

Reviews

Bo PERSSON (Ed.)

Surviving Failures, Patterns and Cases of Project Mismanagement

Almqvist & Wiksell International, Stockholm, Sweden, and Humanities Press, Atlantic Highlands, NJ, U.S.A., 1979, 257 pages

The book edited by Bo Persson is a very timely collection of papers which were presented at the Stockholm Symposium on Surviving failures held in Stockholm in March 1979. The main preoccupation of those who attended the seminar was to study, explain, and account for the varied kinds of failures which beset humankind. Failures can be of an economic, technological, social and psychological nature. Anytime we pursue objectives which are leading nowhere, we can say that we are entertaining a failure of some kind. Naturally, the contributors are not interested to determine why mechanical systems fail when parts break down or why a plant blows up when the boiler explodes. Rather, they try to address the problems and conditions in society which allow systems to accomplish less than its designers had hoped for. This preoccupation is similar to that which led the Systems Group of Britain's Open University to explore the subject of systems failures. It is surprising that no member of this group was asked to contribute a paper to this collection because they, more than anyone else, have made noteworthy contributions to the problem of systems failures. We recall the excellent library of books, course material, films and audiotapes [3] which, over the years, have been produced by this team. We also recall *Catastrophic Failures* [1] which seeks to find systemic patterns in various disasters, in order to evolve a prescriptive theory to avoid them, and Turner's [5] contribution to the field, in which he directed his attention to an examination of common causal features found in major disasters.

The present volume is prepared around four parts and a Prologue. It is in the latter that a failure is defined as "an investment with a book value but none or negative use value". The papers in Part I are concerned with politics and ideology. In the words of the editor (Persson):

"Lasting group action seems to be propelled by a mixture of altruism and self-interest. If group action fails, conflicts between the interests of the group members and those of other people will grow as a consequence. And hence IDEOLOGY is needed in the mixture, both to mask conflicts and to uphold group morals ..."

At the beginning, projects contain little egoistic and more altruistic components but, as the project develops, more self-interest and more ideology is needed to preserve the project.

"POLITICS may be the study of this blend of altruism, hypocrisy and egoism used in competitive situations."

The authors take us through several surviving cases where ideology and politics prop up economic and technological projects of dubious value (Gouldner, Nove, Hirdman, Kolm and Å. Gustafsson). One case in point is that of supersonic aircraft design of the Anglo-French Concorde which has all the characteristics of a failure, but has not yet been terminated, in spite of losing billions of pounds and francs (Wilson, Lundberg).

The book contains five contributions which deal with Marxist/Communist/Socialist ideological cases which are studied "to find guidance to future attempts to transform society towards a more equal distribution of scarce material resources." These cases are related to the interesting contribution which deals with the important ingredient in project success called 'confidence' (Dunbar and Guillet de Monthoux). Different types of psychological confidence lead to different types of project organization. Elements of confidence such as need for success, need for power, machiavellianism, fear of failure and fear of power imply different characteristics of individual behavior. The ultimate difference between project

managers is "how they deal with the relative failures which eventually must plague any worthwhile project." Differences in confidence critically determine whether a project will succeed or fail. These implications, which are only presented in this volume as hypotheses, could serve as important guidelines for future research to find the path to success. Another contribution in search for improvement of decision-making to avoid failures, emphasizes the importance of intuition to solve the problems which beset soft systems (Zeleny). This plight echoes that made elsewhere by Pipino and van Gigch [4] when they renew the demand for an epistemology of the inexact sciences, made in 1959 by Helmer and Rescher [2].

The problem of achieving 'psychological success' is also explored by Anthony and C. Gustafsson who take a look at the world of work and leisure and find failure in millions of workers who cannot satisfy their aspirations for creativity and meaningfulness. Indeed, they justify alienation, as detachment from today's boring jobs.

There are other interesting studies in this volume, shedding light on the differences between successes and failures. We are treated to an essay describing processes which allow failing projects to continue uncorrected (Gedin and Beckman), and to essays on games of war (Prawitz and Arbman), suicide (Åsberg) and others. As one of the authors (Zeleny) points out, we can only know we failed because humankind sets goals and has consciousness, i.e., can realize and experience its own failure: "*Failure is a very human business.*" Not having had the privilege of attending the seminar on Surviving Failures, reading the proceedings of the conference is certainly the next best thing.

