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The System Paradigm

By: János Kornai

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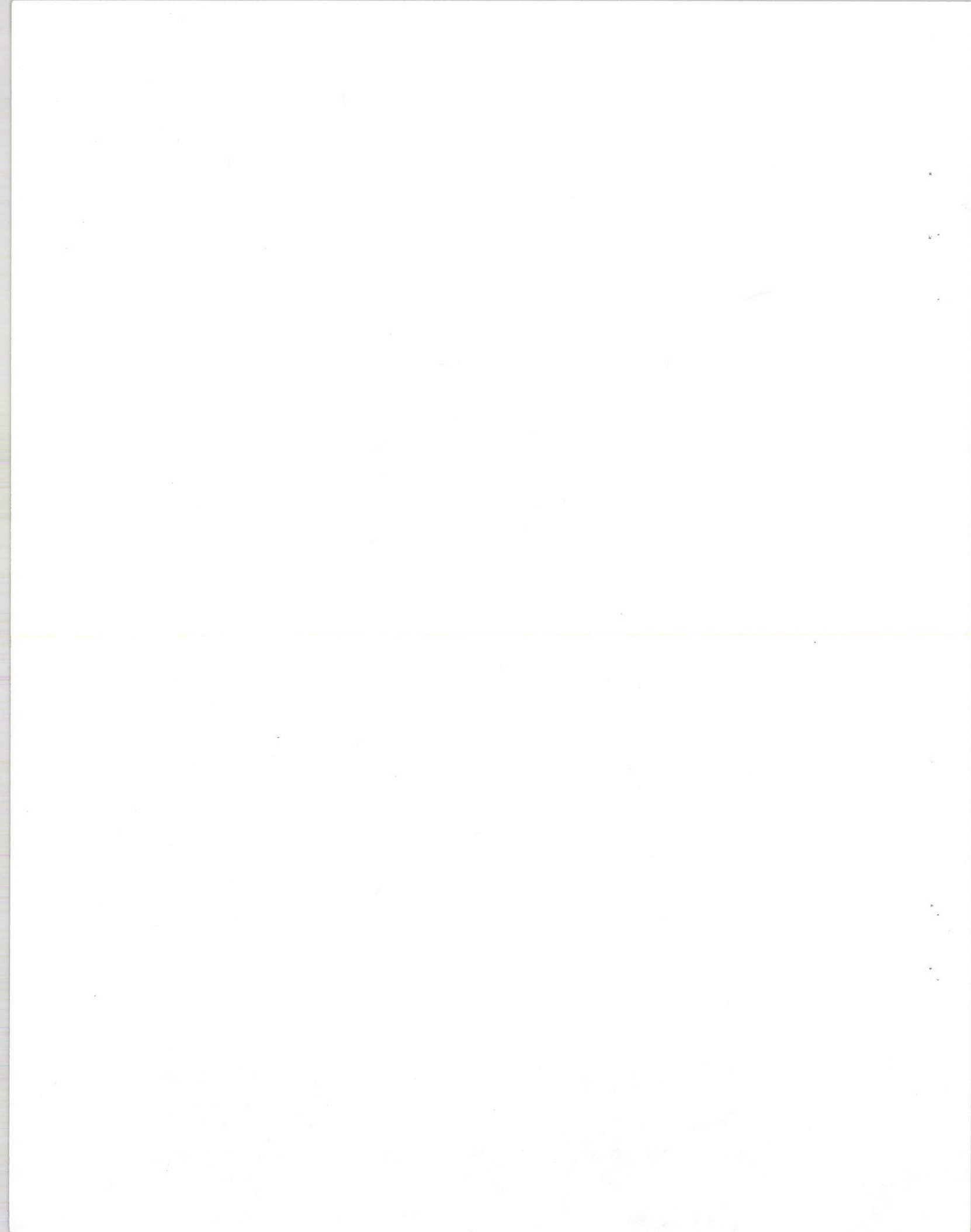
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Abstract

The introduction explains the sense in which the concept of a paradigm, whose originator, T.S. Kuhn, was inspired by the history of the natural sciences, is applied to the context of the social sciences. Here the new paradigm does not necessarily replace the old; several paradigms may function effectively side by side.

The milestones in the development of the system paradigm have been the works of Marx, Mises, Hayek, Polányi, Schumpeter and Eucken. Although these make a heterogeneous list in terms of their philosophies and political positions, they share a 'system approach'. They deal not just with individual details of the economy but with the system as a whole, and not just with the economy but with the political, ideological and social dimensions, paying special heed to the interactions between each sphere.

The great task for the system paradigm is to study the post-socialist transition. For this, it is indispensable; its explanatory power cannot be replaced by any other paradigm. On the other hand, those applying the system paradigm (like the exponents of other paradigms) are often gravely mistaken. The predictive force of the system paradigm is limited, which urges modesty upon those who employ it.

Keywords: socialist system, capitalist system, systemic change, comparative economics

János Kornai

THE SYSTEM PARADIGM

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Draft, please do not quote!

1. Clarification of concepts¹

This study applies the concept of a paradigm, as the title makes clear. The concept was introduced into the philosophy of science by Kuhn, in his classic work (1962). Kuhn did not offer a clear definition of the concept, which has itself been the subject of much debate.

As I was preparing for this conference, I reread several works on the philosophy of science, and in particular on the methodology of economics. It was a remarkable reading experience, which warned me, if nothing else, to be cautious. For there is no trace of a consensus among authors, even on how to interpret the basic concepts. There is an exasperated debate taking place. The alternative schools of thought, on the philosophy and history of science, disagree because of deep-rooted epistemological differences among their adherents. The result is a minefield that I would prefer to avoid.

