dialectical processes. The first is to be found in the continual emergence of contradictions in the interaction between man and nature, in that "exchange of matter between man and nature" in the social process of labour. By the creation of an artificial material environment contradictions are set up between his previous activity and the stimuli to which this new environment gives rise. These contradictions are eliminated by a change in activity, i.e., by a change in productive forces which, however, produces new stimuli and, consequently, new contradictions, and so the whole process goes on continually. The second dialectical process starts with the appearance of a contradiction between the new productive forces and the old production relations. This contradiction, which at first hampers the productive forces, disappears when the production relations have been adjusted to the new productive forces. The third dialectical process starts with the emergence of a contradiction between the new production relations, i.e. the new economic base, and the old superstructure. This contradiction which at first hinders the birth and growth of the new economic base,

³⁴ *Ibid.*, p. 35.

is eliminated when the superstructure has been adjusted to it. These three dialectical processes taken together form the social development of mankind"³⁵.

In this schema of social structure and development³⁶ Lange finds place for historical differences between superstructures which in different periods or areas correspond to analogous economic bases, and also for the contingency of a collapse of entire civilizations, so frequent in human history, which substitutes in a sense the normal birth of a new formation in the given area. Like Krzywicki before him, Lange explains these differences in superstructures by advancing the theory of "historical substratum"³⁷, and he sees the explanation of the collapse or stagnation of entire civilizations in the fact that "the class which defended the old relations of production was too strong, and the class bent on change too weak and lacking a clear conception of its social objective for a victorious social revolution to occur". He believes that this vicious circle of the successive rise and fall of civilizations has been finally broken "because all mankind is so bound up together by the exchange of products, productive forces and social ideas, that the victorious social revolution which, in some countries, has eliminated the antagonistic character of production relations guarantees, in the long run, social progress in all societies"³⁸.

Hence, Lange's schema is not fatalistic; nor does it consider the social development as taking place beyond man. Its content represents human interactions. Moreover, in antagonistic social formations there come into play class interests which find their expression in certain ideologies and institutions, conflicts and struggles. The contradictions in the social life are eliminated "by depriving the possessing class bound up with the old production relations of their social privilege, i.e., by means of a social revolution"³⁹. The revolution may either take place by violent upheaval or be a process of gradual transformation. Lange points out that "the preservation of the production relations and superstructure is supported not only by the class whose privileges are bound up with the established relations of ownership of the means of production but also by those social strata who owe their economic and social position to the superstructure of the existing social formation"⁴⁰. By social stratum Lange means a group whose economic and social position "is determined not by the relations of ownership of means of production, but by the specific features of a given superstructure"⁴¹. As an example of a social stratum he names state officials and priests. The existence of conservative social strata may generate "explosions" in social development, in the sense that certain obstacles to development must be removed by resorting to struggle, although not to social revolution. Lange

³⁵ *Ibid.*, pp. 40-41.

³⁶ For a graphic representation of this schema see *op. cit.*, p. 33.

³⁷ *Ibid.*, pp. 37-38.

³⁸ *Ibid.*, p. 43-44, footnote.

³⁹ *Ibid.*, p. 41.

⁴⁰ *Ibid.*, p. 43.

⁴¹ *Ibid.*, p. 43. For a different conception of this category (including a detailed analysis of the notion of social class) see my *Studia o marksowskiej teorii społeczeństwa*, ed. cit., p. 161-185.

does not exclude the possibility of such a phenomenon existing in non-antagonistic social formations as well, and his comments on the bureaucratization under the socialist system⁴² prove that in his opinion this is by no means a secondary problem. As a matter of fact Lange repeatedly emphasizes that his general schema of social development is valid for the socialist society as well, with the exception of those components, of course, which are directly related to the existence of antagonistic classes and which may remain valid only to a limited extent in the period immediately following the socialist upheaval.

