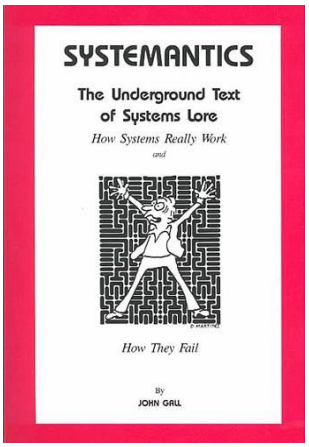
Systemantics:
A Peek at the Systems Underground
by John Gall, MD



[Selected excerpts by John Renesch from the book *Systemantics: The Underground Text of Systems Lore: How Systems Really Work and How They Fail,* Second Edition, 1986, by John Gall, MD]

All around us we see a world of paradox: deep, ironic, and intractable. A world in which the hungry nations export food; the richest nations slip into demoralizing economic recessions; the strongest nations go to war against the smallest and weakest and are unable to win; a world in which revolutions against tyrannical systems themselves become tyrannies. In human affairs, celebrities receive still more publicity because they are "well known"; men rise to high positions because of their knowledge of affairs only to find themselves cut off from the sources of their knowledge … the list is endless. Ours is a world of paradox.

Why is this? How does it come about that things turn out so differently from what common sense would expect?

The religious person may blame it on original sin. The historian may cite the force of trends such as population growth and industrialization. The sociologist offers reasons rooted in the peculiarities of human associations. Reformers blame everything on "the system" and propose new systems that would – they assert – guarantee a brave new world of justice, peace, and abundance. Everyone, it seems, has his/her own idea of what the problem is and how it can be corrected. But all agree on one point – that their own system would work very well if only it were universally adopted.

The point of view espoused in this essay is more radical and at the same time more pessimistic. Stated as succinctly as possible, the fundamental problem does not lie in any particular system but rather in systems as such. Salvation, if it is attainable at all, even partially, is to be sought in a deeper understanding of the ways of all systems, not simply in a criticism of the errors of a particular system.

But although people build systems almost instinctively, they do not lightly turn their ingenuity to the study of how systems work. That branch of knowledge is not congenial to human beings; it goes against the grain. Goal-oriented man, the upright ape with the spear, is interested in the end-result. If the spear flies wide of the mark, man is equally likely to trample it to bits in a rage or to blame the erratic flight on malevolent spirits. He is much less likely to undertake a critical analysis of hand-propelled missiles, and infinitely less likely to ponder the austere abstractions presented here.

If young people lack experience and interest for understanding how systems work, older persons are already defeated. They may have learned by direct experience a few things about systems, but their experience will have been fragmentary and painful. And in any case, for them the battle is over. No, only a handful – only a lucky few – ever come to clear awareness of this dread and obscure subject. Will you be one of those?

No one, these days, can avoid contact with systems. Systems are everywhere: big systems, little systems, systems mechanical and electronic, and those special systems that consist of organized associations of people. In self-defense, we must learn to live with systems, to control them lest they control us. As Humpty Dumpty said to Alice (though in another context): *It's just a question of who is to be master; that's all.*

Book cover illustration by David Martinez

No one, these days, can afford not to understand the basic principles of how systems work. Ignorance of those basic laws is bound to lead to unrealistic expectations of the type that have plagued dreamers, schemers, and so-called men of affairs from the earliest times. Clearly there is a great need for more widespread knowledge of those basic laws. But (and just here is another example of the paradoxical nature of systems-functions) there is a strange dearth of available information written for the general reader. Technical tomes of systems analysis and operations research abound on the shelves of science libraries and of business management institutes. But nowhere is there to be found a single basic primer that spells out the essential pragmatic facts of practical systems in the form of simple and easy-to-grasp axioms. Similarly there are no courses on systems function in our high schools and junior colleges. Like sex education, systems sophistication has until recently been a taboo

subject.

All over the world, in great metropolitan centers as well as in the remotest rural backwaters, in sophisticated electronics laboratories and in dingy clerical offices, people everywhere are struggling with a problem:

Things aren't working very well.

This, of course, is nothing new. People have been discouraged about things in general many times in the past. A good deal of discouragement prevailed during the Dark Ages, and morale was rather low in the Middle Ages too. The Industrial Revolution brought with it depressing times, and the Victorian era was felt by many to be particularly gloomy. At all times there have been people who felt that things weren't working out very well. This observation has gradually come to be recognized as an ongoing fact of life, an inseparable component of the human condition. Because of its central role in all that follows (being the fundamental observation upon which all further research into systems has been based) it is known as the Primal Scenario of Systemantics. We give it here in full:

Things (things generally/all things/the whole works) are indeed not working very well. In fact, they never did.