John P. van GIGCH
California State University
Sacramento, CA 95819, U.S.A.

References

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Irving KRISTOL and Nathan GLAZER (Eds.) **The Crisis In Economic Theory**

The Public Interest, Special Issue, National Affairs Inc., New York, 1980, 224 pages, \$4.00

Since there are no new books on economic theory to review (except the tired versions along the Keynes–Samuelson–Thurow axis), one has to reach for journals. Irving Kristol and Nathan Glazer performed a highly needed and competent feat on both assembling viewpoints on the crisis in economic theory and providing some glimpses of future trends.

Among better known contributors to this special issue of *Public Interest* are: P.F. Drucker, D. Bell, H. Leibenstein, K.J. Arrow and perhaps I. Kristol himself. But their contributions, with the exception of Kristol's, offer nothing new and matter very little. It is the other contributors, J.W. Dean, M.H. Willes, I.M. Kirzner, P. Davidson, and even E.J. Nell who offer some new perspectives.

There is a consensus emerging among this group of *Public Interest* authors: Keynesian theorem of the demand-control of supply, as well as most of the derived 'laws' of modern micro- and macro-economics, has been invalidated by praxis and some fresh theoretical air is needed. Humans are not aggregate, statistical, and symbolic categories – they are individual, thinking, decision-making and relatively autonomous living beings: ignoring or lessening the importance of human reality can only lead to a crisis and vulgarization in economics. And that is precisely what the contributors to this volume have on their hands.

I cannot resist mentioning a story conveyed by Daniel Bell. It does say something about economics as a science and economists as scientists.

Paul Samuelson once declared that the Phillips curve is "one of the most important concepts of our times". What is a Phillips curve? A new Zealand researcher ran some regressions between wage rates and employment in the United Kingdom from 1862 to 1957. Robert M. Solow and Paul Samuelson, eminent scientists, 'discovered' the theoretical implications of this tenuous empirical observation for public policy and Keynesian economics. As Solow reminisces: "I remember that Paul Samuelson asked me, when we

were looking at the diagrams for the first time, 'Does that look like a reversible relation to you?' What he meant was, 'Do you really think the economy can move back and forth along a curve like that?' And I answered, 'Yeah, I'm inclined to believe it', and Paul said, 'Me too'. The relation between wage (and price) inflation and unemployment, based on a simple bivariate regression equation and some bar talk, was born triumphant. From 1958, it provided more employment for economists than any public-works enterprise since the construction of the Erie Canal, according to Bob Solow, the President of the American Economic Association.

But let us take a more serious look at what the individual contributors are saying and proposing. *Drucker* cautions that the Keynesian paradigm should be preserved for a long time to come as a guide to what *not* to do. He feels that a theory that optimizes productivity (i.e., balances multiple, partially dependent functions) will have to replace the simple-minded maximization of profits. Productivity, in his framework, is knowledge applied to resources through human work – it is the source of all economic value. Such reorientation would assure a needed return to 'humanity', 'moral philosophy', and 'Geisteswissenschaft' – that is, to economics.

Dean attacks the "inevitable trade-off between inflation and employment" of the "high priests of social engineering". These "Phillips-curve riders" include Okun, Lerner, Klein, Tobin, Weintraub and others who 'helped'. He then poses the major theoretical challenge for the 1980s: "Why markets in the aggregate don't guarantee employment for all who want it despite the fact that full employment in this sense is desired by all individual market participants?"

Meltzer refers to the Phillips curve as a statistical curiosity which has been grossly misinterpreted: nothing in economic theory gave any reason to believe that the curve was either a dependable basis for policy or consistent with economic theory; nothing ever showed that higher inflation caused lower unemployment.