However, it prompts me to start my line of argument by clarifying the concepts, to avoid eventual misunderstandings. I do not wish to contribute to the discussion of how far Popper, Kuhn, Lakatos or others were right in their analysis of the history of science. It will suffice for a proper discussion if I say what sense I attach to the word paradigm in this paper. In the sense used here, scholars can be said to use the same paradigm in their research and teaching if they show the following common attributes:

1. They work to solve the same or closely related 'puzzles'. They view social reality from the same, or almost the same angle. They set out to illuminate the same, or almost the same range of phenomena, and are content to abstract away the same phenomena or leave them obscure. Those who work within a common paradigm have the same, or a closely related outlook, viewpoint and

¹ I would like to express thanks for the valuable comments that I received from the two discussants at the Berlin conference, Andreas Ryll and Helmut Wiesenthal, and from Ágnes Benedict, Bernard Chavance, Zsuzsa Dániel and T.N. Srinivasan. I am grateful to Brian McLean for his excellent translation, and to Julianna Parti for her help in editing this paper.

approach.

2. They use conceptual frameworks that are the same or closely akin. (Alternatively, it is relatively easy to compile a word list that translates the conceptual apparatus of one author into that of another.)
3. They use the same or a similar methodology for observing, processing experience and drawing conclusions; they support their statements by the same or similar methods.

I do not specify more common attributes than that. In other words, I do not expect 'partners in paradigm' to start from the same axioms or arrive at the same main conclusions.² The most important community of attributes is the one summarized under point 1: I ascribe a common paradigm to those who are drawn to the same problem and seek to approach it in a similar way. To that extent they are working to a common research programme.³

The concept of a paradigm described in the three points does not correspond accurately with the definition given by Kuhn, the author of the concept. However, it is quite close to what intellectuals less conversant with the philosophy of science mean by a paradigm today.

Many people doubt whether Kuhn's dynamic scheme (normal science within a paradigm, then a scientific revolution, then the triumph of a new paradigm) has general validity in the history of the natural sciences. The Kuhn scheme is certainly not characteristic of the history of the social sciences.⁴

Using the expression paradigm in the less restricted sense I have given, it is obviously possible for alternative paradigms to live side by side in the social sciences, playing a constructive,

² The 'research programme' concept devised by Lakatos (1971) is widespread, and according to many authors, richer, fuller and more accurate than Kuhn's concept of a paradigm. The three points just made also appear in Lakatos's concept, although he stipulates other common attributes as well. All those who work within a 'research programme' in Lakatos's sense subscribe to the same 'core theory' and are prepared to make the same auxiliary assumptions.

³ Here I intentionally use the expression research programme in its ordinary sense, not in the specific sense that Lakatos defines it.

⁴ This is convincingly shown in a study by M. Blaug (1986), in relation to the development of economics.

progressive role.

I do not want to advocate a kind of unprincipled 'peaceful coexistence' here. The history of the social sciences also contains instances where a paradigm has succumbed irrevocably to another, more viable approach. If the advocates of two, otherwise clearly distinguishable paradigms are concerned with similar puzzles, rivalry develops between them. Nonetheless, my main purpose is not to prove that the paradigm presented here is superior to some other paradigm, but to show that it is different, and that the difference is justified. It is different because it sets out to solve different puzzles, by partly similar and partly different methods from those of the other widespread coeval paradigms.

2. A system paradigm, rather than a transformational paradigm

The organizers of the Berlin conference asked me to speak on the 'transformational paradigm'. What is to be understood by this? Twenty-five countries that had communist regimes have set out on a path of transformation. The two words 'transition' and 'transformation' have been spoken and written countless times by politicians, journalists and scholars since 1989-90. Nonetheless, when I began to work on the paper, I saw increasingly clearly that the term 'transformational paradigm' is misconceived.

It seems to be more expedient to talk of a 'system paradigm'. Rather than describing this concept in advance, I will leave it to reveal itself to readers step by step. It will emerge that the transformation, along with the transition from one system to another, is one among several subjects that constantly occupy the advocates of the system paradigm. It would not be right to name a more comprehensive paradigm after one of its component topics.

Even if Kuhn's original concept of the monopoly of the prevailing paradigm is laid aside, there is no ignoring his view that a paradigm constitutes a long-lasting common way of thinking by a scientific community. Succeeding generations learn the previously developed paradigm in their textbooks. This is a criterion that the system paradigm meets. It looks back on a long history and it provides a certain circle of researchers with the intellectual guidance that paradigms should

provide.⁵

3. A brief intellectual history

There is only space here to outline the development of the system paradigm, without aiming at completeness. The system paradigm, unlike many other paradigms in the natural or social sciences, cannot be linked with a single great name, a great innovative figure who fomented a scientific revolution. It developed in a series of works, over a long period. Let me cite here the theories that display most expressively the specific attributes of the system paradigm that distinguish it from other paradigms.

The first name to mention must be Marx. There were certainly others before him who thought in terms of systems, but it was Marx whose work, above all Capital,⁶ made a lasting impression on people's way of thinking by creating the capitalist-socialist pair of concepts. He contrasted two formations: an existing one and a Utopia that he considered desirable. He can be considered the pioneer of the system paradigm because he did not confine himself to examining a certain sphere of capitalism (the political sphere or the economic, or the social or the ideological). He viewed all these spheres altogether and analysed the interactions between them. Ever since, the influences that these spheres have upon each other, and the main directions of causality between them, have been among the main subjects pursued by researchers who think in terms of the system paradigm. Marx took a systemic view by not confining himself to examining some institution of capitalism or other, but looking at the sum of its institutions—not at one part or the other, but at the system as a whole.