THE WHOLE AND DEVELOPMENT

In his interpretation of the theory of historical materialism, Lange, like all Marxists, uses the notion of the whole and the notion of development. In fact, those are key notions of the Marxist dialectical theory of reality, and especially of the theory of social relations. Lange, however, set himself the task of working out an intellectual apparatus for precise treatment of some problems connected with these notions. This became the subject of a special essay written by Lange between 1959 and 1961, and published in 1962⁴³. In spite of its rather special nature the essay is, in my opinion, an inseparable part of Lange's contribution to the dialectical theory of social development and to the modern materialist interpretation of history.

Lange writes that his essay originates from his "interest in cybernetics and its application to the problem of managing the national economy"⁴⁴. But in the course of his theoretical deliberations in search of practical solutions, he found out that "the conceptual apparatus of cybernetics is not only helpful in solving many problems of economics, but that it helps to solve certain problems of philosophical nature as well"⁴⁵.

In the above work Lange concentrates on some problems of the whole and of the dialectical processes of development in all realms of reality. Cybernetics is for him an instrument for setting up a conceptual apparatus of a philosophical character, if one may use the expression; indeed, this is what cybernetics is predestined to be, considering its nature of a general science which deals in an abstract way with systems of interrelated elements. Here, however, what we are mainly interested

⁴² Cf. *Ekonomia polityczna socjalizmu* (The Political Economy of Socialism) in *Pisma ekonomiczne i społeczne 1930-1960*, ed. cit., p. 128, pp. 134-136; *Rola planowania w gospodarce socjalistycznej*. (The Role of Planning in Socialist Economy) in the same book, pp. 139-140; *Aktualne problemy nauk ekonomicznych w Polsce* (Contemporary Problems of Economic Sciences in Poland) in the same book, pp. 390-396; *W sprawie doraźnego programu* (A Speed-up Programme) in the same book, pp. 412-413; *Rola spółdzielczości w budowie socjalizmu* (The Role of Co-operatives in the Building of Socialism) in the same book, pp. 423-424, etc.

⁴³ *Całość i rozwój w świetle cybernetyki*, ed. cit.

⁴⁴ *Ibid.*, p. 7.

⁴⁵ *Ibid.*

in is the fact that Lange's proposition may have great importance for the analysis of macrostructural *social* phenomena, for linking the concepts proper to Marxism with modern instruments of precise mathematical analysis of whole social structure, especially large structures, and of their development.

The object of social research is always a certain *structure* of human relations. Looking at them from different angles and different points of view, we turn various existing types of structuralization of the social existence of man into the objects of our study, using for this purpose various systems of categories in description and analysis. In view of the complexity of modern "global societies" it is advisable to observe and study them from three different angles: from the angle of personality⁴⁶ structure, the angle of human group (or aggregate) structure and the distribution of certain characteristics among the members of such groups, and the angle of structures named institutions and constellations of institution⁴⁷. Social structures, sometimes called systems and subsystems, differ in "level of organization". Every social structure is based on individual human beings, individual physical organisms acting in a physical environment; if regarded as personalities and not as physical organisms, these individuals participate in the social processes of interaction by performing various "roles". The action of a group of such "roles" is subject to norms which have been formed and established at higher "levels of organization" of the society. The microstructural "levels of organization" include such structures as the family, the primary working team, and generally speaking the type of social group usually termed "the primary group", which is based on face-to-face relations between its members. Among social microstructures we might also name profit-making enterprises, universities and colleges, and in general the type of social group which is usually termed "the secondary group" (formalized).

Large social structures, or macrostructures, have a higher—either "institutional" or "global level of organization". Actually there are three large social structures of this kind: the economic system of global society, the class structure of global society, and the political order of global society. The most important categories of historical materialism, including the socio-economic formation, the economic system, ideological and institutional superstructure, the class structure, the political system, the state, the party system, etc., all belong to the sphere of social macrostructures. The proper features of these structures cannot be deduced from the laws governing the action of their simplest elements alone. Moreover, we must apply the notion of social development and not that of simple social change if we want to exam-

⁴⁶ By personality I mean a dynamic, action-stimulating structure of attitudes and habits of an individual human being, resulting from the biologically inherited psychophysical mechanisms of the individual organism as well as from the cultural patterns handed down by the society.