Bell provides some nice stories, like the above mentioned Solow–Samuelson 'science-making', but otherwise has very little to say. He does make one important statement, vaguely reminiscent of Loeb's *humanomics* (*HSM* 1 (1) (1980) 63–96): "Since men act variously by habit and custom, irrationally and zealously, by conscious design to change institutions or redesign social arrangements, there is no intrinsic order, there are no 'economic laws' constituting the 'structure' of the economy; there are only different patterns of historical behavior."

Willes, a Keynesian, admits that *now* he is persuaded that this theory (Keynesian theory) is fundamentally wrong, so wrong that it can never yield adequate models for evaluating policy. Somebody recently said: "We are all Keynesians now". So we were and so we are – and so are our economies! Only by formulating the decision problem facing individuals can one begin to develop policy-relevant models: because aggregate relationships are only a sum of individual decisions, the aggregate relationships should have no independent existence! It is too bad that, at least in some theories, they do.

Leibenstein recounts his ideas about X-efficiency. He insists that individuals and groups do not maximize profits and they do not minimize costs. Obviously, in sheltered environments there is no necessity for business firms to minimize costs – and most developed economies are becoming more and more sheltered (i.e., protected from competition, usually by governmental actions). Leibenstein insists that it is the *human effort*, not the quantities of available resources, that determines production output. He found that many developing countries not only used more labor in the same industries for the same products as advanced countries, but also more capital! Some inefficiency of effort!

Kirzner discusses the 'Austrian' perspective on the current state of economic theory. The 'Austrians' (Menger, Mises, Hayek, Schumpeter, Machlup, but also Böhm-Bawerk, Drucker, Burns, and others) despite their differences, share their common appreciation of capitalism as a market *process*. Thus they emphasize the purposefulness of individual action, the role of knowledge in economic choice, the subjectivity of economic phenomena, the competitive-entrepreneurial character of the market process, and the *ex ante* role of time in economic activity. This is a far cry from the mechanistic preoccupation with equilibrium; questionable aggregation concepts; ignorance of knowledge, expectations, and learning; competition as a *state* of affairs; etc., of modern neoclassical economics. Austrians reject the deeply flawed aggregate notions of the economic well-being of society, such as gross national product (used even today by some zealots declaring Kuwait to be a paradise-on-earth), and insist that economic welfare is the subjective sense of well-being of separate *individuals*. As such it displays an interpersonal incommensurability which simply defies aggregation and must be handled as a multidimensional (vector or multicriterion) phenomenon.

Hahn shows that General Equilibrium Theory, as classically stated by Arrow and Debreu, is the dead-end road of economics. This is a state in which no agent can improve himself by any action. General Equilibrium assumes that prices are independent of agents' actions, agents form a continuum (there are infinitely many of them), power and time can be ignored, coalitions can be ignored, involuntary unemployment can be ignored, etc. In short, forget it.

Ironically, Hahn's devastating analysis is followed by a contribution by *Arrow* himself. Arrow explains, from all things, the role of *numeraire* and explains that price adjustment mechanism is *not* independent of the (economist's) choice of numeraire. He also assumes no barter activities because of their 'small' role in our economy. The *key question*, according to Arrow, is "whether the fluctuations in our economic system are best described by a model in which prices clear markets at every instant or by one in which market disequilibria persist over months or even years."

Davidson answers Arrow's (and Hahn's) question: the general equilibrium model assumes a set of relative prices which will bring about instantaneous and simultaneous clearing of all markets. In such a system it is impossible (by definition) to have a situation of less than full employment. Thus its very logic implies that such model cannot provide practical answers for policy makers. The Arrow-Debreu model *does* demonstrate, however, why optimal allocations can never be achieved in the real world.

The last three mentioned contributions should perhaps have been omitted by the editors of this special issue. Keynesianism, neoclassical Keynesianism, Post Keynesianism, and other 'isms' are simply much too dead to be beaten some more. Even Solow thinks it incredible "the things that impeccable orthodox equilibrium theory asks me to believe about the world." Yet, Solow concludes, "it is much too early to tear up the ... (neoclassical synthesis) chapters in the textbooks." It is always 'too early' for professors who have made fame and fortune out of such models to be ready to abandon them, despite their common sense which suggests the incredible nature of neoclassical theory. For others, for those who care about the human condition in the 20th century capitalism, the time for 'tearing up the pages' already was.

