

The Collected Works of F.A. Hayek

Bruce Caldwell, Editor

Volume 15 – The Market and Other Orders

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[This is the third draft of my editor's introduction for volume 15 of *The Collected Works of F.A. Hayek*. Each of the essays in the collection could warrant its own explanatory and evaluative paper, noting the context in which it was written and analyzing its themes and importance. Evidently that is neither possible nor desirable in an editor's introduction. Instead I offer brief vignettes for each selection, sometimes emphasizing the context in which it was written, at other times how its content advanced Hayek's argument. As an aside, this collection of papers gets at the side of Hayek's work that I explored in my 2004 book *Hayek's Challenge*, which originally carried the subtitle *F.A. Hayek and the Limits of the Social Sciences*. Numbers in parentheses in the references refer to the page where the quote appears in the original citation.]

The Market and Other Orders

Editor's Introduction

Bruce Caldwell

This fifteenth volume in *The Collected Works of F.A. Hayek* assembles papers published over a goodly portion of Friedrich A. Hayek's lengthy career, the first appearing in 1937, and the last in 1975. The papers were written for a wide variety of purposes and reasons. Some commemorated special occasions: a presidential address before the London Economics Club, inaugural speeches at the Universities of Salzburg and Freiburg, contributions to volumes honouring his friends Karl Popper and Jacques Rueff, and his Nobel Prize address. Others were simply independent contributions to knowledge.

What strikes one most forcefully about the collection is the large number of topics covered. There are his justly famous articles on the so-called 'knowledge problem.' But there are also papers on economics, on the philosophy of science and of social science, on the physiology of the brain, on the methods of economists, on the origins of various social institutions, on theories of law, on intellectual history, on the responsibilities of teachers, and more. Equally striking is how Hayek glides easily from one of these areas into another within the same article. He evidently saw linkages among all of these fields. I hope in this introduction to show, in what may at first appear to be a mishmash, the gradual emergence of and, dare it be said, the underlying order to be found in Hayek's ideas.

The papers are presented in the chronological order of their publication, with one exception, the paper chosen as the prologue. That paper, "Kinds of Rationalism", was a lecture that Hayek delivered at Rikkyo University, Japan, on April 27, 1964. It is a wholly representative contribution. Though Hayek's focus is a critique of what he dubs "rationalist constructivism", he manages to reference all manner of other ideas: the misuse of words like 'planning' and 'social' (especially when the latter is conjoined with the word 'justice'), John Maynard Keynes' rejection in his writings on 'his early beliefs' of moral rules, the relation of rules to orders, a call for collaboration among specialists in law, economics, and social philosophy, and so on. And befitting a prologue, it contains what is perhaps Hayek's first statement that all of these seemingly unrelated topics are in fact very much of a piece. He also suggests that his first glimmer of the underlying unity dated back to the paper with which we begin the volume, his 1936 presidential address before the London Economics Club, "Economics and Knowledge":

This brings me to what in my personal development was the starting point of all these reflections, and which may explain why, though at one time a very pure and narrow economic theorist, I was led from technical economics into all kinds of questions usually regarded as philosophical. When I look back, it seems to have all begun, nearly thirty years ago, with an essay on "Economics and Knowledge" in which I examined what seemed to me some of the central difficulties of pure economic theory. Its main conclusion was that the task of economic theory was to explain how an overall order of economic activity was achieved which utilized a large amount of knowledge which was not concentrated in any one mind but existed only as the separate knowledge of thousands or millions of different individuals. But it was still a long way from this to an adequate insight into the relations between the abstract rules which the individual follows in his actions, and the abstract overall order which is formed as a result of his responding, within the limits imposed upon him by those abstract rules, to the concrete particular circumstances which he encounters. It was only through a re-examination of the age-old concept of freedom under the law, the basic conception of traditional liberalism, and of the problems of the philosophy of law which this raises, that I have reached what now seems to me a tolerably clear picture of the nature of the spontaneous order of which liberal economists have so long been talking.¹

The title of this volume is *The Market and Other Orders*. Though there will be many sub-themes in the papers, as one would expect given that they were written at

¹ F.A. Hayek, "Kinds of Rationalism", this volume, p. _____. (92)

different times, and for different audiences and purposes, a principal theme, as Hayek states above, was his discovery of orders in many sorts of unrelated phenomena in both the natural world and in the social relations and institutions that compose a part of that world, orders that emerge due to rule-following on the part of the relevant constituent elements. That insight is what lends coherence to a volume that covers so many apparently disparate topics. The social theory that is the ultimate result is impressive both for its breadth and its originality, but it is also evident that its construction was a laborious task, one in which the repetition of themes is not absent.

We begin by tracing the development of these ideas in Hayek's work in economics in the 1930's and 1940's. Next comes his incorporation of certain of the ideas in his contributions to political theory and other areas. It is often said that Hayek abandoned economics when he turned to political theory, but we will show that that is not true: he continued to try to articulate these ideas as they applied to economics in his *A Grammar of the Economic Calculus*, a work that was never published in his lifetime.² Finally, we will show the full blossoming of Hayek's treatment of complex adaptive systems, or spontaneous orders, and his recommendations for how to study them, in the pieces that comprise the concluding section.

Part I – The Early Ideas

Hayek arrived as a visiting professor at the London School of Economics (LSE) in the fall of 1931, and was appointed the next year as the Tooke Chair of Economic Science and Statistics. In his first few years at LSE he engaged in a number of debates:

² The closest Hayek came to writing up the ideas that would have been incorporated in the book were his four lectures at the University of Virginia in January 1961, collectively titled "A New Look at Economic Theory." The lectures are published for the first time in the appendix.

with John Maynard Keynes over their respective theories of money and of the business cycle; with the American economist Frank Knight and others over their respective theories of capital; and with socialists of various stripes over the prospects for a socialized economy.³ During this period there was also an active discussion over importance of expectations, which saw the participation of Hayek, Oskar Morgenstern, and assorted Swedish and other economists over the meaning to be attributed to the term 'perfect foresight.' In 1936 Hayek became the President of the London Economic Club, and was invited to prepare an address to be delivered on November 10 of that year. Hayek titled the address "Economics and Knowledge", and in it wove together a number of different themes that had been occupying him in recent years. The paper was published three months later in the journal *Economica*.⁴

In later reminiscences Hayek told of "a certain excitement" that accompanied his writing of the paper:

It was really the beginning of my looking at things in a new light. If you asked me, I would say that up until that moment I was developing conventional ideas. With the '37 lecture to the Economics Club in London, my Presidential Address, which is "Economics and Knowledge," I started my own way of thinking...

And it was with a feeling of sudden illumination, sudden enlightenment that I – I wrote that lecture in a certain excitement. I was aware that I was putting

³ For the details see volumes 6 through 12 of F.A. Hayek, *The Collected Works of F.A. Hayek* (Chicago: University of Chicago Press, and London: Routledge), and the associated editor's introductions.

⁴ F.A. Hayek, "Economics and Knowledge", *Economica*, n.s., vol. 4, February 1937, pp. 33-54, reprinted in F.A. Hayek, *Individualism and Economic Order* (Chicago: University of Chicago Press, 1948), pp. 33-56. The *Economica* version contained footnotes that were deleted in the 1948 reprinting. The 1948 version also contained some slight wording changes. The 1948 wording was used for the present text, but the removed footnotes have been restored in the text below, in brackets.

down things which were fairly well known in a new form, and perhaps it was the most exciting moment in my career when I saw it in print.⁵

“Economics and Knowledge” concerns, as its title suggests, the role of assumptions about knowledge in economic analysis. In the standard analysis of his day, which Hayek termed static equilibrium theory, it was typically assumed that all agents have access to the same, objectively correct knowledge. During the early 1930’s a number of economists began to question this assumption, particularly because it seemed inadequate to handle the question of expectations: did access to full information extend also into the future? As Oskar Morgenstern pointed out, the assumption produces some bizarre results.⁶ For example, if one assumes perfect foresight, one assumes not only that an agent knows what all other agents will do, but also that all of them know what the original agent will do, now and in the future. The question arises: How can such a world ever get *out* of equilibrium?

To address the problem, Hayek begins by distinguishing equilibrium for an individual and equilibrium for a society, and between the subjective perceptions of an agent versus an outside observer’s ‘objective’ knowledge of a situation. Equilibrium for an individual agent is not a problem: at any given moment in time, an agent is in equilibrium with respect to his own subjective perceptions, even if these do not match up with objective reality. (Note that an agent’s perceptions may change from moment to

⁵ F.A. Hayek, F.A. Hayek, “Nobel Prize-Winning Economist”, ed. Armen Alchian. Transcript of an interview conducted in 1978 under the auspices of the Oral History Program, University Library, UCLA, 1983. Oral History transcript no. 300/224, Department of Special Collections, Charles E. Young Research Library, UCLA, pp. 425-426.

⁶ Oskar Morgenstern, “Vollkommene Voraussicht und wirtschaftliches Gleichgewicht”, *Zeitschrift für Nationalökonomie*, vol. 4, 1934, pp. 337ff. A translation of this paper is now available as “Perfect Foresight and Economic Equilibrium”, in *Selected Economic Writings of Oskar Morgenstern* ed. Andrew Schotter (New York: NYU Press, 1976, pp. 169-183.

moment, as learning takes place, but *at any given moment in time*, the agent is in equilibrium with respect to the knowledge available at the moment of decision.) For a *society* to be in equilibrium, however, much more is required: namely, the plans of many individual agents must be co-ordinated. For that to occur, subjective perceptions must be made consonant with objective reality. If societal equilibrium is our concern, then, “the question why the data in the subjective sense should ever come to correspond to the objective data is one of the main problems we have to answer.”⁷

Hayek defines societal equilibrium in terms of a compatibility of plans, a situation in which foresight is “in a special sense” correct. This occurs automatically in a world in which all agents have access to complete, correct information. Hayek posits instead a world in which knowledge is divided or dispersed – that is, different agents have access to different bits of knowledge – and in which knowledge claims are subjectively-held – that is, they can be wrong. It is a world in which adjustment to new information is constantly occurring.

One might still be able to tell an equilibrium story if one only assumes that agents have subjectively-held knowledge. There, a movement to equilibrium would entail subjective data becoming objective data. Through a process of error elimination, one would reach a final equilibrium state in which there exists a mutual compatibility of expectations.