⁴⁷ By institution (economic, political, religious, familial, etc.), I mean a structure of fixed and rather complex patterns of human behaviour, guarded by social sanctions—a structure serving to exercise social control in human groups and to meet certain important needs of some or all members of the group. The constellation of institutions is often called the social order.

ine the laws of transformation of some large social structures, conceived as systems remaining in a certain equilibrium, into other large social structures, other systems of equilibrium composed of elements which may in part be not the same as previously. The micro- and macro-changes in social structures may follow a certain pattern. The pattern of macro-changes is directional, and in this sense it is social development. The pattern of micro-changes consists in certain factors safeguarding the stability of the system and its movement towards equilibrium or oscillation around equilibrium. This distinction between social development and social change *sensu stricto* was, of course, not unknown to Marxist sociologists. It was Krzywicki who, long ago, described "social differentials" as minor changes and "the integral" as the result of the regular formation of "the foundation of entirely new relations"⁴⁸. He regarded minor changes as the source of the formation of a new system of equilibrium; actually, this seems to describe very well the situation in so far as the relation between the repetition of some minor changes and the formation of new systems of equilibrium is concerned. In this case the distinction between micro-changes within the system and macro-changes occurring in the course of development from one system to another would probably be the outcome of the different perspective of the researcher who investigates various *aspects* of the movement of social phenomena.

This somewhat lengthy digression was intended only to make it easier to understand the role that Lange's *Wholes and Parts* might play in working out the methodology of research on large social structures. Now let us come back to the propositions contained in his essay. The essence of these propositions, leaving aside the specialized issues and details, can be reduced to an extremely interesting elaboration of the ideas which are part and parcel of the very nature of cybernetics as a science examining systems of mutually interrelated elements. What is considered is the fact that the mode of action of the system depends on the *coupling* of elements, i.e. on the *structure* of the system. Two sets of the same elements would make up two different systems if the elements were coupled differently and constituted two different structures. Each of the two sets would then behave as a different structure, would be governed by different laws of input-output movement and different laws of development. This *dialectical* conception of the whole and development, a conception in principle proper to Marxism, may cleanse science of all mechanistic conceptions (i.e. those reducing the whole and the pattern of its behaviour to its elements only) and all finalistic conceptions of an idealistic nature (i.e. those which in investigating the whole and the pattern of its behaviour try to seek the source of its nature and the reason of the directional development of the pattern of reality in some mysterious factor, e.g. "vital force", "the spirit of the nation", "historical necessity", etc.).

⁴⁸ L. Krzywicki, *Rozwój społeczny wśród zwierząt i u rodzaju ludzkiego*. (The Social Development of Animals and the Human Species), Warsaw 1951, pp. 207-210.

Lange starts with simple notions. He defines the active element, the environment of the active element, the input and output states of the element, the input and output vectors, and the mode of action of the element as the relation between the input and output states which can be presented as a mathematical transformation formula. He further defines the coupling of elements, in terms of solutions of the transformation formula of various elements; he introduces the notions of the network of couplings, feed-back, open and closed chains of couplings, ramification of input and ramification of output. A set of elements coupled in a certain manner is called a system and the network of couplings between elements is the *structure of the system*. The structure of the system is mathematically expressed as a matrix, i.e., a certain array of the couplings of the elements. Systems made up by coupling together other systems form systems of a higher order (second-order, third-order systems, etc.). The structure matrices of higher-order systems consist of the structure matrices of the corresponding lower-order systems.

The mode of action of a system can also be presented as a matrix, in the form of a set of transformations showing how all the inputs and outputs of the elements of the system are transformed into new inputs and outputs. They show, in other words, how the existence of a certain mode of action of the elements *coupled* within the system results in a certain mode of action of the *whole* system. Lange points out that this mode of action of the whole system, usually a system of a high order, was called by Marx the *inner law of motion of the system*, e.g. a system like capitalism⁴⁹. It is the structure which gives the system the nature of a *whole*, and it is the structure which creates the characteristic features of the system that cannot be reduced to its elements.