Here I will leave open the question of whether Marx's answers to the questions he addressed were the right ones. According to the definition used in this paper, the questions to which answers are sought, the puzzles to be solved, form the main attribute of paradigm. Marx asked many

⁵ Even if a 'transformational paradigm' could be defined, it would still not meet the criterion of durability. For one thing, the period of transformation that began with the collapse of the communist system only started a few years ago.

⁶ Marx [1867-94] 1978.

questions that researchers working within the system paradigm have sought to answer ever since. An outstanding example is The Communist Manifesto,⁷ which posed the dramatic question of how the change of system, that is the transformation of society, took place during the transition from a pre-capitalist formation to a capitalist formation.

Some people may be surprised if the names that follow Marx in my brief account of intellectual theory are those of Mises⁸ and Hayek.⁹ The enraged opponent of capitalism and prophet of socialism is followed by two enthusiastic advocates of capitalism and committed antagonists of socialism. I am talking here not about physicists or chemists, but about social scientists, whose views of the world are based on values and political preferences. Although Marx on the one hand and Mises and Hayek on the other stand on opposite sides of the political spectrum, they share the common conviction that a comparison of capitalism and socialism is worth analysis and research. Their way of thinking bears common paradigmatic elements. They examine social relations and human interactions. They find the circumstances that induce certain groups of people to behave in a certain way important. In that and many other respects, they are among the creators of the system paradigm.

It is not forgetfulness on my part that I have not yet mentioned Hayek's opponent in debate, Oscar Lange. With due respect to Lange's theoretical achievements, I have to say that his famous study on socialism¹⁰ is not among the works inspired by the system paradigm. It is a work of sterile economics. Lange disregards the question of what kind of political mechanism should be associated with the economic mechanism he describes. He does not deal with how the head of the public company he creates would behave, or what real social conditions would motivate people to act according to the 'rules' that the Lange model prescribes on paper. Mises and Hayek do not sidestep the fundamentally important fact that politics and the economy are tightly connected. Incentives, communication, the collection and processing of information: questions such as these

⁷ Marx and Engels (1848).

⁸ Mises (1981).

⁹ Hayek (1935 and 1944).

¹⁰ Lange (1936, 1937).

are in the foreground of their argumentation. The ideas of Mises and Hayek are outstanding representations of the system paradigm, while those of Lange's study are rather alien to it.

An important part in formulating the system paradigm was played by Karl Polányi. He takes us back to the left wing of the political stage, for although Polányi does not deny the merits of the market, he is strongly critical of this mechanism. His idea that the economy could be coordinated by various alternative mechanisms became an important element in the system paradigm. Besides the market, he pays special heed to coordination mechanisms controlled by the principles of reciprocity and redistribution. The title of one of his main works, The Great Transformation,¹¹ implies that the changes after the collapse of the communist system were not the first such systemic change. The market itself is a historical product subject to constant transformation.

Another great architect of the system paradigm was Schumpeter, especially his work Capitalism, Socialism, and Democracy.¹² Again the title itself is illuminating. Schumpeter wants to understand both systems in their entirety, including their political, sociological, economic and ideological aspects. The book poses the characteristic puzzles of the system paradigm, enquiring, for instance, into what provides the cohesiveness of a system, and what starts off the erosion of it.

Schumpeter underlined the need for a synthesis of the various disciplines dealing with society, above all economics, sociology, political science and history. Effort should be made to develop a universal social science.¹³

The main attributes of the system paradigm are outlined in the work of Walter Eucken.¹⁴ The

¹¹ Polányi (1944).

¹² Schumpeter (1942).

¹³ Yuichi Shionoya (1995) gives an excellent summary of how this idea runs through all Schumpeter's writings, especially his works on theoretical history and methodology.

¹⁴ Eucken's theory of 'economic order' is summed up in his (1940) book, and in its most mature form in his work of (1952). The former has been translated into English (Eucken, 1950), but not the latter. Incidentally it is unfortunate that the ideas of this very important European scholar should have gained little currency in the Anglo-Saxon social sciences.

Although I had studied Eucken's work earlier on, I also forgot him when I was writing the first version of this study (influenced, perhaps by the selective quoting routine of the Anglo-Saxon literature.) I am

concept of Ordnung (order) that he uses largely corresponds to what this study refers to as a system—principally the legal and institutional framework for economic activity. He distinguishes two main pure types—the centrally governed economy and the laissez-faire economy—and devotes special attention to middle-way solutions. Eucken is averse to the term capitalism, which he sees as having been discredited by the Marxists. Like it or not, however, this does not exclude Eucken from the company of advocates of the system paradigm. His terminology can easily be translated into the different vocabulary used by his ‘paradigm-partners’.

Eucken was certainly inspired by direct experience of Hitler’s Germany and post-war Germany and by outside study of the communist world to recognize how transformation of the political sphere effects changes in the economic order.

I have talked so far about the great pioneers of the system paradigm. However, according to Kuhn, it is also part of a paradigm’s function to permeate the everyday activity of the research community that believes in it, allowing the ‘normal science’ of a discipline or sub-discipline to be built upon it. Kuhn sees the paradigm as a means of control, a way of applying intellectual discipline. So discussion of any paradigm has to involve not only the generals, but the officers, sergeants and plain soldiers who observe the same intellectual discipline. Kuhn also points out that the paradigm of normal science manifests itself in daily university teaching and textbooks. The spirit of the system paradigm is to be found in many of the textbooks on ‘comparative’ subjects—comparative economics, sociology and political science.¹⁵

However, there is no course at a leading university or textbook entitled ‘comparative social science’, pursued in the interdisciplinary spirit of the Schumpeterian notion. Lecturers or authors may possess a thorough, comprehensive knowledge and interest in neighbouring disciplines to their own, but they have to make concessions to the departmentalization of the academic world. To that extent it is doubtful whether it is right to talk, in Kuhn’s original sense, of normal science being pursued under the paradigm, since one of its characteristics—the interdisciplinary nature of

grateful to Professor Andreas Ryll for drawing my attention to this omission.