If one adds in the dispersion of knowledge in a world of constant change, however, the whole notion of a movement toward equilibrium becomes a forced metaphor. In such a world, the dispersion of knowledge is not some temporary condition that gets eliminated once and for all by a movement to equilibrium. It is a permanent

⁷ F.A. Hayek, “Economics and Knowledge”, this volume, p. _____. (39)

condition. If everyone always has access to different bits of knowledge, in a world of constantly changing data, the real question is how the fragments of data that exist in many different minds can ever get co-ordinated. In this situation the “central question” becomes “How can the combination of fragments of knowledge existing in different minds bring about results which, if they were to be brought about deliberately, would require a knowledge on the part of the directing mind which no single person can possess?”⁸

Hayek does not answer the question in his seminal paper. How social co-ordination is possible in a world of dispersed knowledge, of error, and of constant change, would indeed become the central question in Hayek’s work to follow.⁹

As the war approached, Hayek began another project, grand in scale, a two volume tome that was to carry the title *The Abuse and Decline of Reason*. In it Hayek would show how the twin doctrines of socialism and scientism – the latter being the application of the methods of the natural sciences in domains in which they were not appropriate, viz., the social sciences – had grown up together, and had become ever more intertwined as they spread from France to Germany, England and the United States. In the fall of 1940 he began work on a theoretical description of scientism that was to have been the first chapter of the book. The chapter ultimately grew into the much more

⁸ Ibid., p. _____. (54)

⁹ There is a burgeoning secondary literature on the paper and its importance for the development of Hayek’s thought; for those who want to investigate further see Bruce Caldwell, *Hayek’s Challenge: An Intellectual History of F.A. Hayek* (Chicago: University of Chicago Press, 2004), chapter 10, and the citations therein.

extended essay, “Scientism and the Study of Society”, a paper that was published in three instalments in *Economica* from 1942-1944.¹⁰ Somewhere between the first and second instalment Hayek wrote “The Facts of the Social Sciences”, which is the second article in this collection. The first two sections of “Facts” is indeed a précis of the positions taken in the larger piece.

Hayek presented “Facts” on November 19, 1942 before the Cambridge University Moral Sciences Club, a philosophical discussion group that was dominated by two eminent philosophers, Hayek’s cousin Ludwig Wittgenstein and G.E. Moore.¹¹ It appears to have been his first major interaction with the Cambridge faculty. Given his audience, it is of no little interest that Hayek begins his paper by noting that he had started out his career as a social scientist “thoroughly imbued with a belief in the universal validity of the methods of the natural sciences.”¹² He apparently wanted to make sure that the philosophers understood that he appreciated the power of natural scientific methods in their proper domain. It was only when such methods were applied within the social sciences that, in Hayek’s opinion, one was led into error.

Hayek’s key argument is that the facts of the social sciences differ from those of the natural sciences, and therefore require a different method for understanding them. The objects of human activity – his examples include things like “tools, food, medicine,

¹⁰ F.A. Hayek, “Scientism and the Study of Society”, *Economica*, n.s., vol. 9, August 1942, pp. 267-291; vol. 10, February 1943, pp. 34-63; vol. 11, February 1944, pp. 27-39; reprinted in *The Counter-Revolution of Science: Studies on the Abuse of Reason* (Glencoe, IL: The Free Press, 1952; reprinted, Indianapolis, IN: Liberty Fund, 1979); now see F.A. Hayek, *Studies on the Abuse and Decline of Reason*, ed. Bruce Caldwell, vol. 13 (2010) of *The Collected Works of F.A. Hayek*, chapters 1 – 10. The Abuse of Reason project was never completed; for more on its history, see the Editor’s Introduction to *Studies on the Abuse and Decline of Reason*.

¹¹ When the Battle of Britain began in fall 1940, LSE was evacuated to Peterhouse, Cambridge, where it remained for the duration. Hayek in reminiscences talked about the times he encountered his cousin, but he did not mention Wittgenstein having attended his talk before the Club. [Check with the Cambridge University archivist about this.]

¹² F.A. Hayek, “The Facts of the Social Sciences”, this volume, p. _____. (57)

weapons, words, sentences, communications, and acts of production”¹³ – depend not on objective properties but on people’s interpretations. In a like manner, when we interpret the actions of another human, either in everyday life or in our capacity as social scientists, we do so in terms of the opinions or intentions that we ascribe to the acting person, something that we do employing the analogy of our own mind. This is especially evident when we try to make sense of a culture that is very different from ours. In such exercises, we use abstract rather than concrete concepts to understand the actions that we observe:

When we say that a person possesses food or money, or that he utters a word, we imply that he knows that the first can be eaten, that the second can be used to buy something with, and that the third can be understood.....

My knowledge of the everyday things around me, of the particular ways in which we express ideas or emotions, will be of little use in interpreting the behaviour of the inhabitants of Tierra del Fuego. But my understanding of what I mean by a means to an end, by food or a weapon, a word or a sign, and probably even an exchange or a gift, will still be useful and even essential in my attempt to understand what they do.¹⁴

In short, classification utilizing abstract categories, and interpretation utilizing those categories or models, play key roles in our understanding of human action. These ideas

¹³ Ibid., p. _____. (59)

¹⁴ Ibid., pp. ____; _____. (pp. 63; 66-67)

would recur in Hayek's 1952 book on psychology, *The Sensory Order*, as well as in later essays found in this volume.¹⁵

Hayek anticipates that his listeners will object that we should instead derive all of our knowledge from observation and experience. In the last section of "Facts" he tries to refute the claim, laying out his own objections to what he would refer to in the February 1943 instalment of the "Scientism" essay as the collectivism, historicism, and objectivism of the scientific approach.

In "The Facts of the Social Sciences" Hayek comes as close he would ever come to endorsing the position of Ludwig von Mises on methodology. One sees this in his description of relationship between theory and history, in his claim that there can be no testing of the theories of the social sciences, and perhaps especially in the fact that he approvingly uses the term "a priori" – though it should be added immediately that when he uses the phrase, he is talking about the mental classification system of the mind, so is using it in a way quite different from that of Mises. It should further be noted that when Hayek claims that we might use the classification system of our mind to reach "an (at least in principle) *exhaustive* classification of all the possible forms of intelligible behaviour",¹⁶ he seems to be ruling out any form of emergent phenomena in the evolution of our ability to understand the actions of others. Finally, throughout the essay Hayek always puts the contrast he is drawing in terms of the differences between the methods of

¹⁵ F. A. Hayek, *The Sensory Order: An Inquiry into the Foundations of Theoretical Psychology* (Chicago: University of Chicago Press, 1952). Hayek's 'interpretive turn' here and in other work has led to various interpretations of his ideas in the secondary literature, some seeing it as evidence of his support for hermeneutics, others as a flirtation with post-modernism. See, e.g., G. B. Madison, "Hayek and the Interpretive Turn", *Critical Review*, vol. 3, Spring 1989, pp. 169-85; Theodore Burczak, "The Postmodern Moments of F. A. Hayek's Economics", *Economics and Philosophy*, vol. 10, April 1994, pp. 31-58; for criticism of these views, see Caldwell, *Hayek's Challenge*, Appendix D.

¹⁶ *Ibid.*, p. _____. (68)

the natural and the social sciences. He would later talk about these differences in terms of methods that are appropriate for the study of simple versus complex phenomena.

As the war drew to a close, Hayek returned to the problem that he had introduced in “Economics and Knowledge”, one he now described as the “problem of the utilization of knowledge which is not given to anyone in its totality.”¹⁷ In “The Use of Knowledge in Society”, Hayek shows how freely-adjusting market-formed prices can help to solve the problem of coordinating human activity in a world of dispersed, subjectively-held knowledge.

Hayek sets up the problem as follows. If one wants to design an efficiently-operating economic system in a world of dispersed knowledge, is it better to use a centralized or a decentralized approach? The answer depends on which one is better at utilizing knowledge, and that in its turn depends on which sort of knowledge is most important in an economic system. Many people when they hear the word ‘knowledge’ immediately think of scientific knowledge or some other form of specialized expertise. But in an economic system, a much more important kind of knowledge is the kind that everyday participants in the market system possess, what Hayek calls “the knowledge of the particular circumstances of time and place.”¹⁸ This knowledge is hugely important in a world of constant change, because knowledge of changes in local conditions is essential if one is to make the right decisions in a market environment.

¹⁷ F.A. Hayek, “The Use of Knowledge in Society,” this volume, p. _____. (78)

¹⁸ Ibid., p. _____. (80)

But there is a problem. The person who has localized knowledge has a very restricted view. He has little idea of what is going on in the system as a whole. This brings the real problem to the forefront: How can a single person utilize not only his own knowledge, but also the localized knowledge that exists in all the brains of all the other agents in the system? It would be (to say the least) difficult for a central authority to collect all of this kind of knowledge, especially if it is constantly changing. Can we figure out a way to utilize it?

It is here that the price system comes in. The ‘man in the street’ might possess only local, as opposed to global, knowledge. But in a free market system, what is going on in the system as a whole is reflected in the prices that he confronts every day in the market. Hayek illustrates his claim with his famous ‘tin example’, in which he shows that millions of market participants react ‘in the right direction’ when there is a change in the price of a good or resource, even though they may not know anything about what caused the change.¹⁹ Though he does not use the phrase, what Hayek is describing in the tin example is, quite evidently, a spontaneous order.

“The Use of Knowledge in Society” is Hayek’s most famous paper, one frequently referenced as a seminal early contribution by economic theorists working in the economics of information.²⁰ The clarity of Hayek’s presentation makes it equally accessible to students. In the annals of the history of economic thought, Hayek’s tin example of how markets utilize dispersed information should rightly be placed alongside

¹⁹ The tin example was first used by Hayek in “The Economics of Planning,” a paper published in an Oxford student publication in 1941. See F.A. Hayek, “The Economics of Planning,” in *Socialism and War*, ed. Bruce Caldwell, vol. 10 (1997) of *The Collected Works of F.A. Hayek*, pp. 141-47.

²⁰ See, e.g., Sanford Grossman, *The Informational Role of Prices* (Boston: MIT Press, 1989), pp. 1, 32, 108, 134; Leonid Hurwicz, “Economic Planning and the Knowledge Problem: A Comment,” *Cato Journal*, vol. 4, Fall 1984, p. 419.

Adam's Smith's pin factory illustration of how the division of labour allows for huge increases in output.