If the input and output states of the system do not change over time, the system is in a state of *equilibrium*. A situation in which these states do not remain unchanged but repeat themselves within a given period of time⁵⁰, is described by Lange as *cyclic equilibrium*. A system is *stable* when the changes occurring in it tend to equilibrium with time, even if the system was not in a state of equilibrium at the outset⁵¹. In order to be stable a system must possess at least one feed-back coupling of a certain type; it is called a *compensatory* feed-back coupling⁵². Feed-back couplings which cause instability of a system are called *cumulators*⁵³.

The tendency of a stable system to an equilibrium state is a special case of *ergodic processes*, e.g. such processes which, with time, become independent of the initial state of the system and tend to conformity with a given *law of development* independent of the initial state of the system⁵⁴. Against this background it is possible to

⁴⁹ *Całość i rozwój w świetle cybernetyki*, op. cit., p. 37.

⁵⁰ *Ibid.*, p. 50 footnote.

⁵¹ *Ibid.*, p. 52.

⁵² *Ibid.*, p. 59.

⁵³ *Ibid.*, pp. 69-70.

⁵⁴ *Ibid.*, p. 71.

introduce the problem of the *direction* of development, the problem of self-steering (i.e. the elimination of disturbances in the process of development owing to compensating couplings known as the *steering-controls* of the system) and the problem of "birth", "maturing", "ageing" and "death" of the system⁵⁵.

"All these properties", writes Lange, "also appear in all sorts of ... sociological and economic processes ... The conceptual apparatus created by cybernetics permits them to be explained without resort to the concepts of a non-material being which regulates the course of nature and social development, "vital force", "entelechy", "élan vital", "spirit of the time" or "spirit of the nation", of Adam Smith's "invisible hand" etc. At the same time, this explanation does not deny the empirical fact that systems possess a mode of action that cannot be derived from the mere modes of action of their component elements, that they possess their own law of development and that, in certain conditions, the development of systems is an ergodic process in which disturbances in the development disappear with time, and ... that the speed with which disturbances disappear and the magnitude of disturbances to which the system is resistant may vary, too"⁵⁶.

When does the development of a system become a dialectical process, i.e. a process in which the contradictions within the system cause its constant movement and development? It may happen that the structure of the system prevents the simultaneous realization of all the input and output states needed to satisfy the equilibrium equation; consequently, from the point of view of the equilibrium conditions there is a contradiction between the input and output states of the individual elements of the system. In a stable system the contradiction gradually diminishes and disappears. In an unstable system the contradiction increases; hence, it generates the cumulative character of the developmental process of the system, once the system is thrown out of equilibrium. The result of the contradiction is the *self-generating* development of the system.

"Given states of the inputs and outputs of some elements in the system", writes Lange, "cause a change in the input and output states of the remaining elements, this induces a change in the input and output states of the first elements, which in turn again causes a change in the states of input and output of the remaining elements, etc, etc."⁵⁷ This is precisely the dialectical process of development of the system.

"The dialectical character of the motion of the system is expressed by its law of motion which implies the law of development of the system", writes Lange. "As we know, the law of motion of a system is expressed mathematically as a vectorial difference or integral equation. This equation ... determines the relation between the states of inputs and outputs at one moment of time and ... at later moments. These relations result from the contradictions which prevent the inputs and out-

⁵⁵ *Ibid.*, pp. 71-83.

⁵⁶ *Ibid.*, pp. 83-84.

⁵⁷ *Ibid.*, pp. 85-86.

puts of all the elements simultaneously to assume states satisfying the equilibrium equation As a result we obtain the process of development of the system in time. The law of development ... is represented mathematically as the solution of a vectorial difference or integral equation expressing the time law of motion of the system ..."⁵⁸.

Thus the apparatus of cybernetics makes it possible to arrive at a precise definition of the category of the whole (the system and its structure) and the category of development (contradicting inherent in the system which cause self-generating continual change). The law of motion and the law of development can be given a precise, mathematical formula. A formula can also be found for the mathematical theory of self-regulation and self-steering of the system. "In this way", Lange writes, "cybernetics is becoming an important auxiliary instrument for the precise presentation and solution of several basic problems of dialectical materialism"⁵⁹.