In more formal terminology:

Systems in general work poorly or not at all.

More technically stated:

Complicated systems seldom exceed five percent efficiency.

But this fact, repeatedly observed by men and women down through the ages, has always in the past been attributed to various special circumstances. It has been reserved for our own time, and for a small band of individuals of genius (working mostly alone) to throw upon the whole subject the brilliant light of intuition, illuminating for all mankind the previously obscure reasons why "things so often go wrong", or "don't work", or "work in ways never anticipated."

No history of the subject would be complete without some reference to the semi-legendary, almost anonymous Murphy who chose to disguise his genius by stating a fundamental systems theorem in commonplace, almost pedestrian terminology. This law, known to schoolboys the world over as "jelly-bread always falls jelly side down" is here restated in Murphy's own words, as it appears on the walls of most of the world's scientific laboratories:

If anything can go wrong, it will.

In Murphy's Law, as thus formulated, there is a gratuitous and unjustified element of teleology, an intrusion of superstition or even of belief in magic which we today

would resolutely reject. The universe is not actually malignant, it only seems so.

Shortly after Murphy, there appeared upon the scene a new and powerful mind, that of Count Alfred Korzybski, in whose honor the entire field of General Systemantics has been named. Korzybski was the author of *General Semantics*, a vaulting effort at a comprehensive explanation of Why Things Don't Work. This early attempt to pinpoint the flaw in human systems was itself flawed, however, by the author's monistic viewpoint. Korzybski seemed to have convinced himself that all breakdowns of human systems are attributable to misunderstandings - in brief, to failures of communication.

Our position, on the contrary, is that human systems differ only in degree, not in kind, from other types of systems. Systems in general are prevented from working, not by some single, subtle, hidden defect, whether of communication or of anything else. Failure to function as expected is to be expected. This behavior results from systems-laws that are as rigorous as any in natural science or mathematics. Hence the appropriateness of the term General Systemantics for the entire field. It is a perfectly general feature of systems not to do what we expected them to do.

Furthermore, the word "antics" hidden in the term "Systemantics" carries this implication in a lively way. *Systems display antics.* They "act up." Nevertheless, as we shall see, Korzybski, by stressing the importance of precise definitions, laid the groundwork for the operational fallacy, which is the key to understanding the paradoxical behavior of systems.

One is tempted at this point to mention the name Ludwig von Bertalanffy, (von Bertalanffy belongs to that small and elite group of names, including Korzybski, Wittgenstein, and Whorf whose exotic syllables both bedazzle in print and also resound intimidatingly when dropped at the right moment) if only to pay due respect to the founder of the scientific, mathematical Theory of Systems. But Systemantics, we hasten to add, is something else again. Systems Theory is a respectable academic subject, elaborated at leisure by professional scholars (mostly with tenure) who have the time and security to make sure that their researches turn out the way they should. Systemantics, by contrast, is almost a form of guerrilla theater. It is the collection of pragmatic insights snatched from painful contact with the burning issues and ongoing problems of the day. Seldom is an axiom of Systemantics derived purely from abstract ratiocination or unpressured cerebration. More often it has the hands-on immediacy of the apprentice's grubby handbook of maxims, marked down with sweaty hands and stubby pencil in the heat of the experience itself.

After Korzybski, a brilliant trio of founders established the real basis of the field. Of these, the earliest was Stephen Potter, who, in the masterly work entitled *One-Upmanship,* painstakingly elaborated a variety of elegant methods for bending recalcitrant systems to the needs of personal advancement. Although Potter's goals were essentially utilitarian, lacking the broad generality of Parkinson's or Peter's approach, he is rightly regarded as one of the pioneers of intervention into the operations of systems.

Following Potter, C. Northcote Parkinson established an undying claim to fame by prophesying, as early as 1957, the future emergence of the problem of table shape in diplomatic conferences. He was triumphantly vindicated in the Paris Peace Talks of 1968, when an entire season was devoted to just this topic before discussion of an end to the war in Vietnam could even begin. No clearer demonstration of the Generalized Uncertainty Principle could have been asked.

Third in the brilliant trio of founders is Dr. Laurence J. Peter, whose Principle of Incompetence lies at the heart of administrative Systemantics.