We may note in conclusion that Hayek also makes some methodological points. At beginning of paper, and much in keeping with ideas he expressed in "The Facts of the Social Sciences", he says that the very character of the fundamental problem had "been obscured rather than illuminated by many of the recent refinements in economic theory", refinements that he links to "an erroneous transfer to social phenomena of the habits of thought we have developed in dealing with the phenomena of nature."²¹ Later in the paper he also notes how the use of equilibrium analysis, which abstracts from change, "has made us somewhat blind to the true function of the price mechanism and led us to apply rather misleading standards in judging its efficiency."²² Hayek would continue this last theme in his next paper, "The Meaning of Competition."

In July 1941 Hayek wrote to his old university friend, Fritz Machlup, who was then living in Washington D.C., working at the Department of Commerce. Hayek had read an article in German by Machlup that concerned competition, and Hayek responded to it as follows:

...I was particularly pleased to see that your developments fit in so well with my methodological views and that in many ways they border on views on competition

²¹ Hayek, "Use of Knowledge in Society", this volume, p. _____. (78)

²² Ibid., p. _____. (87)

which I hoped myself some time to develop. You more or less imply what I always stress, that competition is a process and not a state, and that if it were ever 'perfect' in the strict sense it would at the same time disappear.²³

In "The Meaning of Competition", Hayek develops his ideas about competition, and it is no accident that in his first footnote he cites a paper by Machlup, one that Hayek says attempts to bring the discussion of the meaning of competition "back to earth."²⁴

In the aftermath of the war, the question of the regulation of industry was a key policy issue. Economists typically assert that competition leads to efficient market outcomes, for it forces firms to produce the goods that consumers desire at minimal costs. Firms that either produce the wrong goods relative to consumers' wants, or do so at costs higher than those of their competitors, do not survive in the market. The theoretical model that economists use to capture this commonsensical notion is the theory of perfect competition. That model (or, more precisely, its misuse in discussions about appropriate policy toward business) was Hayek's target in the article:

It appears to be generally held that the so-called theory of 'perfect competition' provides the appropriate model for judging the effectiveness of competition in real life and that, to the extent that real competition differs from that model, it is undesirable and even harmful.

For this attitude there seems to me to exist very little justification.²⁵

²³ Letter, F.A. Hayek to Fritz Machlup, July 31, 1941, Machlup Collection, box 43, folder 15, Hoover Institution Archives, Stanford University, Calif. A similar position was taken by Schumpeter: see Joseph Schumpeter, *Capitalism, Socialism, and Democracy* (New York: Harper and Brothers, 1942; 3rd ed., New York: Harper and Row, 1950), chapter 7.

²⁴ F.A. Hayek, "The Meaning of Competition", this volume, p. _____. (92)

For Hayek, “competition is a dynamic process whose essential characteristics are assumed away by the assumptions underlying static analysis.”²⁶ Proposals to ‘remedy’ the imperfect competition that one finds in the real world – e.g., by imposing ‘orderly competition’, by the compulsory standardization of products, or, in the most extreme case, by nationalizing industries deemed insufficiently competitive – reveal the dangers of taking the theoretical models too seriously.

Hayek notes that, paradoxically, our everyday notion of what competition entails is wholly absent from the economic theory of perfect competition. There is no rivalry or striving, no attempts to undercut a competitor or differentiate a product; as Hayek puts it, “‘perfect’ competition means indeed the absence of all competitive activities.”²⁷ The larger methodological point is evident: static equilibrium theory, with its focus on long run outcomes when all adjustments have been made, obscures the fact that the forces of competition actually operate during periods of disequilibrium. Competition is the more important, the less perfect is the market. Attempts to replicate the artificial world of perfect competition are a recipe for policy disaster, for they can lead, in the pursuit of perfection, to the suppression of competition as it actually exists in the real world.

Hayek reprinted the four chapters just reviewed in his 1948 collection, *Individualism and Economic Order*, together with other essays, including three that constitute his contribution to the socialist calculation debate.²⁸ Even at this early stage,

²⁵ Hayek, “Meaning of Competition”, p. _____. (92).

²⁶ Ibid., p. _____. (94)

²⁷ Ibid., p. _____. (96)

²⁸ Hayek, *Individualism and Economic Order*. Hayek’s essays on socialism are collected in F. A. Hayek, *Socialism and War: Essays, Documents, Reviews*, ed. Bruce Caldwell, vol. 10 (1997) of *The Collected Works of F. A. Hayek*.

Hayek was integrating arguments about the correct methods of the social sciences with specific claims about the limits of certain theoretical concepts in economics and their potential for misleading us in terms of policy. The breadth of his vision would increase in coming years.

Part II – From Chicago to Freiburg: Further Development

Having achieved his ‘fifteen minutes of fame’ with the publication of *The Road to Serfdom* in 1944,²⁹ from the summer of 1945 through much of the rest of the decade, Hayek worked on a book on theoretical psychology that finally was published in 1952 as *The Sensory Order*. In 1950 Hayek left LSE for a position on the Committee on Social Thought at the University of Chicago, where he would remain for twelve years. This turned out to be a critical decade for the development of his thought.

Beginning in October 1950, each fall Hayek would organize a two-quarter long seminar on a topic of his own choosing. The first two, titled “Equality and Justice” and “The Liberal Tradition”, covered themes in political theory, philosophy and history. These and subsequent seminars provided Hayek with the requisite background for his next great book. In November 1953 he told Fritz Machlup that the book would be titled *Greater than Man: The Creative Powers of a Free Civilization*.³⁰ The next year, while on a seven-month trip with his wife to Italy and Greece, replicating to the day a trip that had

²⁹ F.A. Hayek, *The Road to Serfdom: Texts and Documents*, ed. Bruce Caldwell, vol. 2 (2007) of *The Collected Works of F.A. Hayek*. It is probably more accurate to say that the *Reader's Digest* condensation of the book in 1945 is what led to his international fame; for more on this, see the Editor's Introduction to *The Road to Serfdom*. His other activities in this period included organizing the first meeting of the Mont Pèlerin Society and completing a book on the John Stuart Mill – Harriet Taylor correspondence.

³⁰ Letter, F.A. Hayek to Fritz Machlup, November 19, 1953, Machlup Collection, box 43, folder 16, Hoover Institution Archives. The name of the book would change to *The Constitution of Liberty*, but Hayek managed to incorporate the subtitle, using it as the title of chapter two of the book.

been taken one hundred years before by John Stuart Mill,³¹ Hayek took a side trip to Egypt to deliver four lectures at the National Bank of Cairo. He published them in 1955 as “The Political Ideal of the Rule of Law.” In later reminiscences Hayek recounted how the Cairo lectures helped him to organize his ideas for what would finally become *The Constitution of Liberty*:

...shortly after the conclusion of our journey, I had before me a clear plan for a book on liberty arranged round the Cairo lectures. In the three succeeding years, I wrote drafts of each of the three parts of *The Constitution of Liberty*, revising the whole during the winter of 1958-59, so that I was able to take the finished manuscript to my American publishers on my sixtieth birthday, May 8, 1959.³²

In the Cairo lectures Hayek first traces the history of British liberalism and the development of the concept of the rule of law from its origins in the seventeenth century through its establishment in the eighteenth. He next briefly mentions the American contribution of a Bill of Rights incorporated into a written constitution, and then provides an extended discussion of the German notion of the *Rechtsstaat*, the attempt to place the administrative apparatus of the national state under the rule of law. Hayek goes on to identify the key attributes of the rule of law (e.g., the rule of law as a meta-principle; the

³¹ Hayek's diary of the trip may be found in the Hayek Collection, box 125, folder 2, Hoover Institution Archives, Stanford University, Calif.

³² F. A. Hayek, *Hayek on Hayek: An Autobiographical Dialogue*, Stephen Kresge and Leif Wenar, eds. (Chicago: University of Chicago Press, and London: Routledge, 1994), p. 130. F. A. Hayek, *The Constitution of Liberty* (Chicago and London, 1960); now see *The Constitution of Liberty*, ed. Ronald Hamowy, vol. 16 (2011) of *The Collected Works of F.A. Hayek*. In a “Memorandum on Plans for Work” dated November 1955, Hayek originally thought that there would be two books, the other titled *Greater than Man: The Creative Powers of a Free Civilization*. But he ultimately integrated the themes he would have treated there into *The Constitution of Liberty*. For the “Memorandum”, see the Hayek Collection, box 93, folder 11, Hoover Institution Archives.

importance of its generality, certainty, and equality of enforcement), and concludes with a description of its decline in the late nineteenth and early twentieth centuries. The core middle chapters of *The Constitution of Liberty* (chapters 11 through 16) would draw directly on the ideas first expressed in “The Political Ideal of the Rule of Law.”

As Ronald Hamowy notes in his editorial introduction to the *Collected Works* edition of *The Constitution of Liberty*, the Cairo lectures are in some ways superior to Hayek’s analyses in *Constitution*. For example, in *Constitution* Hayek holds that abstract general rules that are known to all and applied equally cannot be coercive, whereas in the Cairo Lectures he states forthrightly that “The Rule of Law gives us only a necessary and not a sufficient condition of individual freedom” and that the rule of law was itself compatible with “a great deal of silly and harmful legislation.”³³

Our main concern, though, is with statements that Hayek makes in his lectures about the relationship between rules (which in this case are laws) and the orders that rule-following behaviour creates. At the beginning of the third lecture, Hayek notes the human tendency to see a design behind every orderly pattern, a tendency that can mislead:

It is a deeply ingrained tendency of the human mind that whenever it discovers an orderly pattern, it believes that this must have been designed by a mind like itself and assumes that there can be no order without such conscious design. But if a multitude of individual elements obey certain general laws, this may of course produce a definite order of the whole mass without the interference of an outside force. This applies to the laws obeyed by men no less than to the laws of nature; and however much the two meanings of the term law may have moved apart, if

³³ See Ronald Hamowy, “Introductory Essay”, in F. A. Hayek, *The Constitution of Liberty*, p. 12.

we look for a moment at the most general aspects of that relationship, the general nature of our problem would be placed in a clearer light.³⁴

He goes on to note that, in nature, orders may form even when we cannot make precise predictions about the behaviour or movements of the individual elements that compose the order. Because of the dispersion of knowledge, "...this is precisely the problem" that we face "in treating an order in society."³⁵

"The Political Ideal of the Rule of Law" is, then, one of the first places that Hayek applied to politics the notions of individual elements that, by following rules, give rise to orders. It is also the first place that the phrase (though not the concept of!) "spontaneous order" appears in Hayek's work.³⁶ The ideas noted above are incorporated into *The Constitution of Liberty* in chapter ten, which is titled, appropriately enough, "Laws, Commands, and Order."