Nell contributes a mud puddle on Marxian theory of value. He 'scraps' the special theory of value (value

of a unit amount of a commodity is the sum of the abstract, socially necessary labor directly and indirectly embodied in it) but retains the general labor theory of value (the fact that commodities have value is to be explained by the fact and only by the fact that they are products of wage labor, which is to say exploited labor). What has all this to do with the economic issues of today?

Kristol concludes the volume by a sensitive piece on rationalism in economics. He reaffirms that Smith's original insight – that commercial relations are such that the seemingly inchoate flux of phenomena and events can be explained in terms of an orderly disorder – is the rock upon which economics is built. He characterizes the prevalent econometric models as misleading *scientific* simplifications, a form of mathematical mimicry of the physical sciences, inappropriate for the understanding of human activity. He also dismisses the half-renewed interest in Marxist economics as having as its purpose to validate Marxism as a world view, not to explain actual economic phenomena.

Kristol lists five 'bedrocks of truth' on which any economic theory of *human* condition must be based:

- (1) majority of men are naturally interested in improving their material conditions;
- (2) efforts to repress this natural desire lead to coercive and impoverished polities;
- (3) when these natural desires are given sufficient latitude for expression, economic growth ensues;
- (4) as a result of such growth, everyone does eventually improve his condition, albeit unequally and at different times;
- (5) such economic growth results in a huge expansion of the property-owning middle class.

Of course we need to know more than these five "truths", but can we afford to ignore them?

Milan ZELENY
 EIASM, Brussels
 Belgium

Milan ZELENY (Ed.)

Autopoiesis, Dissipative Structures, and Spontaneous Social Orders

Westview Press, Boulder, 1980, 149 + xxi pages

Autopoiesis: A Theory of Living Organization

Elsevier/North-Holland, New York, 1981, 314 + xvii pages

The notion of order or organization, as distinct from chaos, has for centuries been believed to hold the key to unlocking many of nature's deepest secrets. Clausius's development, in 1879, of a mechanical theory of heat and his introduction of entropy as a measure of disorder initiated a rich vein of speculation that went far beyond physics. Kenneth Boulding, in the foreword to the more recent volume, expresses his puzzlement at the coexistence of two time arrows: one reflects the increase of entropy and decay of potential in the universe; the other time arrow is that of evolution, which compartmentalizes entropy and builds increasingly ordered and complex structures. The first arrow is implicit in the second law of thermodynamics. An increment of entropy arises from the influx of heat and from its production within a collection (of molecules) by an irreversible, dissipative process. Entropy was later given another interpretation as a measure of disorder, in terms of the probability distribution of molecular configurations that could occur in a system. The very unlikely configurations observed in forms of life, their origin and the mechanisms of their maintenance stimulated further speculation. In the middle of this century the idea of self-organizing systems was generalized to include not only molecular collections such as crystals and other physical-chemical systems that maintained a spatial-temporal pattern, but also living cells, multicellular structures, and social organizations of insects, persons, tribes, countries, etc.

Ambitious proposals leading toward general systems theories were generated, and a multitude of treatises and discussions were produced by eminent scientists in many diverse fields. (In 1954, this reviewer published "An Information-Theoretic Model of Organizations", and extended it to his doctoral dissertation in applied mathematics at Columbia University on "Organized Systems With Discrete Information Transfer", in the same spirit.) At about the same time, N.A. Baricelli, using the computer at von Neumann's project at the Institute for Advanced Study, produced the first stable 'numerical organisms'

— number patterns with well-defined features resembling living organisms — by simulating evolution. In 1975, Zeleny and Pierre, stimulated by some suggestions of Maturana, demonstrated the production of spatial patterns capable of self-reproduction, similar to those of Baricelli. At this time, despite the increasing disenchantment among U.S. scientists with three decades of work on cybernetics, general systems theory, theoretical biology and mathematical organization theory, a new wave of interest arose in what were hoped to be new paradigms for viewing the issues of spontaneous self-organization. The two books on this topic, both edited by Zeleny, sample some of the current efforts riding that wave.