Lange's intention was to find a modern and precise intellectual apparatus for presenting and solving questions which were formulated earlier and are still being formulated in traditional, not sufficiently precise categories, questions reflecting phenomena of enormous practical and theoretical importance. Lange's proposition bridges traditional categories of the analysis of structures and their development, in particular the Marxist categories of analysis of the development of large social structures, and modern mathematical concepts. This bridge between Marxist materialist historicism and modern mathematicism is an important evidence of the great role Lange's scientific work plays in the intellectual current usually called "open Marxism".

THE DIALECTICS OF DEVELOPMENT OF SOCIAL SCIENCES

This paper analyses the work of Lange as a theoretician of historical materialism. According to Lange's statement quoted above, historical materialism is only the *basis* of scientific analysis of the development of human societies and, hence, cannot be identified with any one of the social sciences, including sociology. Lange's vast scientific contribution to some more detailed sociological problems would call for a separate essay, much more extensive than the modest scope of this paper. Indeed, the topic is most tempting. Lange has dealt with sociological problems of the capitalist state in various stages of its development; with sociological problems of the socialist revolution and socialist state; with sociological problems of managing the national economy under socialism; with problems of bureaucracy and bureaucratization; with problems of conflicts between classes and strata, and many other sociological problems, often presenting them in an unusually original light.

⁵⁸ *Ibid.*, pp. 86-87.

⁵⁹ *Ibid.*, p. 84.

But even when concentrating on Lange as a theoretician of historical materialism we must not neglect to give at least a very sketchy outline of his conception of dialectical development of social sciences, a conception directly related to the problem of their ideological nature.

A systematic summary of Lange's conception and the synthesis of his opinions in that matter are given in his *Political Economy*, Volume I, particularly in Chapter VII which deals with the social conditioning and the social role of economic science⁶⁰.

According to Lange, differences of opinions and schools are quite natural in the development of science; incidentally, he also believes that the "right to err"⁶¹ is natural and obvious. Differences of opinion in science stem from the dialectics of the internal process of cognition and, secondly, from the social conditioning of science. The dialectics of the internal process of cognition is based on the mutual interaction of man and surrounding reality. "Scientific knowledge" writes Lange, "develops from the conflicts between the results of new observations and experiments and the scientific ideas and theories already in existence. These ideas and theories influence the direction of scientific research and indicate the paths to be followed by new observations and experiments; the results of this new research in turn call for a change in scientific ideas and theories and demand an adjustment to the newly discovered facts. New scientific concepts and theories indicate the paths to be followed by further observations and experiments, which again make it necessary to adapt scientific ideas and theories, etc. This dialectic process does not, however, take place smoothly. The scope of newly discovered facts varies and it is not at first easy to evaluate their significance; old concepts and theories may be clung to with varying degrees of stubbornness. All this gives rise to different opinions and interpretations in science"⁶².

The fact that differences in opinion and interpretation are maintained with particular stubbornness in the disciplines of social science suggests, according to Lange, that another factor is at work besides the dialectic of scientific cognition. The other factor is "the social conditions in which a science is studied and the social significance of its conclusions"⁶³. This factor influences every science; it used to play an important part in the development of natural science in the past; and it still is of essential significance for the social sciences.

The social conditions upon which scientific development is dependent include, first of all, the interest of various classes and strata of society in this development;

⁶⁰ *Ibid.*, pp. 279-342. Lange's opinions we are referring to here can also be found in many of his earlier works and in some parts of his lecture. *The Role of Science in the Development of Socialist Society*, ed. cit. A number of other important statements on the nature of the laws of reality and the laws of science are also relevant; cf. Chapters III and IV of *Political Economy*. Vol. I, ed. cit., and an excerpt from *Teoria Statystyki* (The Theory of Statistics), Warsaw 1952, reprinted in *Pisma ekonomiczne i społeczne 1930-1960*, ed. cit., pp. 242-257.