In the same year as the Cairo Lectures Hayek published "Degrees of Explanation" in the *British Journal for the Philosophy of Science*. His subject, as in the "Scientism" essay, is scientific method. But instead of enumerating the differences between the natural and the social sciences as he had done in the earlier work, Hayek notes characteristics that all sciences share in common. For example, all theoretical sciences construct hypothetico-deductive systems. Such systems cannot be verified, but because

³⁴ F.A. Hayek, "The Political Ideal of the Rule of Law", this volume, p. _____. (30)

³⁵ Ibid., p. _____. (xxx)

³⁶ Ibid., p. _____. (xxx)

they forbid certain events, they can be falsified. Explanation and prediction are two aspects of the same scientific procedure. And so on.

Only then does he get to where the sciences differ, which is in the *degree* of explanation that each is able to achieve (hence the title of the paper) by using these methods. In particular, sciences that study complex phenomena are only able to provide a range of predicted values rather than make specific predictions of particular events. Or they are only able to offer an explanation of the principle by which a process works, and thereby to predict only certain types of outcomes. Because they forbid certain types of outcomes, such theories are still weakly testable, so they are still scientific. But precise prediction, often seen as the hallmark of science, is impossible.

In the “Scientism” essay Hayek had drawn a dividing line between the natural and the social sciences. In “Degrees of Explanation” the dividing line is between those sciences that study relatively simple and those that study relatively complex phenomena. Why the switch?

The principle reason was that the distinction as Hayek had originally drawn it was inconsistent with the prevailing philosophy of science of his day, which insisted that there was a unity of scientific method. Hayek’s friend Karl Popper had advocated the unity of science thesis in “The Poverty of Historicism”, thereby implicitly criticizing Hayek’s bifurcation of the methods of the natural and social sciences.³⁷ When *The Counter-Revolution of Science* was published in 1952, in a review the philosopher Ernest Nagel explicitly attacked this part of Hayek’s argument.³⁸ Hayek doubtless also received

³⁷ Karl Popper, “The Poverty of Historicism, III”, *Economica*, n.s., vol. 12, May 1945, pp. 78-82; reprinted, *The Poverty of Historicism*, 2nd ed. (London: Routledge, 1960), pp. 130-31.

³⁸ Ernest Nagel, “Review of F.A. Hayek, *The Counter-Revolution of Science*”, *Journal of Philosophy*, vol. 49, August 1952, pp. 560-65.

criticism during his 1952 seminar at Chicago, which was on the methods of the sciences.³⁹ Hayek wanted to retain the idea that in sciences like economics it was often the case that only pattern predictions or explanations of the principle were possible, but the natural science – social science distinction was not the right way to draw the line.

The mathematician Warren Weaver showed Hayek the way out. Weaver was a referee for Hayek's paper at the *British Journal*, and sent him a lengthy referee report criticizing Hayek's presentation. He included with the report a copy of his 1948 paper, "Science and Complexity."⁴⁰ Weaver had argued that, up until about 1900, the physical sciences had dealt principally with simple phenomena, isolating and representing mathematically only a few variables. They then moved to the study of phenomena of 'disorganized complexity' in which millions of variables interact randomly and to which probability theory and statistical methods could fruitfully be applied. The next stage, one we had just entered, would take up phenomena of 'organized complexity.' In such phenomena, millions of variables are again encountered, but the variables are inter-related rather than independent, so that the usual statistical methods did not apply. According to Weaver, such phenomena exist in a variety of fields, and new methods would be needed for their investigation. Weaver's distinction provided Hayek with a way to emphasize the limits faced by the social sciences without making them seem any less scientific. From this time forward, Hayek virtually always referenced Weaver when he discussed the study of complex phenomena. And he would almost always use the simple

³⁹ For more on the seminar, see Caldwell, *Hayek's Challenge*, pp. 298-99.

⁴⁰ Warren Weaver, "Science and Complexity", *American Scientist*, vol. 36, October 1948, pp. 536-44. Note that the first citation in Hayek's article is to Weaver's paper. Weaver's referee report may be found in the Hayek Collection, box 137, folder 10, Hoover Institution Archives.

versus complex distinction when describing methodological differences among the sciences.

Karl Popper is mentioned frequently in the article, and it would therefore be easy to take Hayek at his word when he says in an early footnote that “in many respects what follows is little more than an elaboration of some of Popper’s ideas.”⁴¹ And indeed Popper had helped him by suggesting that what Hayek had (in Popper’s view) rightfully criticized in “Scientism” were not truly the methods of the natural sciences, but rather the inaccurate reconstructions of some of its practitioners.⁴²

But it should also be noted that as soon as one accepts that there are “degrees of explanation”, one must also accept that falsifiability becomes a much weaker criterion for demarcating science from non-science. The implications are consequential:

Because such theories are difficult to disprove, the elimination of inferior rival theories will be a slow affair, bound up closely with the argumentative skill and persuasiveness of those who employ them. There can be no crucial experiments which decide between them. There will be opportunities for grave abuses: possibilities for pretentious, over-elaborate theories which no simple test but only the good sense of those equally competent in the field can refute.⁴³

⁴¹ Ibid., p. _____. (4)

⁴² See, e.g., F. A. Hayek, “Preface to the Italian Edition of *The Counter-Revolution of Science*”, ms., Hayek Collection, box 129, folder 12, Hoover Institution Archives, where he states that “Sir Karl Popper has by his critique of ‘inductivism’ convinced me that the natural sciences did in fact not follow the method which most of its practitioners believed that they did employ.” For a similar acknowledgement, cf. his “Preface” to *Studies in Philosophy, Politics and Economics* (Chicago: University of Chicago Press, 1967), p. viii.

⁴³ Hayek, “Degrees of Explanation”, p. _____. (19)

Furthermore, this state of affairs will not change with the progress of science; to think otherwise “would be a complete misunderstanding of the argument of this essay.”⁴⁴

A final point: evolutionary theory appears prominently in this paper as an exemplar of a science that studies complex phenomena. Evolutionary theory would come to play an increasingly important role in Hayek’s explanations of how spontaneous orders form.

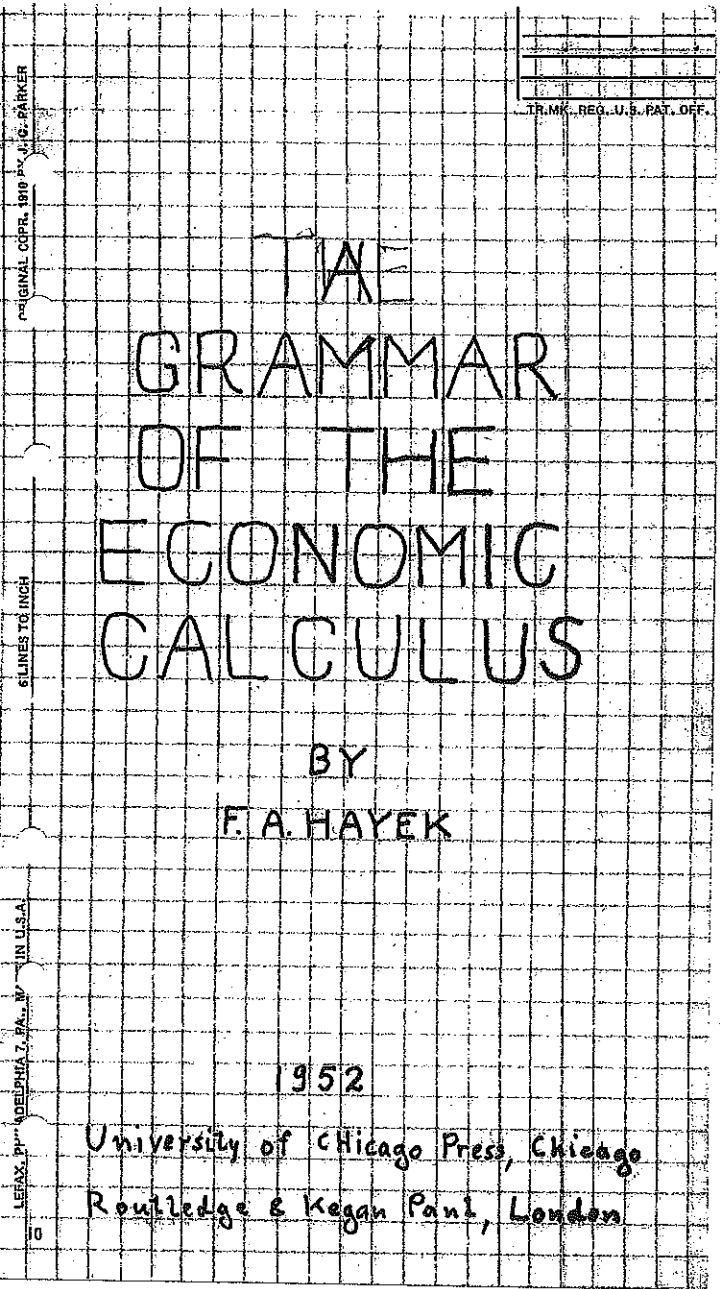
It is a commonplace that Hayek stopped working on economics and turned instead to political philosophy in the 1950’s and 1960’s. Like many commonplaces, it is untrue. Reproduced below is a hand-drawn book cover on *A Grammar of the Economic Calculus*.

[insert book cover here]

The date suggests that as early as 1952 he envisaged writing a book on economics. His notes for “Topics and Problems” to be covered included such things as economics and engineering, measurement, choice, equivalence, opportunity cost, as well as their “Corresponding Fallacies”, among these the notion of objective value, optimum, energetics, and the just price.⁴⁵ In his 1955 “Memorandum on Plans for Work” Hayek included the book as a possible project:

⁴⁴ Ibid.

⁴⁵ Hayek Collection, box 129, folders 5 and 6, Hoover Institution Archives.



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THE GRAMMAR OF THE ECONOMIC CALCULUS

BY
F. A. HAYEK

1952

University of Chicago Press, Chicago
Routledge & Kegan Paul, London

I do hope not completely to abandon my work on technical economics. I had long thought that the next book in that field would be “A Grammar of the Economic Calculus” – a sort of rigorous introduction into the basic logic of economics intended mainly for scientists and people with a scientifically trained mind. But although I have collected a good deal of material for this, it still proves very refractory to shaping in a book....⁴⁶

Four years later he had changed the title of the book to *A New Look at Economic Theory*, and stated that it would be a much simpler book, “merely an outline of the economic calculus followed by an examination of the working of the money economy.”⁴⁷ A year later, however, he had another change in direction, telling his old friend Karl Popper that he hoped to restate his views on the nature of economic theory utilizing “the conception of higher level regularities”, an idea that he felt would be “fruitful far beyond the field of economics.” He went on to say,

I suspect it is really what Bertalanffy with his General Systems Theory was after and the conception itself was of course already implied in my “Degrees of Explanation.” It continues to become clearer, though I have not yet got an altogether satisfactory formulation of what I am after.⁴⁸

⁴⁶ “Memorandum on Plans for Work, November 1955”, Hayek Collection, box 93, folder 11.