¹⁵ Let me mention as examples two textbooks on comparative economics published recently, which also cover problems of the post-socialist transition: Carson (1997) and Chavance (1994).

the social sciences—has failed to gain full acceptance in academic education.

The situation is more promising if we look not at the state of education we look at the academic interaction between researchers. Political scientists, economists and sociologists are working together more often as co-authors or as members of common research teams. They also hold joint conferences in certain topics.¹⁶

Let me conclude this review of intellectual history by referring to my own work, which I summed up in the book The Socialist System.¹⁷ There I set myself the task of synthesizing the system paradigm. I did not try to present the paradigm itself in a distilled form, i.e. in the language of the philosophy of science. Instead I wrote in the spirit of the system paradigm about an existing, historical formation, the socialist system that had developed historically under the rule of the communist parties. I described its birth, its mature form, its erosion and its self-destruction. If any readers of this paper would like to see in more detail what I mean by the system paradigm or its application, they can do so in that book.

4. The main attributes of the system paradigm

After that review of intellectual history, let me try to sum up the main attributes of the system paradigm.

1. Researchers who think in terms of the system paradigm are concerned with the system as a whole, and with the relations between the whole and its parts. Narrow, partial analysis may be an important instrument of exploration, still it falls outside this angle of view.
2. The system paradigm cannot be confined within any traditional partial discipline (such as economics, sociology or political science). It has to be seen as a school of comprehensive, general

¹⁶ A good example is presented by the conference organised by the French economist, Bernard Chavance in Paris in 1998. It was designed to demonstrate that there is a broader group of scholars who work in the system paradigm. This idea was clearly expressed in the title of the conference: "Evolution and transformation of economic systems: socialism and capitalism compared."

¹⁷ See Kornai (1992). I first attempted to apply the system paradigm in my book Anti-Equilibrium (1971), in a polemic manner, and in many ways in a raw or half-mature form.

social science. It pays particular attention to the interaction that takes place between the various spheres of the functioning of society (politics, the economy, culture, ideology).

Each of the scholars mentioned in the last section as pioneers had an original profession; they were exponents of one of the main disciplines. Polányi was an anthropologist; the others were economists. However, their work goes far beyond the boundaries of their original discipline. Each was an economist, a sociologist, a political scientist, a historian and a philosopher all at once. In other words they were social scientists. This comprehensiveness in their thinking was not a kind of incidental adventurism, or gained on flying visits to neighbouring university departments. It was a decisive element in their way of thinking.

3. The attention of researchers guided by the system paradigm is not focused on economic, political or cultural events and processes as such, but on the more permanent institutions within which these events and processes occur, and which largely determine their course.¹⁸ Special attention must be paid to the distinction between institutions which emerged historically, in the course of an evolutionary process, and other institutions which are ad hoc constructions of a bureaucratic decision. The concept of an institution has to be interpreted very broadly in this context. It includes, for instance, the prevailing legal order in the system concerned, its moral norms and its property rights, the distribution of positions of power, the incentives working on the actors in society, and the information structure. The paradigm attaches special importance to whether attributes of the operation of a society are system-specific, or whether they are traceable to circumstances other than the system itself (e.g. the personality of the leading politician, the day-to-day political or economic situation, or the country's geographical location).

4. System paradigm requires a strong connection in understanding an existing human organisation and the historical process, which generated that organisation. In other words, a researcher inspired by this paradigm must search for an explanatory theory in historical terms. We search for a strong

¹⁸ There is substantial overlapping and many points of contact between this attribute and the paradigm of 'institutional economics' (see North, 1990). However, I do not want to blur the distinction between the two, as the system paradigm and institutional economics differ strongly in other respects.

linkage between various disciplines of social science and history.¹⁹

5. According to the system paradigm, individual preferences are largely the products of the system itself. If the system changes, so do the preferences. Many of those whose work has been mentioned in the historical review are liberal in their political outlook, speaking out in defence of individual freedoms and advocating broad scope for individual choice. However, this is compatible with scientific examination of how far and in what way social circumstances influence individual preferences.

6. All paradigms dealing with society employ static models as one of their instruments, if only because of methodological difficulties. There is no scholar who is not aware that everything in society is constantly changing. What distinguishes the thinking of those working within the system paradigm from that of their colleagues outside it is that they are interested in the big changes, in the big transformations. For instance, they enquire into what processes of decay are going on within a system, so that it will come to an end and give way to another system. They ask how there occurs a transition from one system to another system, or from one typical version of a great system to another.

7. Researchers guided by the system paradigm recognize that all systems have shortcomings or dysfunctions specific to them. Marx ascribes the various drawbacks of capitalism to the system, not to the cruelty of the mill owner. According to the interpretation of Mises and Hayek, it is not the brutality or paranoia of the socialist dictator, or the incompetence of planners, that causes the problems with socialism. Polányi argues that failures in the operation of the market derive from the nature of the market itself. Certainly Marx, Mises, Hayek and Polányi find it easier to identify the problems in the system they are averse to than in the one they prefer. Schumpeter is less biased, noticing what causes bureaucratic features to appear in capitalism, the system he prefers. Let us disregard for a moment the knotty problem of partiality in a social scientist.

Whatever the motivation of researchers, they will find, if they think in terms of the system paradigm, that the challenge lies in studying the intrinsic dysfunctional features of the system

¹⁹ Keeping in mind this linkage, perhaps it would be fair to include Max Weber in the list of the great theoreticians who paved the way for the system paradigm.

considered. No system is perfect. Every system possesses harmful attributes that can only be alleviated, not eliminated, because the propensity for them to reproduce is deeply imbedded in the system.