⁶¹ See also *Pisma ekonomiczne i społeczne 1930-1960*, ed. cit., p. 403.

⁶² *Political Economy*, ed. cit., p. 278.

⁶³ *Ibid.*, p. 279.

further on, the material means which the interested parties can and want to allocate for scientific research, and finally the limitations set to scientific research by prejudices and material interest of those who are interested in science and are financing it. "In antagonistic social formations", writes Lange, "where there are opposed class interests and some social strata also have especial interests in the preservation of, or change in, the existing superstructure, a whole complex of conditions which both favour and impede the development of science emerges"⁶⁴. The interest of and the material means provided by the bourgeoisie once played a stimulating role in the development of the natural sciences. But the peculiar system of class relations in the period of imperialism, a system which put certain groups of the bourgeoisie "on the defensive", became in turn a factor hampering the unrestrained progress of natural science adequate for the technological thought of our time. Stimuli and obstacles of this kind prove particularly effective in the case of social science. Lange produces a fascinating description of the development of political economy as a function of the interests of the bourgeoisie and the interests of the working class struggling for liberation from the fetters of oppression and exploitation⁶⁵. His analysis of the post-Marxian development of bourgeois political economy is unusually interesting. Whereas the interest of classical political economy in the relations of production is continued by Marxist political economy, vulgar economy limits itself to market problems, especially prices, money and credit. This is a reflection of the position of the triumphant industrial bourgeoisie. The subjectivist trend goes even further in that direction, eliminating political economy as the study of social relations and turning it into the doctrine of the rentier who seeks his own solutions in the sphere of consumption. In those areas where the victorious bourgeoisie reached a compromise with feudal elements, as in Germany, the historical trend predominated in political economy. Lange emphasizes, however, that some economic knowledge is needed by the bourgeoisie in every period, and that "the amount of true economic knowledge required by the bourgeoisie increases in the monopoly phase of capitalism"⁶⁶, because in this phase the scope of state economic policy expands and it becomes possible for private capitalist organizations, monopolies and oligopolies to conduct their own economic policy, which makes the bourgeoisie face the problem of how to influence the market process and how to predict the effects of various measures within a centralized economic policy. Nevertheless, the contradiction between the general tendency to liquidate economic science as a science of social relations and the practical needs of the bourgeoisie does not disappear, and the bourgeoisie tries to remove this contradiction by developing various special economic theories. New social factors entered the scene in the 1930s. The great crisis of 1929-1930, and the depression that followed it, forced bour-

⁶⁴ *Ibid.*, p. 281.

⁶⁵ *Ibid.*, pp. 286-321, 333-342. Cf. also Chapter VI.

⁶⁶ *Ibid.*, p. 305.

geois economists to interest themselves in the theory of employment and the theory of the business cycle. Lange even believes that certain theories evolved under the influence of J. M. Keynes betray similarities to the Marxist theory of reproduction and accumulation⁶⁷. A new branch of economic study, the theory of economic growth which has its origin in the particular social conditions of the period of development of the socialist countries and in the growing political role of the underdeveloped countries including many new countries emerged as a result of decolonization, is also forced to borrow its theoretical tools from Marxism or else make its own—which look very much like those produced by Marxist political economy⁶⁸. Apart from these, a petty bourgeois critique of monopoly capitalism makes its appearance; the professionalization of economic science by university intellectuals favours the spread of critical attitudes. This is the origin of the theory of imperfect competition, welfare economics, etc. The fact is that the social conditions in the period of monopoly capitalism, certain practical requirements of a part of the bourgeoisie, and a certain degree of intellectual independence of university scholars gave birth in our era to the development of econometrics, economic statistics (in the form of social economic balance accounting), operations research, programming and cybernetics⁶⁹. But, says Lange, full development of political economy is only possible in connection with the interests of the proletariat struggling for liberation. This development must take into account the limited achievements of bourgeois economics under monopoly capitalism.