⁴⁷ “Memorandum on Plans for Work, November 1959”, Hayek Collection, box 93, folder 11.

⁴⁸ Letter, Hayek to Popper, 27 February 1960, Hayek Collection, box 44, folder 2.

The next year, in January 1961, Hayek delivered four lectures at the University of Virginia on the subject.⁴⁹ This, then, was Hayek's attempt to integrate his new ideas about complex orders into his own earlier work in economics, where in fact his first insights had come.

Hayek's starting point is the claim that many economic phenomena are in fact organized but undesigned complex orders. In the second half of the first lecture, and in the second lecture, Hayek next turns to an examination of what he calls "the economic calculus", that is, the tools that economists use to describe "the patterns (or the regularity or the order) which we find in the economic phenomena."⁵⁰ He provides some diagrams to capture these, some of them familiar because they are used in undergraduate textbooks, others of his own invention to clarify the logic of choice. The economic calculus, then, are those parts of economic theory that are attempts to portray analytically a certain structure, namely "the interrelation of the decisions about resource allocation in conditions where all the relevant facts are known to a single mind."⁵¹ Its usefulness is displayed in the third lecture, in which Hayek discusses choices among technologies that face developing countries. In the last lecture he contrasts the assumptions made when employing the economic calculus with those applicable in "the world of action" in which "not only different people have different knowledge but where their actions lead

⁴⁹ Hayek spent the 1961 spring semester at the University of Virginia as a visiting scholar, in a program sponsored by the Volker Fund. A few weeks before giving his lectures, Hayek attended a conference "Scientific Alternatives to Communism" at the University of Notre Dame. He presented a paper titled "Economic Order and Freedom" in which he explored his developing ideas about complex phenomena in a comparison between a centrally planned and market economy. These ideas show up again in his Virginia lectures, as well as in "The Theory of Complex Phenomena." The Notre Dame paper was also never published; it may be found in the Hayek Collection, box 108, folder 1, Hoover Institution Archives.

⁵⁰ Lecture 2, p. _____.

⁵¹ Lecture 4, p. _____.

constantly to the acquisition of new knowledge,"⁵² and where the communication role of the market comes into play.

The lectures are particularly useful for clarifying exactly what Hayek meant by the claim that many economic phenomena are unplanned, complex adaptive orders. But he never published them. Why not?

It is clear from the text of the lectures that Hayek felt that, though he had been able to restate some earlier insights, he had not really advanced the discussion in the way that he had hoped when he had written to Popper. This was confirmed by James Buchanan, Hayek's host at Virginia, who later reflected on the talks:

These lectures were failures, at least by Professor Hayek's own standards. Those who listened to them were, of course, rewarded by a careful review of the earlier analysis of knowledge in relation to economic interaction. But Hayek was unable to go beyond that which he had developed two decades before; no new insights emerged as he reviewed the earlier thought processes. His announced ambitions were thwarted.⁵³

Instead of publishing the lectures, Hayek incorporated parts of them in later writings. Because they are of considerable historical interest, the text of his four talks is reproduced in the appendix to this volume.

⁵² Ibid.

⁵³ James Buchanan, "I Did Not Call Him 'Fritz': Personal Recollections of Professor F. A. v. Hayek", *Constitutional Political Economy*, vol. 3, 1992, p. 131.

In the winter of 1961-62 Hayek was offered a professorship by the University of Freiburg im Breisgau, an appointment that would also provide a modest lifetime pension. This was important as a practical matter for him, as he was not to receive a pension from Chicago, only a lump-sum payment for his years on the faculty. Hayek accepted the offer and moved to Freiburg, where he would spend the next eight years. He delivered his inaugural lecture, "The Economy, Science, and Politics", on June 18, 1962. The address is at once a pedagogic statement about proper teaching practices and a meditation on the role of the economist in public life. But Hayek also deals with some methodological issues, asking what can be known by economists, a theme that he links to his developing views on complex phenomena.

Within economics Hayek had always been a theorist. The move to Freiburg marked yet another departure from his earlier paths, for his charge there was to lecture on economic policy. Things become complicated when one moves from the realm of pure theory to the evaluation of policy. To evaluate policy, value judgments must be made.

Hayek accordingly begins his address with a statement about the proper role of value judgments in science. He endorses the standard Austrian view, one derived from the writings of the German sociologist and economist Max Weber, that it is essential to keep positive claims separate from normative ones.⁵⁴ When evaluating policy, one starts with positive questions, where the key goal is to clarify the expected consequences of

⁵⁴ Weber had chastised his German historical school colleagues for injecting value judgments into their lectures. For more on this see Caldwell, *Hayek's Challenge*, chapter 4.

one's policy decisions. Hayek here is underlining that fundamental insight of economics, that policies must be evaluated by their actual, rather than their intended, results.⁵⁵

Of course, figuring out what those results are going to be is difficult when one deals with something as complex as an economy. Though we may have abstract theoretical models that represent mathematically the structure of economic phenomena, rarely are we in a position to fill in the variables with data. As he had maintained in "Degrees of Explanation", often the best we can do is to determine the general character of the order, or offer a prediction of its general arrangement. Hayek uses the occasion to take swipes at Paretian general equilibrium theory, what Hayek calls "the mathematical theory of prices", as well as at Keynesian macroeconomics.⁵⁶ Instead of longing for the will-of-the-wisp of precise prediction, which would require that we have more knowledge than we could ever attain, we should content ourselves with our general knowledge, which is, after all, often quite useful. Hayek provides a pedagogic twist to make the point:

Not because he knows so much, but because he knows how much he would have to know in order to interfere successfully, and because he knows that he will never know all the relevant circumstances, it would seem that the economist should refrain from recommending isolated acts of interference even in conditions in which the theory tells him that they may sometimes be beneficial....

⁵⁵ Perhaps this was best said by Henry Simons, who included the following aphorism in the syllabus for his principles of economics course: "Economics is primarily useful, both to the student and to the political leader, as a prophylactic against popular fallacies." See Henry Calvert Simons, *The Simons' Syllabus*, ed. Gordon Tullock (Fairfax, VA: Center for the Study of Public Choice, George Mason University, 1983), p. 3.

⁵⁶ Hayek, "Economy, Science, and Politics", pp. _____. (261-62)

It is no accident that in our subject the term 'principles' is so often used in the titles of general treatises. Especially so far as economic policy is concerned, principles are practically all that we have to contribute.⁵⁷

In 1963 Hayek returned to the University of Chicago to give a series of lectures under the sponsorship of the Charles O. Walgreen Foundation. Two of the lectures were reminiscences of economics in 1920's Vienna and 1930's London, and were published previously in the *Collected Works* series.⁵⁸ Another, titled "Types of Theoretical Thinking", appears to have been an early version of what was eventually reworked, retitled and published as "Two Types of Mind."⁵⁹ Another lecture, "Economists and Philosophers", documents how most of the economists in the British tradition from the Scottish enlightenment through the early twentieth century had also made contributions that one might broadly describe as philosophical. Given this history, Hayek laments the scientific turn away from philosophy that took place in the twentieth century. In doing so, he provides in the second half of the lecture a discussion of the study of complex

⁵⁷ Ibid., p. _____. (264) This statement about the role of principles, when taken together with the ideas that Hayek presents in his Virginia lectures, supports the interpretation that he thought that the sort of basic economic reasoning that students are taught in introductory classes is often the best tool for understanding complex economic phenomena.

⁵⁸ F. A. Hayek, "The Economics of the 1920's as Seen from Vienna", *The Fortunes of Liberalism: Essays on Austrian Economics and the Ideal of Freedom*, ed. Peter Klein, vol. 4 (1992) of *The Collected Works of F. A. Hayek*, pp. 19-38, and "The Economics of the 1930's as Seen from London", *Contra Keynes and Cambridge: Essays, Correspondence*, ed. Bruce Caldwell, vol. 9 (1995) of *The Collected Works of F. A. Hayek*, pp. 49-63.

⁵⁹ F. A. Hayek, "Two Types of Mind" [1975], *The Trend of Economic Thinking: Essays on Political Economists and Economic History*, W. W. Bartley III and Stephen Kresge, eds, vol. 3 (1991) of *The Collected Works of F. A. Hayek*, pp. 49-55.

orders that repeats arguments found in other papers in this volume. “Economists and Philosophers” is reproduced for the first time in the appendix.⁶⁰

The final selection in Part II is “Rules, Perception and Intelligibility”, a paper first published in 1962 in the *Proceedings of the British Academy*. It is a remarkable piece in which Hayek integrates insights from a wide diversity of fields, among them linguistics, ethology, gestalt psychology, physiology, biology, aesthetics, the methodology of the social sciences, and the philosophy of mind.

Hayek’s starting point is that all animals, including humans, follow rules of which they are not aware. Two examples he provides are the ability of small children to learn to speak using rules of grammar that they know nothing of but which are themselves exceedingly complex, and our ability to identify emotional states by the facial expressions of people who are widely different in appearance.⁶¹ Both skills depend on our ability to recognize abstract patterns and follow abstract rules. Drawing on the psychological theory he had developed in *The Sensory Order*, Hayek proposes a physiological basis for these abilities in the workings of the hierarchical structure of the brain. Hayek postulates that there are multiple chains of rules, on both the perceptual side and the motor side, and their totality is what ultimately leads to a disposition to act:

⁶⁰ F. A. Hayek, “Economists and Philosophers”, Hayek Collection, box 138, folder 12, and “Types of Theoretical Thinking”, box 138, folder 15, Hoover Institution Archives.

⁶¹ This example about recognizing faces appears in both “Scientism”, p. 110, and in “Facts of the Social Sciences”, this volume, p. ____.

