

People as Living Things: The Story

By Dag Forssell 2005

ABOUT PSYCHOLOGY AS A SCIENCE

Psychologists have long expressed concern about the lack of basic principles and scientific rigor in their field. William James, considered by many to be the first great American psychologist, said in 1892 that psychology is not a science, but only a hope of a science. Robyn M. Dawes expressed concerns in *House of Cards: Psychology and Psychotherapy Built on Myth* (1994).

Why is this? Since Francis Bacon, the bedrock of science has been the experimental method. Theories that fail when you attempt to disprove them are rejected. In *People as Living Things*, Philip J. Runkel surveys a welter of descriptive concepts that coexist in the diverse field of psychology (see especially *Models and Theories*, pages 97-101). None have ever been put to a definitive test; few have been rejected, they merely go out of fashion, like phrenology. Very few psychologists ask “how does that work,” and if they do, it is never successfully answered in terms of physical processes. Instead, “explanations” consist of metaphorical word pictures and flow charts. People who are familiar with the physical sciences and engineering recognize that psychology lacks basic principles that can be tested in ways that are essential to the scientific method. Lacking these, psychological research is limited to gross statistical “results” that are often little better than a coin toss.

Thomas S. Kuhn’s landmark work *The Structure of Scientific Revolutions* (1962, 1970) showed how science progresses by a kind of “punctuated equilibrium.” With numerous examples of revolutions in the physical sciences, he showed how revolutions typically are resisted by people engrossed in and committed to the current scientific paradigm, or ways of working in the field. As Mary Powers said in a brief essay, *Mary on PCT**, “It is very hard to believe that one’s training and life work, and that of one’s mentors, and their mentors, must be fundamentally revised.” One well known example of a scientific revolution is the replacement of Ptolemy’s earth-centered cosmology by the sun-centered astronomy of Copernicus and Galileo. Kuhn has no examples from the field of psychology, because there have been none—so far. The new paradigm that will change all this is called Perceptual Control Theory.

ABOUT PERCEPTUAL CONTROL THEORY

Developed by William T. (Bill) Powers starting in 1953, Perceptual Control Theory (PCT) proposes that our nervous system is made up of a very large number of control systems in a hierarchical arrangement, each a simple circuit of neurons which quickly and efficiently can perform the way we do. PCT provides an intuitively satisfying explanation of how purposeful behavior works and what it accomplishes. This is a testable explanation, rooted in the physical sciences, that allows for the complexity of our experience. PCT explains behavior from the inside perspective of the controlling organism rather than from the outside perspective of an observer. Control turns out to be the defining quality of life, the key physical function that distinguishes animate living things from inanimate objects.

When you study PCT, you learn what control is and how it works. You understand how control gives rise to conflict or cooperation, depending on what individuals want and how they interpret their experience. When you understand PCT, dealing with people no longer has to be complex and confusing, a matter of luck, a gift, or something best left to specialists.

Powers’s major technical, detailed and lucid work outlining PCT, *Behavior: The Control of Perception* (1973, reissued as paperback in 2005), as well as other books and anthologies of selected papers by Powers, are featured at www.livingcontrolsystems.com.

With the advent of personal computers, Powers began creating tutorial programs, demonstrations and simulations that anyone can run. These and much more are available at www.livingcontrolsystems.com. As people study PCT in depth and grasp the generative concepts, PCT is destined to revolutionize today’s descriptive, non-functional concepts of psychology as thoroughly as the generative conception of a solar system revolutionized the descriptive, non-functional earth-centered astronomy four centuries ago.

* Files mentioned here are available at www.livingcontrolsystems.com.

ABOUT PHILIP J. RUNKEL

In 1985, the year before he retired as Professor Emeritus of Psychology and Education at the University of Oregon, Phil Runkel wrote Bill Powers a six-page letter asking questions about an article by Powers published in *Psychological Review* in 1978, seven years earlier: *Quantitative analysis of purposive systems*.

Powers replied with a nine-page letter dated only six days later.

As Runkel studied PCT, he found it necessary to jettison crucial assumptions that underlie traditional theory and method. It is possible that Runkel relinquished those assumptions more easily because of some earlier experiences with the way things work in the physical sense; for example, he worked some years as an engineering draftsman, and he was granted a patent in switchboard circuitry.

By 1989, Runkel published *Casting Nets and Testing Specimens—Two Grand Methods of Psychology*, in part as a way of trying his understanding of PCT on for size. This book is an excellent exposé of proper and improper use of statistics in psychology, and includes an introduction to PCT.

Runkel continued his project of writing a book on life in organizations (spelled out in that first letter to Powers) accumulating materials and planning how to introduce and explain PCT to a wider audience. In *People as Living Things*, he introduces PCT and relates it to the broad panorama of contemporary literature and thinking in psychology and related applications.

Here is a comment from Dr. Frans X. Plooi, Director, International Research-institute on Infant Studies (IRIS), The Netherlands: “I started reading your book to see whatever you have to say about systems. Then I really got fascinated by your book and read it from start to finish. Very impressive! And a feast of recognition where you say that integrating PCT into your thinking does not come overnight but takes years. Your knowledge of the psychological literature is enormous and the way you linked PCT thinking with that literature (or discussed it against the background of that literature) was very instructive to me.”