The truth of scientific statements is tested, of course, in the process of the dialectic of scientific cognition; it is tested by a constant confrontation with reality, applying ever better and more subtle tools for such confrontation. But the social conditions

⁶⁷ *Ibid.*, p. 309. The question mentioned here has much deeper roots which, although referred to by Lange, have not—as he claims in a letter to me dated July 17th, 1963—been brought out by him well enough in print. I feel I ought to quote the pertinent excerpt from Lange's letter: "The development of contemporary bourgeois economics was influenced not only by monopoly capitalism's need for knowledge (which mainly contributed to the development of certain auxiliary sciences), petty bourgeois critique and professionalization of science. *Above all*, it was influenced by the fact that capitalism is no longer the only or the dominating system. The establishment of the USSR and then of a whole group of socialist countries has reduced the *social resistance* of capitalism to shocks and difficulties. Hence the policy of full employment (Keynes etc.), welfare state, economy of growth (competition with socialism in underdeveloped countries and the question of capitalism-socialism competition in the rate of growth). I mention all that in my book, but not strongly enough; today I'd put it in the forefront, I'll tell it much more clearly in my article on *Political Economy*, to appear in Volume III of *Wielka Encyklopedia PWN* (Great PWN Encyclopaedia)". (The underlinings are Lange's). This article has appeared in the meantime and also a German translation of it in Lange's book *Entwicklungstendenzen der modernen Wirtschaft und Gesellschaft*, Vienna 1964.

Incidentally, the letter contains other important statements, e.g. an interesting comment concerning the thesis on the improbability of the collapse of civilization in our time and information on the possibility of a simpler approach to the problems put forth in *Wholes and Parts* through the calculus of operators (interpreted praxiologically as calculus of operational rules).

⁶⁸ *Ibid.*, p. 311.

⁶⁹ *Ibid.*, p. 397.

in which this process takes place may favour its development or they may hamper it. "This gives rise to certain regularities in the development of science which are explained by the materialist interpretation of history"⁷⁰, says Lange. These regularities are linked with the problem, presented by Lange, of the interest of various social classes and social strata in the development of different disciplines, the problem of financial means which the parties concerned want and can allocate for science, and the problem of limitations set to science by the interest or prejudice of those who are interested in science and are financing it.

Lange says, in accordance with a rather firmly established tradition⁷¹, that social sciences are *ideological*, because their ideas affect social relations and have a direct or indirect bearing on the evaluation of these relations⁷². A systematized set of judgments through which people become aware of social relations and evaluate them, is called ideology. "Ideology is always the ideology of particular social classes and social strata"⁷³, writes Lange. The phenomenon which Kazimierz Kelles-Krauz called "social apperception" usually determines the varying readiness of various milieus to accept and assimilate scientific statements. "As a rule", writes Lange, "statements conforming with the ideology of a particular class or stratum and strengthening their ideology are readily accepted, while these which contradict and undermine their ideology are resisted"⁷⁴.

Lange distinguishes in antagonistic social formations two opposed ideologies: conservative and progressive. Lange names in addition reactionary and compromise ideologies⁷⁵. Conservative, reactionary and compromise ideologies present various degrees of mystification of reality. Progressive ideologies, according to Lange, reveal reality and are a stimulus to the development of science, especially of the social sciences.

The working class, fighting to free itself completely of the shackles of oppression and exploitation, is interested in learning *the whole* scientific truth on social relations. In this sense, unlimited development of social science can be safeguarded only through its links with the working-class movement and its struggle. Of course, this involves a process not without conflict. Lange is aware of the peculiar sort of mystification which social science may be subject to in spite of its connection with the working-class movement, mystification resulting from the historical past of this movement⁷⁶. But in all cases "the working-class movement sooner or later

⁷⁰ *Ibid.*, p. 322.

⁷¹ My own views on the origin and fate of that tradition and the relation of the category science to the category ideology are presented in *Studia o marksistowskiej teorii społeczeństwa*, ed. cit., especially in the essay *Socjologia a ideologia* (Sociology and Ideology).

⁷² *Political Economy*, ed. cit., p. 323.

⁷³ *Ibid.*, p. 324.