It is the total of such activated rules (or conditions imposed upon further action) which constitutes what is called the 'set' (disposition) of the organism at any particular moment, and the significance of newly received signals consists in the manner in which they modify this complex of rules.⁶²

Hayek ends his piece by asking whether we will ever be in a position to specify all the rules that guide our perception and action. He thinks that the answer is no, postulating that conscious thought is itself governed by rules of which we are necessarily unconscious. As Hayek points out in a footnote, with this he is providing the argument for the claim that he made in both the "Scientism" essay and in *The Sensory Order*, some twenty and ten years earlier, respectively, that any system of classification would have to be of a greater degree of complexity than the object that it attempts to classify, which he feels implies that it is impossible for the brain to provide anything more than an explanation of the principle by which the brain operates.⁶³ The mind is yet another instance of a complex order, one that follows rules that we cannot specify but which allow us to navigate in that complex order known as society, which itself contains a host of rule-constrained orders: language, the economic system, the legal system, our system of morals, and so on. Complex orders are everywhere. The next year Hayek would write "Kinds of Rationalism", which placed the further articulation of these insights prominently and permanently on his agenda.

⁶² F. A. Hayek, "Rules, Perception and Intelligibility", p. _____. (57)

⁶³ Ibid., pp. _____. (49; 61). Hayek's discussion earlier in the paper of "dispositions" to act also helped to bridge the gap between neuronal connections in the brain and the end result of intentional action, a problem that he had grappled with, unsuccessfully, in his incomplete paper "Within Systems and About Systems." That paper is reprinted for the first time in Hayek, *The Sensory Order: Text and Documents*.

Part III – A General Theory of Orders, with Applications

Though completed in December 1961 (that is, in the same year as the Virginia lectures), “The Theory of Complex Phenomena” was not published until 1964, when it appeared in a *Festschrift* volume for Popper. In the paper Hayek accomplished at least a part of the goal that he had identified in his 1960 letter to Popper, that of providing a more complete statement of the themes he had first covered in “Degrees of Explanation.”

Hayek’s goal is to distinguish clearly the difference between sciences that study simple versus those that study complex phenomena. Complexity arises both because “the minimum number of distinct variables a formula or model must possess in order to reproduce the characteristic patterns of structures” increases, and due to the fact of “the ‘emergence’ of ‘new’ patterns as a result of the increase in the number of elements between which simple relations exist...”⁶⁴ In such instances one cannot get sufficient data to make anything more than a pattern prediction. Because the elements are interconnected, statistical techniques which disregard that “the relative position of the different elements in a structure may matter” are “impotent to deal with pattern complexity.”⁶⁵

At the end of the paper Hayek makes two important claims. Noting that, because a society’s system of values and morals is also the product of an evolutionary process, “we have no more ground to ascribe to them eternal existence than to the human race itself.”⁶⁶ He is quick to add, however, that – just as the mind cannot explain consciousness – there is no way to get outside of our own cultural heritage, no way to know how the values that

⁶⁴ F.A. Hayek, “The Theory of Complex Phenomena”, this volume, p. _____. (26) This is the first instance where Hayek specifically identifies emergent phenomena as giving rise to complexity.

⁶⁵ Ibid., p. _____. (29)

⁶⁶ Ibid., p. _____. (38)

govern us emerged through time. He concludes that this should produce in us a certain humility towards the values that have survived the millennia. The applicability of an evolutionary theory of complex phenomena to the explanation of the origins of human moral codes – a theme that would be highlighted in later work – was by this point quite clearly on Hayek’s agenda.⁶⁷

The second insight was in regard to how we should react to our ignorance when it comes to the study of complex phenomena. Hayek asserts that knowledge of the limits of our knowledge is itself an important type of knowledge:

Once we explicitly recognize that the understanding of the general mechanism which produces patterns of a certain kind is not merely a tool for specific predictions but important in its own right, and that it may provide important guides to action (or sometimes indications of the desirability of no action), we may indeed find that this limited knowledge is most valuable.⁶⁸

Perhaps Hayek’s most ambitious attempt to investigate the varieties of fields in which spontaneous orders might be found was his organization of the “Analogy Symposium”, a meeting that took place at the Villa Serbelloni in Bellagio, Italy on April

⁶⁷ See, e.g., F. A. Hayek, *Law, Legislation, and Liberty*, vol. 3, *The Political Order of a Free People* (Chicago: University of Chicago Press, 1979), Epilogue, and *The Fatal Conceit*, ed. W. W. Bartley III, vol. 1 (1988) of *The Collected Works of F. A. Hayek*.

⁶⁸ Hayek, “Theory of Complex Phenomena”, p. _____. (40)

17-24, 1966. In his initial proposal, Hayek offered the following description of the purpose of the academic gathering. It would be:

...a symposium on unconscious rules governing conscious action. The discussion would have to start by considering the role which rules not known to the actor play in physical skills, language, law and morals, the visual arts with the aim of throwing light on

- the cultural transmission of unformulated rules (i.e., their acquisition without explicit teaching)
- the requirement of the common possession of unformulated rules for the intelligibility of communications
- The general problem of pre-conscious learning from experience (the formation and the alteration of an unconscious framework within which consciousness moves)⁶⁹

Unfortunately, many of those invited to the symposium could not come. The next year, though, Hayek would publish “Notes on the Evolution of Systems of Rules of Conduct”, which carries the subtitle “The Interplay between Rules of Individual Conduct and the Social Order of Actions.” The article is Hayek’s clearest attempt to provide a statement at the highest level of generality of the relationship between rules and orders, and of their evolution.

⁶⁹ Hayek Collection, box 65, folder 7, Hoover Institution Archives.

Hayek begins by noting that he would use “the pair of concepts ‘order and its elements’ and ‘groups and individuals’ inter-changeably”, thereby underlining the fact that orders occur everywhere, not just in human societies.⁷⁰ He then lays out the links between complex spontaneously-forming orders, evolution, and rule-following behaviour. A thumbnail sketch might read as follows:⁷¹

1. Orders of various sorts exist in nature. An order occurs when the actions of various elements or members of a group are coordinated or brought into mutual adjustment.
2. Sometimes orders occur without anyone consciously designing them. Such spontaneous orders come into being as the result of the individual elements following rules, rules that do not aim at creating the resulting order as a goal.
3. We can say a number of things about the rules that can generate spontaneous orders:
 - a. Rules are often simple, and often take the form of prohibitions.
 - b. Individuals, even when they are capable of speech, need not know that they *are* following rules, or even if they do, need not be able to *articulate* the rules.
 - c. Individuals often cannot say *why* they are following the rules that they do, nor can they see what the actual *results* of the rules are.

⁷⁰ F. A. Hayek, “Notes on the Evolution of Systems of Rules of Conduct: The Interplay between Rules of Individual Conduct and the Social Order of Actions”, this volume, p. _____. (66)

⁷¹ The summary draws directly on a similar one found in Caldwell, *Hayek’s Challenge*, pp. 309-310.

- d. Not all rules lead to order, and among those that may lead to an order in a given environment, their ability to do so may change as the environment changes. In fleshing this out, Hayek again introduces the notion of emergent phenomena.⁷²
4. Given what has been said about rules, it should be evident that typically they are not consciously selected by individuals aiming at an order. Rather, rules persist when the groups in which they are practised persist.⁷³
5. The past history of a group, which includes the environments it faced in the past and its past rules, determine what rules will be followed in the present and the corresponding nature of the order.
6. Orders vary in complexity. Social orders are among the most complex: "Societies differ from simpler complex structures by the fact that their elements are themselves complex structures whose chance to persist depends on (or at least is improved by) their being part of the more comprehensive structure."⁷⁴

⁷² See Hayek, "Notes on the Evolution of Systems of Rules", p. ____ (71): "A change of environment may require, if the whole is to persist, a change in the order of the group and therefore in the rules of conduct of the individuals; and a spontaneous change of the rules of individual conduct and of the resulting order may enable the group to persist in circumstances which, without such change, would have led to its destruction." I thank Will Christie for bringing the importance of this passage to my attention.

⁷³ As he put it, in both "animal and human societies...the genetic (and in great measure also the cultural) *transmission* of rules of conduct takes place *from individual to individual*, while what may be called the natural *selection* of rules will operate on the basis of the greater or lesser efficiency of the resulting *order of the group*." *ibid.*, p. ____, emphasis in the original. (67) Though Hayek does not use the term 'group selection' in the article, the idea is clearly present, and he approvingly cites the work of a prominent advocate of the theory, V.C. Wynn-Edwards, on p. ____ (70)

⁷⁴ *Ibid.*, p. ____ (76)

7. When dealing with complex orders, often the best we can do is to provide an “explanation of the principle” by which they operate. Precise predictions will not be possible; only “pattern predictions” about the range of phenomena to expect will be available.

8. As such, the theories we develop to explain complex orders will forbid fewer events, and thus will be less falsifiable, than those that deal with simple phenomena. As Hayek put it in “The Theory of Complex Phenomena”, this creates a dichotomy among the sciences:

The advance of science will thus have to proceed in two different directions: while it is certainly desirable to make our theories as falsifiable as possible, we must also push forward into fields where, as we advance, the degree of falsifiability necessarily decreases. This is the price we have to pay for an advance into the field of complex phenomena.⁷⁵

Intellectual history was always an important component of Hayek’s work. Indeed, his great unfinished Abuse of Reason project was intended to show that ideas matter, that the course of western history was forever changed as a result of the contemporaneous dual emergence of scientism and socialism. The question that Hayek addresses in “The Results of Human Action but Not of Human Design” is on a related theme in intellectual history: Why have people so often lost sight of spontaneous orders? Though René

⁷⁵ Hayek, “Theory of Complex Phenomena,” this volume, p. _____. (29)

Descartes (always identified by Hayek as the father of rationalist constructivism) was the one who got us off track in the modern era, he here traces the misstep all the way back to the distinction made by Greek philosophers between the natural and the artificial, where the latter meant 'constructed by man.' This apparently common-sensical distinction misses, of course, all those phenomena which arise, in the phrase used in his title, as a result of human action but not of human design.

Much of the paper is devoted to tracing the modern era history, showing how Descartes' subversion was followed by a revival of the concept by the Spanish Schoolmen and by British moral philosophers like Adam Smith and David Hume, as well as by some whose names are less well recognized, like Josiah Tucker and Adam Ferguson.⁷⁶ These men gradually "built up a social theory which made the undersigned results of individual action its central object, and in particular provided a comprehensive theory of the spontaneous order of the market."⁷⁷ This idea, ever after associated with Adam Smith's metaphor of 'the invisible hand', was derided by social theorists in the nineteenth century, who claimed (falsely, according to Hayek) that it implied a natural harmony of interests. Only later was it revived by the Austrian economist Carl Menger, though he too began from the insights of a jurist, in this instance the founder of the German historical school of law, Friedrich Karl von Savigny. Hayek tells an evolutionary story about why certain social institutions formed and survived – they develop

⁷⁶ Hayek first began referencing the Scottish enlightenment philosophers for their insights into spontaneously forming social orders in his 1945 essay, "Individualism: True and False", which he had intended to be the opening chapter of the *Abuse of Reason* volume. The essay is reprinted as a prelude in Hayek, *Studies on the Abuse and Decline of Reason*. Ferguson was the originator of the phrase "the result of human action, but not the execution of any human design."