8. Every paradigm has a method of approach, a methodology characteristic of it. One of the most obviously characteristic methods of the system paradigm is comparison. It explains an attribute of a system by comparing it with a corresponding attribute of another system, analysing the similarities and differences between them. This comparison is mostly qualitative, although some attributes are easily measured, which offers a chance to make quantitative comparisons based on statistical observations.

It is not characteristic of the system paradigm for theoretical analysis to rely on mathematical models.²⁰ It would require a separate examination to say why not. There are certainly several factors, of which I would like to pick out the one that I find most important. Mathematical economics and other social-science researches that apply mathematical methods operate at a high level of abstraction. They are forced to analyse a narrow slice of reality, as that is the only way to construct a model suitable for mathematical analysis. One of the foundations of the system paradigm is to grasp reality, so far as possible, in its entirety, not just a thin slice of it. So it is prepared to make heavy concessions in rigor and exactitude. Its methodology is 'softer' than that of a 'semi-hard' (or ostensibly hard) economic paradigm. On the other hand, it is prepared to face puzzles the latter avoids. More will be said about this later.

5. Post-socialist transformation: the great challenge

The great transformation that is taking place before us at enormous speed provides an exceptional opportunity to test the system paradigm and develop it further. A series of countries has virtually jumped from one system to the other. Looking at the world as a whole, the transition from pre-capitalist formations to full-blown capitalism took centuries. Merciless violence was used by those

²⁰ There are a few exceptions. For instance, the system paradigm inspired a study written by the outstanding representative of mathematical economics, the Nobel laureate Tjalling Koopmans, and the well-known figure in comparative economics, Michael Montias (Koopmans and Montias, 1968).

directing the first manifestation of the socialist system, the classical Stalinist system, and even so, the transition lasted about 15 years. Now, on the way back to capitalism, less than a decade has gone by, and yet the most advanced of the Eastern European countries—the Czech Republic, Hungary and Poland—have largely undergone the transition, after ‘velvet’ revolutions devoid of bloodshed or violence.

The actual process of historical change vindicates those who forecast that there would be a transition from the socialist system to the capitalist system. Although the transition has not been uniformly fast and there have been standstills and reverses in a good many countries, few people now doubt that the direction of the transformation is towards a capitalist system.

Social scientists tend to envy their natural-scientist colleagues for being able to conduct laboratory experiments. In this case, history presented us with a veritable laboratory. It is too early to say whether we have made or are making good use of this opportunity. A paradigm has to pass examinations in several subjects to prove it is workable. There will be discussion in the final chapter of one of the basic subjects, its powers of prediction. Let us look here at two other, closely interrelated subjects. How has the system paradigm passed the test in explanatory power and in theoretical assistance to everyday practice?

The system paradigm has proved simply indispensable. Every researcher thinks in terms of its concepts. Socialism and capitalism, the command economy and the market economy, bureaucracy and free enterprise, redistribution and consumer sovereignty: these and similar concepts have provided the framework for the analyses. Like Molière’s *Bourgeois Gentleman*, unaware that he speaks prose until the Master of Philosophy enlightens him, many researchers into the post-socialist transition do not realize they are speaking the language of the system paradigm, not of their own discipline.

Typical puzzles to do with the system paradigm have become the centre of attention. What speed should the transformation go? Should there be a comprehensive package introduced all at once or should things be introduced in several stages? What is the right order to introduce the legal regulations required? What should come first and what afterwards? What are the political conditions required for the economic changes, and the economic conditions required for the political changes? How much can be left to spontaneous, evolutionary transformation, and how

much needs to be done actively, by state intervention and promotion of changes? The answers vary, but the questions are constant. They are not confined to a few scholars. They are asked in the workshops preparing comprehensive World Bank and EBRD reports, and by the staff of national government think-tanks.

A convincing argument for the system paradigm can be grounded on observing the attitude shown by the 'guest stars' of the post-socialist transformation.²¹ After the dramatic changes of 1990, many Western academic economists, sociologists, political scientists and legal scholars were keen not to be left out. They had to come and see for themselves, and furthermore give advice. The enthusiasm of most of them was temporary: they came, looked, won (or lost), and then left. That is why I call them guest stars. They were like performers leaving their company temporarily to appear with another.²² Let us distinguish two groups. As for the first, the short time available left them unable to step out of the paradigm that had defined their way of thinking hitherto. This normally left them unable to exercise any real influence. Members of the second group, however, managed to shed, partly or wholly, their usual way of thinking, and consciously or instinctively, adopt the system paradigm. They sensed that this situation did not belong to a realm of 'pure' economics or partial models. They could not follow the usual routine of an economist, simply assuming away the existence of anything that might threaten the susceptibility of the theorem to proof. It was not possible to tear certain parts of society and the economy out of context at will and

²¹ In writing somewhat ironically here about the part that the guests from abroad played, I do not wish to imply that the home-grown advisors performed better. There were those among the foreign and the home-grown experts who produced useful recommendations; there were others in each group whose advice proved less applicable or wholly mistaken. However, there was a perceptible difference between the foreigners and the domestic experts in the paradigmatic foundations on which their advice rested. Most of the academic economists educated at universities under the communist regime were not influenced by the mainstream paradigm in whose spirit the visiting economists from the West had been raised. Though they were much less educated in contemporary economics, the reform debates in the years before the collapse of communism had trained their minds to think in terms of simultaneously changing the various components of the system.

²² Portes (1994) uses another metaphor to describe the same phenomenon. They remind him of the carpetbaggers—the office-holders and political and economic entrepreneurs from the North who went to the South after the American War of Independence.

focus the examination on them alone, because the consequences were influenced by the interaction between those parts and others that were being assumed away. The use of static models as an easy way of treating the problem is of no avail, as all the elements of the system are in very fast movement and transformation.

