Theoretical Aspects of Living Systems: 
Philosophical Pitfalls and Dynamic Constructs

Ivan Ilych saw that he was dying, and he was in continual despair.

In the depth of his heart he knew he was dying, but not only was he not accustomed to the thought, he simply did not and could not grasp it.

The syllogism he had learnt from Kiezewetter’s Logic: “Caius is a man, men are mortal, therefore Caius is mortal,” had always seemed to him correct as applied to Caius, but certainly not as applied to himself. That Caius—man in the abstract—was mortal, was perfectly correct, but he was not Caius, not an abstract man, but a creature quite, quite separate from all others. He had been little Vanya, with a mamma and a papa, with Mitya and Volodya, with the toys, a coachman and a nurse, afterwards with Katenka and with all the joys, griefs and delights of childhood, boyhood, and youth. What did Caius know of the smell of that striped leather ball Vanya had been so fond of? Had Caius kissed his mother’s hand like that, and did the silk of her dress rustle so for Caius? Had he rioted like that at school when the pastry was bad? Had Caius been in love like that? Could Caius preside at a session as he did? “Caius really was mortal, and it was right for him to die; but for me, little Vanya, Ivan Ilych, with all my thoughts and emotions, it’s altogether a different matter. It cannot be that I ought to die. That would be too terrible.”

Leo Tolstoy

The Death of Ivan Ilych (1886)

The Philosophical Pitfall of the Mind–Body Dichotomy

We come now, in this last part of the book, to a partial synthesis of the information that we have reviewed earlier. We do so with some trepidation, fully recognizing the impossibility of satisfactorily reducing the complexities involved to a comprehensive general theory.

Tolstoy’s description of subjective anguish upon recognition of an untimely death
Chapter 8

illustrates one aspect of the issue. Much of the suffering in melancholia and the disorders at its fringe is highly personal. It is bound up with being alive; the intimate knowledge of the self transcends the empirical world and is little served by an intellectual understanding of psychobiology. While we enjoy far more information and sophistication in science than did Descartes, the existential dilemma of the self remains. We are each an Ivan Ilych, unique unto ourselves in life and struggling, with varying degrees of success, to develop a personal sense of order, meaning, and purpose. It is not the intent of this chapter to debate these philosophical issues; we shall simply agree with Karl Popper that the self exists as a dimension of being alive.2

It is our hope that the discussion in these last chapters will not automatically be interpreted as an argument for determinism; while accepting the mysteries of the self, we do not seek to perpetuate the debate over mind and body. We believe the division to be a structural pitfall, an innate human preference largely irrelevant to the broader task. It is just an easier way to think—at least until we become sick or grow old. Never as human beings have we been content to accept the self as a component of biological mechanism—or even ourselves as part of the larger animal herd. We maintain by preference an imperial posture, one reflected in our language; it contains many words useful in describing ourselves and our bodies, but rarely does any one word serve both tasks. Descartes did not invent the dichotomy of mind and body, but used it, consciously or otherwise, as an expedient which freed scientific investigation from the intrusions of the established church and the cultural dictates of his time.

Today we intellectually recognize that the integrity of mind is dependent upon the integrity of body—specifically that of brain. There is no debate of this as a fundamental postulate. Hence beyond the existential question of what it is, the dynamic qualities of mind will presumably be further illuminated by a better understanding of the fundamental processes of brain, upon which it is physically and conceptually dependent. Understanding more about the nature of psychobiological process should therefore generally assist us in thinking about ourselves. That is the essential task of this chapter, preliminary to the larger synthesis.

The approach we shall adopt is necessarily theoretical, although not exhaustively or even exclusively so. In addition to a review of dynamic theory as it relates to living organization, we shall explore in some depth biological rhythms, especially circadian and seasonal rhythms in ourselves. We shall also touch upon mathematical theory that holds promise for a future dynamic language, but sadly at present offers little more than a reminder that we must think in complex interactional terms despite our natural tendencies to reduce and divide. Finally, we shall summarize in note form those dynamic constructs that have been implicit in our earlier review and analysis of the literature in affective illness and will explicitly guide our subsequent discussion in Chapter 9.

Living Organisms as Open Systems: Dynamic Stability through Regulation and Control

Although in constant commerce with its environment, a living organism retains its autonomy. It is an open system. This characteristic is in marked distinction to a system