⁷⁷ F. A. Hayek, "The Results of Human Action but Not of Human Design", this volume, p. _____. (98-99)

...in a particular way because the co-ordination of the actions of the parts which they secured proved more effective than the alternative institutions with which they had competed and which they had displaced. The theory of evolution of traditions and habits which made the formation of spontaneous orders possible stands therefore in a close relation to the theory of evolution of the particular kinds of spontaneous orders which we call organisms, and has in fact provided the essential concepts on which the latter was built.⁷⁸

In the last part of the article Hayek laments the fact that these insights, by now well-established in the theoretical social sciences, seem to have had very little impact in the field of jurisprudence – an ironic fact, given their origins. In that field the dominant philosophy, legal positivism, views all rules of justice as having been produced by deliberate invention or design. Hayek would further develop his critique of legal positivism, something already begun in *The Constitution of Liberty*, in the second volume of his trilogy, *Law, Legislation and Liberty*.⁷⁹

“Competition as a Discovery Procedure” ties together two of Hayek’s great themes, the knowledge problem and the idea of competition, and thereby complements his earlier essays “The Use of Knowledge in Society” and “The Meaning of

⁷⁸ Ibid., p. _____. (101)

⁷⁹ See Hayek, *Constitution of Liberty*, ed. Hamowy, pp. 347-350, and *The Mirage of Social Justice*, vol. 2 of *Law, Legislation, and Liberty* (Chicago: University of Chicago Press, 1976), chapter 8.

Competition.”⁸⁰ Hayek states the relationship early on, in a decidedly paradoxical way: “If anyone really knew all about what economic theory calls the *data*, competition would indeed be a very wasteful method of securing adjustment to these facts.”⁸¹ It is precisely because we are ignorant of virtually all of the data – which is simply to say, there is a dispersion of knowledge – that competition as a discovery procedure comes into its own.

Hayek illustrates the point with an example. As every Economics 101 student is (or should be) taught, the beginning of economic reasoning is the fundamental fact of scarcity.⁸² But how do we come to discover which goods are scarce? We owe this knowledge to the forces of competition: “...which goods are scarce goods, or which things are goods, and how scarce and valuable they are – these are precisely the things which competition has to discover.”⁸³ He notes further that some dislike the market order because of its impersonal nature, and others because it has no purpose of its own. But these attributes are in fact virtues, for the adjustments made every day as the result of impersonal market forces allow millions of individuals to utilize the knowledge possessed by millions of other individuals – as expressed through relative prices – in the pursuit of their *own* purposes and goals.

Hayek notes the analogy between the forces of competition in the market and the process of scientific discovery. Both are efficient engines of discovery, but because we can never know in advance what will be discovered, there is no way to test empirically the claim that they are better than other procedures for discovering knowledge. He also

⁸⁰ It might also be seen as Hayek’s attempt to state in a more concise form some of the arguments from his Virginia lectures.

⁸¹ F.A. Hayek, “Competition as a Discovery Procedure”, this volume, p. _____. (179)

⁸² Scarcity makes choice among alternatives necessary; the cost of every choice is the highest valued alternative that must be foregone, so that all choices have opportunity costs; economics is the study of choice in a world of scarcity.

⁸³ Hayek, “Competition as a Discovery Procedure”, p. _____. (181)

expresses a preference for the term ‘order’ over ‘equilibrium’ in describing the competitive market process. Equilibrium is, according to Hayek, “a somewhat unfortunate term, because such an equilibrium presupposes that the facts have already all been discovered and competition therefore has ceased.”⁸⁴ The term ‘order’ emphasizes the mutual adjustment of plans that takes place in complex, self-organizing systems. All such systems utilize negative feedback – in the case of economics, a disappointment of expectations – to generate adjustments in ‘the proper direction.’ The market is not perfect in doing this, but it is often good enough, and “we do injustice to the achievement of the market if we judge it, as it were, from above, by comparing it with an ideal standard which we have no known way of achieving.”⁸⁵

“The Primacy of the Abstract” was prepared for a symposium organized by Arthur Koestler in Alpbach in the Tyrolean mountains in 1968.⁸⁶ In his preface Koestler, a self-described “trespasser from the humanist camp”,⁸⁷ provides a rationale for the volume: in a variety of symposia that he had attended over the past decade he had

⁸⁴ Ibid., p. _____. (184) In an address before the LSE in 1981, Hayek would go even further, wholly abandoning the term equilibrium and embracing instead the notion of order. The address, titled “The Flow of Goods and Services”, now appears in *Business Cycles, Part II*, ed. Hansjoerg Klausinger, volume 8 (2012) of *The Collected Works of F.A. Hayek*.

⁸⁵ Hayek, “Competition as a Discovery Procedure”, p. _____. (185)

⁸⁶ Hungarian-born author Arthur Koestler (1905-1983), author of the anti-totalitarian novel *Darkness at Noon* (1940), owned a home in Alpbach. He had been among those invited by Hayek to the Analogy Seminar, but he did not attend. The Tyrolean mountain village of Alpbach had been the host to a summer school since 1945, at which Hayek was a frequent participant.

⁸⁷ Arthur Koestler, “Opening Remarks”, in *The Alpbach Symposium 1968, Beyond Reductionism: New Perspectives in the Life Sciences*, Arthur Koestler and J.R. Smythies, eds. (New York: Macmillan, 1970), p. 1. Koestler had just published *The Ghost in the Machine* (New York: Macmillan, 1967) in which he criticized behaviourism and, in introducing the concept of the ‘holon’, argued that hierarchy plays an essential role in the organization of biological organisms from the simplest all the way up to societies.

detected among at least some scientists “a certain discontent with the prevailing philosophical bias which – whether explicitly formulated or tacitly implied – seems to linger on as a heritage from the nineteenth century, although the new insights gained by contemporary research have reduced it to an anachronism.”⁸⁸ What they had been critical of was “what von Bertalanffy called the robotomorphic view of man, or more soberly, the insufficient emancipation of the life sciences from the mechanistic concepts of nineteenth-century physics, and the resulting crudely reductionist philosophy.”⁸⁹ Clearly, Hayek was among like-minded scholars at the meeting. “The Primacy of the Abstract” is based on the notes he used for his talk, and continues themes he had introduced in “Rules, Perception and Intelligibility.”

Hayek starts with an apparently paradoxical claim: all of the things that we usually think of as concrete are actually the product of an abstraction, namely the superimposition of a structure of classification. The reason that we do not recognize the primacy of the abstract is because in our subjective conscious experience, “concrete particulars occupy the central place and the abstractions appear to be derived from them.”⁹⁰ Hayek’s main contention is

that the mind must be capable of performing abstract operations in order to be able to perceive particulars, and that this capacity appears long before we can speak of a conscious awareness of particulars. Subjectively, we live in a concrete world.... But when we want to explain what makes us tick, we must start with the

⁸⁸ Ibid., p. vii.

⁸⁹ Ibid., p. 2. A founder of general systems theory, the Austrian-born biologist Ludwig Bertalanffy (1901-1972) was a friend of Hayek’s, and had offered him comments on *The Sensory Order* when it was in manuscript form. Bertalanffy was among those who attended the symposium.

⁹⁰ F.A. Hayek, “The Primacy of the Abstract”, this volume, p. _____. (36)

abstract relations governing the order which, as a whole, gives particulars their distinct place.⁹¹

Hayek argues that well-known results from a variety of contemporary fields – ethology, psychology, the phenomenon known as ‘knowing how’, and linguistics are among those he cites – support the claim, as do observations made by social theorists at least as far back as Adam Ferguson. This, of course, is ground Hayek covered in “Rules, Perception and Intelligibility.”

But there is also much that is new, or at least clarified, in the paper. First among these is Hayek’s extended discussion in section four of the key concept of “disposition.” For Hayek, the notion of an abstraction is the inclination to respond to certain classes of stimuli not with a specific response but with responses of a certain kind.

A disposition will thus, strictly speaking, not be directed towards a particular action, but towards an action possessing certain properties, and it will be the concurrent effect of many such dispositions which will determine the various attributes of a particular action.⁹²

A second implication is that our rich sensory experience is not the starting point for, but the result of, abstraction. This would imply that, for example, a human infant does not experience reality as – in the expression made famous by James – a ‘blooming, buzzing confusion’, which may be interpreted as meaning that the baby could fully

⁹¹ Ibid., p. _____. (37)

⁹² Ibid., p. _____. (40)

perceive particulars, but not order them. If Hayek's theory is correct, it is more likely that the infant would experience a structured world in which the particulars are indistinct.

The baby and the animal certainly do not live in the same sensory world in which we live. But this is so, not because, though their 'sense data' are the same, they have not yet been able to derive from them as many abstractions as we have done, but because of the much thinner net of ordering relations which they possess – because the much smaller number of abstract classes under which they can subsume their impressions makes the qualities which their supposedly elementary sensations possess much less rich.⁹³

A third implication is that our conscious experience is not the pinnacle of mental events, because much of what takes place in our minds – the ordering and classifying of stimuli, which Hayek dubs "super-conscious" processes – "governs our conscious processes without appearing in them."⁹⁴ This is of course the principle reason why we will never be able fully to explain the operation of the brain, but only the principle by which it operates.

A final conclusion that Hayek draws is that the formation of what feels like a new abstraction is necessarily simply the discovery of something that already guides our mental operations. He notes that this approach to understanding creativity may have some commonalities with Koestler's concept of "bisociation" in own in his book, *The Act of*

⁹³ Ibid., p. _____. (44) This claim generated a considerable amount of comment in the ensuing discussion.

⁹⁴ Ibid., p. _____. (45)

Creation.⁹⁵ Unfortunately, in the equally rich discussion of Hayek's very rich paper, Koestler does not take up Hayek's point.

In 1969 Hayek moved to Salzburg, Austria. "The Errors of Constructivism" was his inaugural lecture at the University of Salzburg, delivered on January 27, 1970. In it Hayek contrasts constructivism, the idea that, because man has created his institutions, he must be able deliberately to alter them, with the competing idea that though all of our social institutions are the results of human action, not all are a result of human design. The latter view implies that man did not create civilization with his reason, but that reason and civilization arose together. Given his theme, the paper may be viewed as a companion piece to his 1967 paper on "The Results of Human Action."