⁷⁴ *Ibid.*, p. 325.

⁷⁵ *Ibid.*, p. 324.

⁷⁶ *Ibid.*, pp. 337-342, Cf. also *Pisma ekonomiczne i społeczne 1930-1960*, ed. cit., pp. 25-28, 29-32, 55-61, 134-136, 139-145, 387-399, 400-404, 411-413, 423-424.

rids itself of whatever fetters its struggle for the full and true understanding of social reality"⁷⁷. This is a regular process since the "development of productive forces and socialist relations of production overcome the inheritance of the past and, sooner or later, force the superstructure to adapt itself to the new requirements of further social development"⁷⁸. Owing to this "the working-class movement and the historical process of the construction and development of socialism themselves overcome any conservative tendencies hampering the scientific understanding of the laws of social development which may arise within them"⁷⁹.

SOCIALISM IS NOT A POLICY FOR THE TIMID

One must emphasize that Lange's optimism has nothing in common with the fatalistic belief that the social processes, including the process of "purging" science of mystification and distortion, take place outside the sphere of human action or follow a spontaneous course under socialism. Besides the relations which Lange calls the technical and balance laws of production (for which one can find an equivalent in social processes other than economic ones) there are the laws of interplay of human action, the laws of human behaviour, which are the characteristic feature of social phenomena⁸⁰. Even though in pre-socialist formations these laws in most cases operated spontaneously, nothing can justify their fetishization, their naturalistic or supernaturalistic dehumanization⁸¹, their interpretation as the working of some superhuman force which controls the fate of man. Moreover, man under socialism is engaged in overcoming the spontaneous functioning of the laws of social development. "Scientific socialism is an undertaking to overcome the spontaneity of social development"⁸², writes Lange. The point is that the conditions determining the action of the laws of human behaviour must be created consciously and intentionally⁸³.

Thus the fate of socialism, the fate of the working-class movement, the fate of the science connected with the working-class movement, ultimately depend on human attitudes and human behaviour. The scholar who has wedded his scientific work and political activity to the social liberation movement of the working class must be aware of the moral consequences of his choice. Lange was and is aware of these. It is no accident that in the concluding words of Volume I of his great economic synthesis, he quotes Marx's saying that at the entrance to science all mistrust and

⁷⁷ *Political Economy*, ed. cit., p. 341.

⁷⁸ *Ibid.*, p. 342.

⁷⁹ *Ibid.*, p. 342.

⁸⁰ *Ibid.*, p. 59.

⁸¹ *Ibid.*, pp. 77-82.

⁸² *Ibid.*, p. 80 and in many other places, as well as in many other works by Lange.

⁸³ Cf. *Ekonomia polityczna socjalizmu* (Political Economy of Socialism) in *Pisma ekonomiczne i społeczne 1930-1960*, ed. cit., p. 129.

every craven thought must be abandoned⁸⁴. Throughout the forty years of his political and scientific activities Lange has followed the principle that socialism is not a policy for timid souls, the principle he formulated *expressis verbis* twenty-five years ago⁸⁵. Lange, the historian, knew very well that there was a time when "caution was the great virtue of the economist" because "the delicate mechanism of supply and demand might be easily damaged and the initiative and efficiency of the businessman might be undermined by an improvident step"⁸⁶. Lange, the scientist, also knows very well that prudence and reflection is needed in scientific research and in the expert advice based on this research. But if one wants to comprehend in full the political and theoretical position of Lange, one must recollect what he wrote twentyfive years ago, insisting that the scholar entrusted with giving advice to a socialist government should recommend a policy of *revolutionary courage*⁸⁷.

⁸⁴ *Political Economy*, ed. cit., p. 342.

⁸⁵ O. Lange., *On the Economic Theory of Socialism*, in O. Lange and F.M. Taylor, *On the Economic Theory of Socialism*, University of Minnesota Press, second printing Minneapolis 1948. On p. 125 we read: "Socialism is not an economic policy for the timid".

⁸⁶ *Ibid.*, p. 129.

⁸⁷ *Ibid.*, p. 129.