The 1980 book resulted from a symposium that Zeleny organized for the 1979 National Annual Meeting of the American Association for the Advancement of Science (AAAS), and the AAAS selected that symposium for publication. In the Introduction, Zeleny points out that these paradigms are not strictly 'new' so much as 'newly' being accorded greater attention and less hesitant consideration, and they include:

- (a) order by fluctuation, analyzed by means of non-equilibrium thermodynamics,
- (b) self-production of a unity-maintaining system,
- (c) self-reproducing hypercycles in chemical reactions,
- (d) spontaneous social orders.

Autopoiesis — literally, self-production — underlies all these processes.

In Chapter 1, Zeleny summarizes with exemplary clarity the key idea with the concrete outputs of the Zeleny–Pierre simulation and relates it to the work of others, e.g. C. Bernard, G.B. Vico, B. Trentowski, C. Menger, A.A. Bogdanov, S. Leduc, J.Ch. Smuts, F. von Hayek, P.A. Weiss and H. Maturana. He argues that Autopoiesis is a paradigm in the process of becoming.

The remaining five chapters, by H. Maturana on evolution, E. Jantsch on dissipative structures and hypercycles, W. Düchting on disturbed cell renewal, P.M. Allen and M. Sanglier on order by fluctuation and the urban system, and A. Gierer on socioeconomic inequalities show the great diversity of interpretations and extensions of the 'autopoiesis' idea.

The 1981 book supplements the 1980 volume by commenting on some of the earlier volume's contents and by focusing on the autopoiesis concept rather than on its context and applications. Once again, an excellent introductory chapter by Zeleny, with the

example of the simulated cell and a list of basic concepts and definitions, is followed with brief philosophical comments by Maturana, F. Varela, and R.B. Uribe. Chapter 5, by the late E. Jantsch, gives realistic examples (resembling those of Prigogine) of reaction cycles in self-organizing systems, discusses cooperative behavior in terms of dissipative structures and shows autopoiesis to be a central aspect of dissipative self-organization. In Chapter 6, Zeleny presents his views on evolution and self-reproduction as later stages of autopoiesis. In Chapter 7, Gloria Guiloff proposes an experimental approach to neobiogenesis directed by theories of autopoiesis and in Chapter 8 Edgar Morin's comments on the semantics of 'self' and 'autos' concludes this first part of the book, called *Proposition*.

Part II, entitled *Conversation*, comprises papers that explore the interfaces of 'autopoiesis' with general systems and cybernetic theories. It begins with a critique of autopoiesis written by Brian Gaines. In the next chapter, Alex M. Andrew tries to reconcile the autopoietic viewpoint with the teleological implications of using a negative-feedback control system as a model of living systems. Six chapters follow, by M.V. Ben-Eli on evolution, H. Atlan on hierarchies, A. Locker on metatheoretical presuppositions, L. Löfgren on life as an autolinguistic phenomenon, R. Glanville on self-observation of objects and Gordon Pask on consciousness.

Kenneth Boulding wrote forewords to both volumes, and his enthusiasm is worth sharing with the

readers. "This is nothing less than the study of the whole developmental process of the universe, that is, the general theory of evolution", he says, and continues, "The critical question that is unfolding here could well be the most important question about the universe. This is the nature of potential and the processes by which potential is realized". He likens these volumes to a voyage of discovery comparable to that of Columbus.

Whether or not such enthusiasm is merited by the quality of the ideas, the power of the methods, the depth of the results and insights, as well as the excitement of the issues presented in these two volumes should be judged by the reader. Every reader of this journal with an interest in these important issues should have the opportunity to make this judgment. The books are definitely worth reading, and should be read with an open mind. Zeleny has done an excellent job of introducing each volume, part, and chapter so that each work coheres as an integral unit. The result is not disjointed, unlike so many multiauthored volumes or proceedings. It is well-organized, well-edited and a pleasure to read. Few readers will finish reading these volumes, in the order of their publication, without substantial benefit through stimulation, edification, and enlightenment.

Manfred KOCHEN
University of Michigan
Ann Arbor, U.S.A.