ABOUT THE BOOK TITLE

Control of input by means of output is the defining characteristic that distinguishes living things from inanimate objects. Runkel discusses this crucial difference on pages 13-18, with a summary on page 122.

The essence of the scientific method is to apply a force, stimulus or disturbance to an object and observe the result or reaction. A high correlation between cause and effect is taken to indicate a causal relationship. Where linear causation applies, such as with inanimate objects, this method is appropriate.

Linear cause and effect is appropriate for describing inanimate things like billiard balls. It is an enormous mistake to presume that linear cause and effect can explain the behavior of living things. If a force (a stimulus or disturbance) is applied to a variable that a living organism perceives and is controlling, the organism produces countervailing forces to maintain that variable in states that it prefers. It does this by processes of circular causation with amplification. The usual simple conceptions of cause and effect are not sufficient. A high correlation is found between the disturbance and the action by which the organism resists it, but this tells you nothing about the inner working of the organism. The important fact is that the correlation between the disturbance and the state of the disturbed variable approaches zero, depending on how well the organism is controlling that variable.

A lack of understanding of the fundamental property that distinguishes living things from inanimate objects has trapped psychologists in inappropriate applications of the scientific method blindly modeled on the methods of the physical sciences, which presume linear cause and effect.

The point of the book title is that PCT—*the psychology of perceptual control*—enables us to study and understand people on the basis of a scientific explanation that recognizes that we are alive and purposeful—that we are living control systems, not inanimate objects pushed about by linear cause and effect.

ABOUT THE SUPPORTIVE MATERIALS

(Posted at www.livingcontrolsystems.com)

Perceptual Control Theory is a technical explanation of how we can walk, talk, and chew gum, all at the same time, and on the rolling deck of a ship at that. To understand the theory, it is essential that you develop a correct understanding of how control works. In the world today, very few people have such an understanding—after all, control was not clearly described until 1927 (by an engineer at Bell Laboratories).

The tutorial programs DEMO1 and DEMO2, plus Track Analyze will help you understand control in detail. Other demonstrations and simulations build on the basic insight you will develop by studying these tutorials.

As you study PCT, you will naturally ask yourself how PCT explains this and that phenomena discussed in psychology. PCT explains some phenomena very well indeed, while some others prove to be illusions. Things may appear one way, but the way we talk about our observations suggests an explanation that may be wrong and misleading. People observed long ago that the planets periodically move in reverse. Aristotle incorporated epicycles in his astronomy to account for that “fact” and these ideas survived well into the 1600s. The planets never reverse direction—it just looks that way from the earth. When you understand the explanation of the solar system, you understand why the idea of epicycles was mistaken. The same thing is true of many contemporary behavioral “facts” in relation to the explanation PCT offers.

As you run the tutorials and simulations so you understand control well, and as you experience various situations, you are bound to reconsider what is going on—and the explanations inherent in our language and culture—based on your new understanding.

It is very difficult to determine the scientific validity of PCT by just reading about it. Look at the technical details to see just exactly how things work—run the simulations yourself. Mary Powers put it succinctly in a communication to CSG net in 2003: “At the blah-blah-blah level, Hierarchical PCT is no better than any other theory.” The tutorials and simulations are there to take you way beyond the blah-blah-blah level.

ABOUT THE PUBLISHER

I read *Behavior: The Control of Perception* in 1988. I found a truly scientific approach to explaining human nature. It is remarkably simple, lucid and compelling. Perhaps it was easy for me as a mechanical engineer, but I know others who have found it just as lucid and compelling, people without a technical background, but willing to work their way through the detailed explanations. I joined the Control Systems Group (CSG), a loose association of people interested in PCT in 1989. My involvement with *People as Living Things* started in 2000 when Phil Runkel tugged at my shirt sleeve during a break at the CSG conference and said he wanted me to review his forthcoming manuscript for technical accuracy.

Once the MS was finished Phil wrote: “I have a file of my paper-mail correspondence with Wm Powers that started in 1985. I have no more use for it. Do you want it?” Of course I did! I scanned the thick pile of letters and sent a CD to Bill. He wrote: “Dag, I have received the CD-ROM and have spent several hours reminiscing through that old correspondence with Phil. It seems as if it happened in a different world, but only yesterday. Phil truly brought out ideas I had only halfway considered, and made me think carefully where I had been careless. I have come to think of him as Brother Phil.”

I now have Runkel’s side of the correspondence, and Powers’s side too. I am determined to share the letters. Phil’s and Bill’s focused, respectful correspondence covers the waterfront of PCT-related issues and makes a wonderful PCT tutorial.

Dag Forssell, April 2005

Update 2009: Note the updated tutorial programs that are part of *Living Control Systems III*, published by Benchmark Publications in 2008.

Update 2010: The correspondence between Runkel and Powers is now available as *Dialogue Concerning the Two Chief Approaches to a Science of Life*. Powers and Runkel (2011). Living Control Systems Publishing, Hayward, CA.