The latter group of 'guests' were prepared, in most cases, to leave behind their rigorous models and argumentation and listen to their common sense, and indeed their intuition. Their case shows that the reason the methodology of the system paradigm lacks models based on exact assumptions and theorems is not that its followers are insufficiently conversant with mathematics. Not even economists with the best of mathematical training have been able to construct models leading to really convincing conclusions about the exceedingly intricate problems of the transformation. So it is better to be intellectually honest. It has to be admitted that the system paradigm is one that only half-meets the criteria of the strict scientific method. On the one hand it requires of its exponents the consistency of logic, with statements supported by argumentation and comparison with similar or contrasting cases. The stringency of the argumentation is increased by quantitative analysis, which has to be done wherever possible. On the other hand, those working within the system paradigm, or reviewing works written within it, may not require either strict mathematical proofs of propositions, or support for them from econometric analysis that has stood the trial of statistical tests.

It can safely be said that the system paradigm has been enriched by the post-socialist transition. The conceptual apparatus has become wider and more refined, the scope for comparison has grown, and econometric analysis applicable to international comparisons has become a more prominent part of the paradigm's methodology.²³

Some Western researchers and advisors have certainly contributed to an understanding of the problems of transformation, and in some cases, even defined practical tasks in a useful and constructive fashion. This applies especially to those who have stayed longer or decided to specialize in this field. They have learnt in practice what their Western education omitted to teach them.

²³ For the latter development, see, for instance, De Melo *et al.* (1997) and Fisher *et al.* (1996).

The minds of students at prestigious universities are conditioned to apply as routine the method of 'assumption–theorem–proof' and the most up-to-date econometric techniques, but most of them are unfamiliar with the approach applied by the system paradigm. It has not become a conditioned reflex for them to say to themselves: 'I must not simply ask what I am abstracting away. It is at least as important to ask what I must not abstract away. How does the partial problem I am examining relate to the whole?' Students are not encouraged to inquire how they can perceive the state of a country in all its complexity, or for instance, what they have to consider if they see that a country is in crisis. Students can receive a PhD in economics even if they have not increased at all the minimal knowledge of history, sociology, psychology and philosophy they gained during their secondary and undergraduate studies. They can widen this knowledge of their own accord, of course, but there is no great appreciation or reward for doing so. On the contrary, it may arouse suspicions that they are dilettanti reaching out in too many directions.

For about a quarter, or even a third of the world's population, the change of system has been a cathartic experience. Those now living in the transforming parts of the world cannot and will not continue to live as they did before. This sense of catharsis has not affected the social sciences as a whole. The 'guest stars', with a few exceptions, have returned to their original organizations to continue with what they left behind. They have left the unprecedented laboratory, if they really looked into it at all. The system paradigm has remained more or less detached, and the other paradigms, especially the Neo-classical economic mainstream, have remained unaffected by it.

There has been no wide-eyed wonder and inner discontent with the state of arts in our discipline – the typical reactions of healthy intellects and open minds, found at times when something great happens. It is not a scientific revolution in Kuhn's sense that I miss. I am not calling for the mainstream paradigm to be superseded by another paradigm. All that is needed, after the great experience of the post-socialist transformation, is for mainstream normal science to recognize more clearly its limitations. It has to understand better what it is competent to do and what it is not. I may be wrong, but I have the impression there are very few people in the economic profession who accept this narrowed, more modest domain of validity for the mainstream paradigm. Indeed there are some who have drawn precisely the opposite conclusion from the change of the system in the 1990s. They mistake the victory of the actual capitalist system over the actual socialist system, for a victory of mainstream economics over all other, alternative

paradigms. In fact actual capitalism triumphed for a variety of reasons. Its victory was due, among other things, to some excellent properties, which have not been sufficiently analysed or explained by the mainstream paradigm.

One important note must be added. There is also full justification for analyses that start from the capitalist system, and set out to study phenomena within it, provided that those who choose such an approach have clear notions about the limits of their research. Here let me refer to Section 1 of this study, where I say I do not demand a monopoly for the system paradigm. It is designed to supplement, not to replace other paradigms that are applicable within their own bounds. At this point it would be tempting to discuss how far the competence of the mainstream paradigm reaches. What can it explain well, and what are the questions it fails to answer or answers badly? Conversely, where are the bounds of applicability of the system (and other) paradigms? However, I have to postpone expounding my thoughts on this and make them the subject of another study.

6. Some other 'puzzles'

The post-socialist transformation in Eastern Europe and the territory of the former Soviet Union will be over in the foreseeable future. The question of when it will end in each country can be left open at this point. It will take quite some time after transformation ends to digest the experiences from it scientifically. Will the system paradigm wither away, starved of scientific challenges, once our successors, our students have done this? The answer is definitely not. There are problems that look set to remain on the scientific agenda for very long periods of history and present a constant challenge to the system paradigm. These problems challenge also the complementary or rival paradigms, including those we are discussing at this conference in Berlin. Let me explain this answer by listing four subjects that remain for subsequent research:

1. The communist party retains a monopoly of power in China, which to that extent remains a communist country. China's past and future transformation is one of the great puzzles, to which conscientious researchers cannot delude themselves into thinking they have the key. The search for a solution certainly calls for participation by exponents of the system paradigm, even if it is not exclusively their concern. All the problems that have emerged during the Eastern European transformation will crop up in China as well, but not in exactly the same way, of course. China's

gigantic size and immense political, economic and military potentials make it one of the most important research subjects of our time.

The transformation in three other countries, Vietnam, Cuba and North Korea, where the political power of the communist party still prevails, raises similar problems, although their importance in the world is of a different order of magnitude.