Having paid this well-deserved tribute, however, one still must recognize that the infant science on whose foundations those giants were working (one must mix metaphors now and then) was still limited. There was no organized set of basic principles from which to operate. The foundations had been laid erratically, a piece at a time, by individual workers of genius.

Still needed was a Systemantics exposition of the fundamental principles – the Axioms – upon which all later superstructures could be built.

We begin at the beginning, with the Fundamental Theorem of Systemantics:

New systems mean new problems.

When a system is set up to accomplish some goal, a new entity has come into being – the system itself. No matter what the "goal" of the system, it immediately begins to exhibit systems-behavior, that is, to act according to the general laws that govern the operation of all systems. Now the system itself has to be dealt with. Whereas before there was only the "problem" – such as warfare between nations, or garbage collection – there is now an additional universe of problems associated with the functioning or merely the presence of the new system.

In the case of garbage collection, the original problem could be stated briefly as "What do we do with all this garbage?" After setting up a garbage-collection system, we find ourselves faced with a new universe of problems. These include questions of collective bargaining with the garbage collectors' union, rates and hours, collection on very cold or rainy days, purchase and maintenance of garbage trucks, millage and bond issues, voter apathy, regulations regarding separation of garbage from trash, etc., etc.

Although each of these problems, considered individually, seems to be only a specific technical difficulty having to do with setting up and operating a garbage-collecting system, such problems are really specific examples of the operation of general laws applicable to any system, not just garbage-collecting. For example, absenteeism, broken-down trucks, late collections, and inadequate funds for operation are specific examples of the general law that *large systems usually operate in failure mode.* Again, if the collectors bargain for more and more restrictive definitions of garbage, refusing to pick up twigs, trash, old lamps, etc., and even leaving behind properly wrapped garbage if it is not placed within a regulation can, so that most taxpayers revert to clandestine dumping along the highway, this

exemplifies the Principle of Le Chatelier, a basic law of very general application:

The system tends to oppose its own proper function.

In most towns of small-to-medium size, a garbage-collection system qualifies as a small-to-medium sized system, and systems of such size often do accomplish a measurable fraction of what they set out to do. Some garbage does get collected. The original problem is thereby somewhat reduced in magnitude and intensity. However, against this one must balance the new problems facing the community, the problems of administering, maintaining, and otherwise adjusting to the collection system. The sum total of problems facing the community has not changed. They have merely changed their form and relative importance.

After the Solution, What?

The word "solution" is only a fancy term for the response of System "A" (ourselves) to System "B" (the problem). And it's a misleading word because it implies something can be done once and for all. But System "B" is sure to kick back in response to our response, and then we must respond once again. Clearly this is a dynamic process, a back-and-forth interaction that can proceed as long as the two systems exist.

But let us not be charmed by the imagery of a perfect dance in which both partners execute their steps flawlessly, where each communicates to the other just what nuances and modifications are about to take place and the other comprehends perfectly and responds elegantly, making the transitions creatively and without missing a beat. Such dancing may occur in the movies, but seldom in real life. What usually happens is more like the experiences of adolescence, where two awkward beginners make all the standard errors and some new ones, fail to pick up their partner's cues, and forget to send their own signals. The images which constitute our spontaneous metaphors of the system are more likely to be those we have encountered in previous pages: the customer kicking a recalcitrant vending machine; the lumberjack laboring to clear a log-jam; the technician trying to make sense of six hundred clanging alarm bells.

Nevertheless, with long-continued practice in interacting with familiar systems, moments can come when our interactions can take on the qualities suggested – when the partners are no longer simply dancing, but also communicating about changing the dance itself. At such rare moments we have reached the level called cybernetics of cybernetics or ultrastability, the level of autonomy, of spontaneity, of creative change. Such moments are the reward of those who recognize the dance for what it is and who persist in the dance.

The world already suffers from too many experts. They tell us more than we need to know or dare to ask about ingenious machines, fusion bombs, and management science. What we really need to know is much more subtle.

We need to know if setting up Management by Objectives in the universities will

bring on another Dark Age; if placing a microphone in the Oval Office can bring down the government; if permitting men and women everywhere the freedom to choose their own way of life and to make their own decisions can lead to a better world. For such questions your run-of-mill expert is of little value. What is required is a special, elusive talent, really an intuition – a feel for the wild, weird, wonderful and paradoxical ways of large systems. We offer no formula for recognizing or cultivating such a talent. But we suggest that its possessor will, more likely than not, have cut his/her eyeteeth on the axioms of General Systemantics.

.