But it is also clearly more than this, for it is a highly integrative piece. Hayek sought in his address to spell out for his new colleagues the variety of areas in which he had been working over the past decade, and to show how they cohered. He cites no less than nine of his own previously published works, which is perhaps a record (for him) of self-citation in a single article. Hayek so liked "The Errors of Constructivism" that he chose it as the lead piece for his 1978 collection, *New Studies in Philosophy, Politics, Economics, and the History of Ideas*.⁹⁶

⁹⁵ In *The Act of Creation* (London: Hutchison, 1964), Koestler argued that humour, scientific discovery, and artistic creation all follow a basic pattern – bisociative thinking – in which, through a creative leap, a connection is made among previously unconnected frames of reference.

⁹⁶ F. A. Hayek, *New Studies in Philosophy, Politics, Economics, and the History of Ideas* (Chicago: University of Chicago Press, 1978).

Note too that Hayek foreshadows in the paper a number of themes that he would include in his trilogy *Law, Legislation and Liberty*, especially concerning the relationship between legal institutions and the workings of markets, and the damage that had been done by utilitarian and legal positivist theorists whose work had as a modern consequence Hayek's *bête noire*, the concept of "social justice." Indeed, when it was published in the 1978 collection, Hayek included a footnote citation to the first volume of the trilogy.⁹⁷ He also briefly touches on an idea that he would develop much more fully in *The Fatal Conceit*, one concerning the origins of our economic institutions:

None of our ancestors could have known that the protection of property and contracts would lead to an extensive division of labor, specialization and the establishment of markets, or that the extension to outsiders of rules initially applicable only to members of the same tribe would tend towards the formation of a world economy.⁹⁸

There are few better summaries of Hayek's late work than "The Errors of Constructivism."

Hayek also included "Nature v. Nurture Once Again" in his 1978 collection, and given that it is simply a short comment on a book by the British biologist and geneticist

⁹⁷ F. A. Hayek, "The Errors of Constructivism," this volume, p. _____. (8)

⁹⁸ *Ibid.*, p. _____. (11) Cf. Hayek, *The Fatal Conceit*.

C.D. Darlington, one might wonder why.⁹⁹ The reason, I think, is that the review provided him with the opportunity to illustrate again some of the implications of his views, in this case for the time-worn debate over the relative importance of nature versus nurture.

Darlington analyzes human history from the vantage point of a geneticist, and argues that distinct innate capacities are the key determinant of that history. Though Hayek applauds the book as a nice remedy to behaviorism, he thinks that Darlington has erred in overemphasizing the role of the genetic factor. The key to Darlington's error is his belief that

...all actions that are not guided by conscious reason must be genetically determined. He operates with the simple dichotomy between, on the one hand, the genetically determined, innate, instinctive, or unconscious capacities (terms which are treated as equivalent), and, on the other hand, rational or learned activities.¹⁰⁰

As one might guess, Hayek thinks that there is more to it than a simple choice between our genetic heritage and consciously learned behaviour. He cites the imitative behaviour of infants as an example of pre-rational learning, and notes that once such learning takes place, "...the transmission of abilities takes a new form – vastly superior to genetic transmission precisely because it includes the transmission of acquired

⁹⁹ Darlington as a figure is not without interest. He was a close friend of J. B. S. Haldane, one of Hayek's "men of science", but later split with Haldane over the Lysenko affair, in which scientific authorities in the Soviet Union outlawed the teaching of genetics. In later work Darlington endorsed the idea that different races had different character and cultural attributes. This may help to explain the reaction of the reviewer in the *New Statesman* that Hayek mentions at the end of his short piece.

¹⁰⁰ F. A. Hayek, "Nature v. Nurture Once Again", this volume, p. _____. (291)

characteristics which genetic transmission does not.”¹⁰¹ Hayek goes on to mention that much that is learned is not consciously acquired, and that group selection also plays a key role in cultural evolution.

Towards the end of the review Hayek laments that there does not exist some test that would allow us to determine how much of our culture depends on the innate properties of individuals and how much has been culturally transmitted. And, writing in 1971, a tumultuous time on this planet, he remarks rather dolefully that “If we had, it would probably show how precarious the stability of our present civilization is, precisely because it rests largely on cultural traditions which can be more rapidly destroyed than the genetic endowment of populations.”¹⁰²

In 1974 Hayek was awarded, jointly with the Swedish economist Gunnar Myrdal, the Bank of Sweden Nobel Memorial Prize in Economics. The joint award, doubtless intended to achieve a certain ideological balance, was less than fully satisfying for the two recipients.¹⁰³ “The Pretence of Knowledge” is Hayek’s Nobel address, so predictably it focuses on economics. But befitting its position as the final paper before the epilogue, one can find in it all of the usual Hayekian themes.

¹⁰¹ Ibid.

¹⁰² Ibid., p. _____. (293)

¹⁰³ After Friedman got the prize in 1976, Myrdal argued that it should be abolished: How could economics be a science, when people like Friedman and Hayek – whom Myrdal viewed as reactionaries – could receive the award? For a translation of his article, see Gunnar Myrdal, “The Nobel Prize in Economic Science”, *Challenge*, March-April 1977, pp. 50-52. For his part, in his Banquet Speech in 1974 Hayek said that had he been consulted on whether to establish the prize, “I should have decidedly advised against it.”

The address was delivered in December 1974, when “the chief practical problem which economists have to face” was accelerating inflation.¹⁰⁴ In Hayek’s view, the problem was brought on by undertaking policies that most economists supported and promoted: “as a profession we have made a mess of things.”¹⁰⁵

Scientism was the cause of our errors, in this case by causing economists to think that a theory must make reference to quantitative data to be truly scientific. A second problem was their assuming that there exist simple relationships between aggregate statistical concepts, in this case, between total employment and aggregate demand. But with markets we are dealing with essentially complex phenomena. The assumption that we must, to be ‘scientific’, only use theories for which we have data may well cause us to choose a false theory:

The correlation between aggregate demand and total employment, for instance, may only be approximate, but as it is the *only* one on which we have quantitative data, it is accepted as the only causal connection that counts. On this standard there may thus well exist better ‘scientific’ evidence for a false theory, which will be accepted because it is more ‘scientific’, than for a valid explanation, which is rejected because there is no sufficient quantitative evidence for it.¹⁰⁶

¹⁰⁴ F. A. Hayek, “The Pretence of Knowledge”, this volume, p. _____. (23) Hayek emphasizes inflation, but unemployment was also a problem. By December 1974, at least in the U.S., the great stagflation of the 1970’s was well underway.

¹⁰⁵ Ibid.

¹⁰⁶ Ibid., p. _____. (25)

The “now fashionable theory” that follows from this erroneous view is that unemployment can be “lastingly cured” by inflationary policies (i.e., by stimulative monetary policy).¹⁰⁷

In Hayek’s view “extensive unemployment” occurs when the structure of prices and wages have become distorted, usually due to some form of price fixing, either by monopolies or the government.¹⁰⁸ When this happens, changes in relative prices are necessary to bring us back to equilibrium. But admittedly, we do not and cannot know the particular structure of wages and prices that will restore equilibrium. Another way of putting this is that although we may have mathematical models that show us the structure of the economy, we can never fill in the necessary numerical values of the variables. This is the price one pays when dealing with essentially complex phenomena, a phrase that Hayek uses over and over again in the lecture. As in earlier pieces, he defines “essentially complex phenomena” as those for which the number of relevant variables is large, but for which statistical techniques are inappropriate because they are phenomena of “organized complexity.”¹⁰⁹

In short, in his Nobel lecture Hayek presents an abbreviated version of the policy implications of the Austrian theory of the cycle within the framework of his own theories about the dangers of scientism when confronting essentially complex phenomena. Evidently, this theory offers very little solace for those who wish to intervene in the

¹⁰⁷ Ibid., p. _____. (25)

¹⁰⁸ Hayek does not mention here that under monopolies he would include not only industrial monopolies, but also labour unions who attempt to keep wages for their members above the market-clearing wage.

¹⁰⁹ Ibid., p. _____. (26) Note that Warren Weaver is referenced when Hayek speaks of “phenomena of organized complexity.”

economy to tame the business cycle.¹¹⁰ Hayek recognizes that this is not going to be a popular message:

What I mainly wanted to bring out by the topical illustration is that certainly in my field, but I believe also generally in the sciences of man, what looks superficially like the most scientific procedure is often the most unscientific, and, beyond this, that in these fields there are definite limits to what we can expect science to achieve. ...in contrast to the exhilaration which the discoveries of the physical sciences tend to produce, the insights which we gain from the study of society more often have a dampening effect on our aspirations.¹¹¹

Hayek concludes his address with a sentence that captures well the variety of themes that he addressed, both here and in earlier work:

The recognition of the insuperable limits to his knowledge ought indeed to teach the student of society a lesson in humility which should guard him against becoming an accomplice in men's fatal striving to control society – a striving which makes him not only a tyrant over his fellows, but which may well make him the destroyer of a civilization which no brain has designed but which has grown from the free efforts of millions of individuals.¹¹²

¹¹⁰ It is perhaps worth noting, however, that Hayek's warnings about the likely effect of "the continuous injection of additional amounts of money" into the system were more or less born out by the experience of the U.S. economy under the 'stop-go' policies that reigned throughout the 1970's.

¹¹¹ *Ibid.*, p. _____. (30)

¹¹² *Ibid.*, p. _____. (34)

This will strike many readers as overly dramatic – but it was a dramatic time in which he was writing. Stagflation had certainly underlined the difficulties of successfully applying the most ‘scientific’ macro-economic doctrine of the day, Keynesian demand management policy. For some it was a signal that capitalism had failed, and for others it showed that a more sophisticated theory of how the economy operated was necessary. Hayek had such a theory, but its implications were decidedly modest. It is perhaps a testimony to the veracity of his insights that he recognized that few would ever accept it – the human attachment to scientism does not fade so easily.

These are some of Hayek’s most important papers, and, to close on a personal note, they are among the editor’s favourites. They offer a compelling documentary account of the slow but steady development his views on how to study, scientifically, the complex orders that comprise our social and economic institutions. It is a part of Hayek’s work that too often is overlooked by those who focus only on his contributions to the political debates of the day, yet it is, arguably, his most important legacy.

Bruce Caldwell

Durham, North Carolina

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