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Book Review

Putting a New Spin on Groups: The Science of Chaos. By Bud A. McClure. Mahwah, NJ: Lawrence Erlbaum Associates, 1998. 248 p. + viii. ISBN 0-8058-2904-0.

The last few years have been fruitful for the exploration of nonlinear dynamics in the social sciences. Following the initial work of Vallacher and Novak, there has been an ever growing body of literature. The present work seeks to add to that literature. The author presents a model of the dynamics of communication in psychotherapeutic groups within the conceptual frame of chaos theory and Arthur Taylor's model of evolution. The author begins with several chapters which survey the fundamental concepts of nonlinear dynamics. The subject of nonlinear dynamics and chaos has been in the public imagination for almost two decades. The field has matured to the point where considerable consensus has been achieved as regards basic definitions and central problems, and a core body of theory has been developed. Several excellent textbooks are now available that are accessible to anyone with even a high school education in mathematics. Those wishing access to the field have at their disposal primary sources capable of providing a proper grounding in the ideas, much as one would begin their study of psychoanalysis with a detailed study of Freud, Jung, Winnicott, Bowlby, Yalom, Hillman and so on. Unfortunately far too many social science books base their discussion of nonlinear dynamics on secondary sources, in which the basic concepts are subtlely, but significantly altered, rendering the correct application of the ideas suspect at best. This book is no exception. For example on page 5, the author includes the following quotation "[T]he attractor is a product of the organization. Mathematically and physically it is the point that completely describes the state of the system at that particular moment." The latter sentence is a partial definition of the idea of a state. An attractor is a set of states towards which certain trajectories (those within the basin of attraction) converge over time. The difference is as great as that between

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an economy and a corner grocery store, or between an individual and a nation.

Another central concept, that of bifurcation, is also defined in a sloppy manner. On page 12 the author writes "Bifurcation refers to the process of splitting a system into matching parts as the system moves from order into chaos." The use of the term in mathematics has achieved wider application than per its original conception but it refers to a qualitative change in the dynamics of a system as one or more defining parameters is varied. Sometimes this involves a transition from fixed point behavior to periodic behavior through period doubling cascades. Sometimes it involves merely a change in stability. The author does not make a clear distinction between the stability of states, trajectories, dynamics and systems. These might seem like quibbles, yet we can remember our own analytic training in which considerable time and attention was paid to ensuring a proper understanding of the basic concepts.

The author presents Young's theory of evolution in some detail and applies it to a model of group process. While these ideas are intriguing, the author himself acknowledges that Young was an eccentric and that the ideas are outside of the mainstream, and therefore it seems to us that more care needs to be taken in dealing with criticisms of the model, and of presenting evidence for its validity. The author's model of group development doesn't need a questionable theory of evolution for support. It would seem capable of standing on its own merits.

Some of the examples in these early sections seem vague, if not perhaps dubious. For example on page 9 when talking about the self-similarity of fractals: "Even our personalities evidence a fractal quality: our handwriting, the clothes we wear, the way we keep our houses. . . ." We see similarity here, but not fractal dimensionality. Later on page 14 when talking about phase-locking and synchronization, suddenly comes Hooper and Teresi's conclusion: "The quintessence of nature's self-organizing principle is consciousness," on the basis of the fact that consciousness is able to organize random perceptions into a pattern. Yet three levels of unconsciousness are able to do the same thing, and not only in human perception. On page 36, while speaking about the degrees of freedom within Young's theory of evolution, the author underlines that both light and humans "are totally free." This is not true at all. Both light and humans have limited capacities and natural constraints. On the next page one reads that "according to Heisenberg's uncertainty principle, particles retain two degrees of freedom: position and movement." This is not a true interpretation of Heisenberg's uncertainty principle, which concerns itself with the relationship between the accuracies of measurement of noncommuting observables. It is likely we would not be so critical if the work were not subtitled "The science of chaos."

The author proceeds in the middle section of the book to shift the focus away from a depiction of the science behind chaos and complexity and onto a study of group dynamics. In particular, the author focuses upon just one aspect of group dynamics: the role of the leader. The book becomes a manual for the development of group leadership skills, describing in some detail, various approaches and tactics that a potential might utilize in order to influence the dynamics of the group. He underlines an importance of affective relations and feedback in such a group interaction. These sections were quite interesting and likely many novice practitioners of group psychotherapy will find these ideas useful. These sections might have been better served, again in keeping with the scientific orientation of the book, with some reference to the available literature demonstrating the effectiveness of the methods described.

The author mentioned other forms of group interaction (non-formal, referent, with several leaders, temporal groups, big size groups, etc.) only briefly, referring to them as "regressive groups" (p. 167). He considers as regressive even the most basic type of a group—the goal-oriented (or, in his words, task-oriented) group, because of the lack of emotional attachment and affective regulation within such groups (p. 95). This does a disservice to the vast variety of group interactions that exist outside of the rather narrow clinical domain. There is a rich literature in social psychology and sociology, none of which is mentioned here, in spite of the rather general title which might suggest otherwise to the casual reader.

In his penultimate chapter, the author describes the possibility that groups might serve a wider role in human experience, drawing upon the work of Jung and Loye. This is a noble undertaking. The approach taken here, however, is metaphysical rather than scientific. The main reference to the scientific attitude towards transpersonal group phenomenology is summed up in a quotation from Allport "the error of substituting the group as a whole as a principle of explanation in place of the individuals in the group" (p. 184). Unfortunately the author seems unfamiliar with the large and growing literature on collective intelligence and emergent computation, in which group processes can be observed and the dynamics of the group can be clearly demonstrated to be greater than that of individuals that comprise it. These ideas are currently fueling research into the dynamics of the Internet, and the creation of autonomous robotic agents. The inclusion of at least a passing reference to the modern scientific literature in this area would have furthered the author's goal of presenting a science of chaos.

Overall, the book should prove interesting for those psychotherapists, who are not familiar with the concepts of chaos theory, and for those mathematicians, who would like to know how psychotherapeutic groups operate. It provides a set of metaphors that might prove useful in stimulating

creative group work in daily practice. This book however can not be recommended for those who would like to learn more on application of chaos theory to group studies, or to a study of universality in collective behaviour.

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