2. The system paradigm can be of great assistance in analysing alternatives within the capitalist system. This is also among the fields of research where there is a lot of overlap between the evolutionary paradigm and the system paradigm. Capitalism is not a rigid, uniform system. It exists in numerous mutant variants, among which history selects. Evolutionary changes take place within it. Studying the mutations and resulting variants could enrich the conceptual apparatus of the system paradigm, along with its problem-solving approach and methodology.

For instance, how do the Japanese, American and German alternatives differ? The answer will not be satisfactory if it is sought only in the economy, the political system, or cultural traditions, or if the research is confined to one or two institutions, such as state intervention or labour relations. Greater understanding of the differences between alternative types of capitalism would have yielded a more convincing explanation of Japan's marvellous economic performance until recently, and of the causes, embedded in the system, of the serious problems that have arisen so rapidly. Such an understanding would also show more clearly how the American and German roads of modern capitalism differ.

Let us look briefly at the manifestations of normal science based on the system paradigm—the textbooks of comparative subjects. These concentrate mainly on comparing the two 'great' systems, socialism and capitalism, and deal relatively little with the alternatives within capitalism. There is no consensus on the typology of these alternatives. As a substitute for ideal types that rest on generalizations from real historical realizations and are suitable for theoretical analysis, there tend only to be specific descriptions of a prototype country (for instance Japan, Sweden or the United States). The task of formulating such ideal types remains.

3. It is worth pondering the fact that in certain segments within the capitalist system, as in a kind of microcosm, certain problems of the macrocosms, the 'big systems' are replicated. A good example of this is provided by reform of the health system, which is on the agenda all over the

world. The actual questions asked in the debate and the arguments of those making recommendations arouse feelings of déjà vu in someone like myself, who took part in the debates on reforming the socialist system. Why should public ownership be retained, or conversely, abolished in the health sector? Is it right or wrong for health-care activities to be coordinated by the market, or should it be left to the bureaucracy? How much scope is it permissible or desirable to allow for consumer sovereignty? Who should set the prices of the provisions: the market, one particular actor in the market, or some state authority? What are the advantages and disadvantages of centralization and decentralization? If the health system were to operate according to some 'market-socialist' pattern, in the spirit of some Lange-type economy, what behaviour would be exhibited by the actors (the hospital manager, the doctor, the patient)? Not only the questions, but the phenomena are familiar. This is true especially in Europe, Western and Eastern, where health care is more or less free and the health sector forms an island of socialism (or at best market socialism) in a capitalist sea, with the familiar accompanying features: shortages, queuing, waiting lists, forced substitution, bureaucratic allocation, and rationing.

Naturally, those taking part in the debates on the health system in the West read and react to literature written by their Western colleagues, especially by exponents of the sub-discipline of health economics. It is depressing that the analogy with socialism has not occurred to anyone, even though debates of the same questions have been going on in that context for decades. Furthermore, many of the ideas have already been put into practice in the communist countries, so that the results of them are discernible. It is, for instance, an argument heard frequently in the health-reform debate, that complete state centralization of an activity greatly decreases administrative costs in the first stage, and eliminates supplementary costs of competition such as advertising and influencing of buyers. That is so, but this high degree of centralization was accomplished on a grand scale, by the socialist system. So ultimately, has centralization proved fruitful? What does it imply in terms of citizens' sovereignty or defencelessness? What driving forces does it create or suppress in technical development?

It would be worth employing the approach, the conceptual apparatus and the methodology of the system paradigm, and the questions it poses, to supplement (but not replace) the present paradigm of health economics. It would be useful if the participants in these debates were to look through the literature on the debates on reforming socialism. It might emerge that there is no need

to 'rediscover' all the questions and answers. Such study would make valuable contributions to the debate on health reform, and draw attention to relations that have hitherto been ignored.

The health system is just one example of the many microcosms that could be viewed as systems and researched within the framework of the system paradigm.

4. I have left to last the most difficult question on my list: the global, historical transformation of the 'great' capitalist system. There is a fairly wide consensus behind the view that it is justified to talk about two great systems in the 20th century: capitalism and socialism. It is also widely accepted that the four countries where the socialist system still prevails, wholly or partly, will eventually adopt the capitalist system. But to quote Fukuyama,²⁴ will history end there? There are many significant changes taking place in production technology, interpersonal communication, the distribution of property rights and the method of their enforcement, and the dissolution of national borders. Possibly, at the end of the 21st or 22nd century, a scholar—an advocate of the system paradigm—may say, 'What we have now is another great system (or several other great systems), which differs from the capitalist system of the 20th century.' I am not in favour of hastening such a statement, which would be unfounded as yet. What needs to be considered is how long today's capitalism will remain identical with itself. Putting forward this kind of question is one of the components common to the evolutionary paradigm and the system paradigm. I believe that the system paradigm provides unanimous criteria for drawing the line between socialism and capitalism. Possibly, but by no means certainly, the same criteria will apply when drawing a distinction between what has been known so far as capitalism and the system or systems, yet unnamed, that may replace it.

7. Shortcomings of prediction

The last problem I mentioned in the previous section leads to the subject with which I would like to conclude: the problems of future changes. What I have talked about so far is not the task of prognosis, but the narrower problem of deciding the moment at which the system so far called

²⁴ See Fukuyama (1992).

capitalism, by public consent, has changed to such an extent that it would probably be justified to consider it a different great system. There can be no avoiding the far more serious question of how the advocates of the system paradigm have fared in the test on a basic subject for all sciences, prediction.

The short answer (though excessively and unjustly short) is that they have failed. To be more precise, not all their predictions have been mistaken, but there have been some very important ones that history has belied.

Let us return to the names mentioned in section 2, starting with Marx again. For several decades, it seemed as if the basic Marxian prediction was going to be validated, at least in part of the world: that the capitalist system would give way to the socialist system, private property to public property, and the market to planning. Viewing the matter historically, such a development proved only transitional. The prediction was dramatically refuted by what happened in Eastern Europe and the Soviet Union.

Hayek predicted that if a capitalist country stepped out and tried to walk on the slippery path of centralization, state intervention and planning, it would be unable to stop on the road to serfdom. That did not happen either. It is possible to stop after a quarter of that road has been covered. It is still possible to turn back halfway. The question is decided in the political sphere, by whether there are institutional guarantees to prevent tyranny.

Schumpeter's prediction was not actually far from Marx's, but he made it, not with the passion of a prophet, but with the resignation of an impartial scholar. It turned out that he greatly underestimated the vitality of the capitalist system and overestimated the viability of socialism. He tried to understand the latter from the stilted models found in the theoretical works of Walrasian economists, instead of studying the bloody reality of the Soviet Union.

'Sovietology' has been roundly condemned for failing to predict the collapse of the Soviet Union and the associated communist regimes. This criticism is partly justified. On the one hand, most representatives of comparative economics and political science considered it axiomatic that the capitalist system was superior to the socialist system, and produced many arguments to prove it. In that sense their works implied a general prediction (opposed to those of Marx and Schumpeter) that the socialist system would end eventually. On the other hand, 'Sovietology'

failed to make even a conditional prediction as to when and under what conditions the socialist system would succumb.

I am self-critical of my own work as well. On the one hand, I think that in one important aspect the predictive content of my works has been vindicated. While many of my colleagues in the East and the West thought that the reforms would prolong the life of socialism by eliminating some of its shortcomings, I was sceptical about them. I pointed out that although the reforms were improving people's quality of life, they were undermining the coherence of the system. Instead of perfecting the system, they were weakening its foundations, causing erosion, not stabilization.

What I did not foresee was the speed and acceleration of this erosion. However, it was not the system paradigm that prevented me from foreseeing this. On the contrary, my problem was that I did not apply that approach and methodology with sufficient consistency and refinement. I did not study deeply enough. That meant I failed to perceive the interaction between various disintegration processes, for example the mounting economic troubles, the falling back in the arms race, the disillusionment with communist ideology after some political freedom had been won, and the mounting cynicism and corruption of the nomenklatura. To use Hegelian terms, the quantity was leaping into quality. We should have opened our eyes wide at the first signs of leaps and sudden changes.

It has to be confessed that though the exponents of the system paradigm do not deserve a fail mark, they did not do well in the prediction test. Rather than consoling ourselves with what I said earlier—that we got better grades in other subjects²⁵—I think we should learn the lessons for our future work.

Although the utmost effort should go into improving the predictions, no wild hopes should be

²⁵ The Rabbi of Lublin had the reputation for being a great seer. One day he cried, in the presence of his disciples, 'I see! I see!' 'What do you see, wise Rabbi?' they asked. 'I see Krasnik, the ghetto in Krasnik.' 'And what is happening in the ghetto in Krasnik?' 'I see fire. There is fire coming to Krasnik!' The rabbi's disciples took buckets and hastened away to help their fellow Jews. However, when they arrived in Krasnik, they saw with their own eyes that there was no sign of a fire. The Jews of Krasnik began to make fun of them: 'Well now, that famous rabbi of yours was quite mistaken.' Whereupon the Lublin Jews replied, 'True, there is no fire here, but it is a great thing that he was able to see as far as Krasnik.'

entertained either. The course of history is hard to foresee, especially at the great junctures in history. It can be declared on methodological grounds, and not as an excuse, that the scope for prediction is very limited in the sphere of investigation dealt with by the system paradigm. It is fair to expect reliable predictions of science in a sphere of frequently repeated phenomena. People regularly buy meat. Using a good model and reliable statistical data, it is possible to make a reliable prediction about the extent to which a 1 per cent rise in the price of meat will reduce demand. The Soviet Union, on the other hand, came into being on one occasion and collapsed on one occasion. Since the latter event is unique and unrepeatable, one cannot expect a scientific prediction of them that goes into any detail when it should occur, what events should precede it, or how it should occur. Now the system paradigm concentrates attention precisely on great, unique, unrepeatable social changes of this kind. Even if an adequate prediction was not made, there are a great many generalizable lessons to be drawn from subsequent careful analysis within the system paradigm.

The most important conclusion to draw from the evaluations of the predictions is to be very modest indeed. The system paradigm may be applied to explain both the past and the present, and to reason out practical recommendations, but great care should be taken when making predictions.

This paper has not covered the question of where the dividing line runs between educated opinion and scientific proposition in the study of society.²⁶ I mentioned in the introduction that I want to avoid, so far as I can, the minefield of the great debates on the philosophy of science. My caution in this respect leads me to refrain from analysing the criterion of scientific activity at this point. I can only express the hope that we, the exponents of the system paradigm, will not be excluded from the world of science if we do not seek to measure the explanatory power of our message in terms of the ability (or a feigned self-confidence in ability) to predict.

²⁶ Rorty explored this question in an essay written on Kuhn's death (Rorty, 1997). He credits Kuhn with having helped to demystify this dividing line. To remain within my own profession of economics, the same effort can be seen in the works of McCloskey, including his (1985) book, which caused a great storm. While I myself make great efforts time and again to support my assertions with the methods of argumentation and proof accepted in the discipline of economics, beside applying other supportive instruments, I share the view of Rorty and McCloskey. Such efforts should be viewed with a requisite

The more far-reaching and complex in its causes the phenomenon that is to be predicted, the more caution is required. The predictions made cannot be more than conditional. Intellectual honesty requires that we qualify even these cautious predictions by acknowledging that they are based on a fair degree of ignorance.

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measure of irony, and also irony at one's own expense. I think that is suggested in the tone of this paper.

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