Chapter 1

The springs of action

People have always been fascinated by the actions of others. We like to hear about the doings of neighbors, friends, fellow citizens, even strangers in far-off places. We exchange news orally; we read newspapers and magazines; we watch television. We have, most of us, such eagerness for tales about others that we devour not only news about actual people, but also tales about wholly fictional people in books, in theaters, and on television. Many of us listen avidly to storytellers.

Some of our desire for news about others comes from the sheer practical importance of the information. Has George come home yet with the groceries? Does the teacher approve what I wrote in my essay? Are the people at that company offering employment of a kind I want? Have the people at the bank credited the check to my account? Is this person welcoming my attentions? A great deal of the time, however, we seem to seek information about people, real or imaginary, for the sheer fascination of it. Much of the time, we listen to the current gossip, go to the theater, read a novel, or watch television not to be instructed, but merely to enjoy watching people choose actions that get them into or out of interesting situations. Some of the pleasure is esthetic, and some is simply that of "Gee whiz! Imagine that!"—like the pleasure of discovering the unending variety of stones and shells on the seashore. Much of the pleasure of the sciences is of that last sort—a pleasure any collector knows. Here is a fine specimen—and it goes into a case with others of its kind or perhaps into a case by itself.

Often, merely watching the passing parade is not enough. Often, we want to fit our new experience into our earlier experience to make categories and sequences, connections and patterns, so that our memory becomes more than a jumble of items. We want to explain, interpret, understand, or "find meaning in" the behavior of our fellow humans. "Is this the kind of behavior I should expect from Alfred in the future?" "Will Maisie always be angry in situations of this sort?" "What caused Veronica to wait so long?" "Why did Joe choose to do *that?*" Sometimes we think a work of fiction fails to match our own experience: "Would any real person do *that?*" Questions of that sort and also answers to them come into out minds repeatedly, every day. I write in this book about understanding the actions of others and of ourselves.

Some of us spend the greater part of every day dealing with actions of others and ourselves—anticipating actions, estimating the consequences of the actions that occur, adapting our own actions to those actions, and reflecting on what happened. A salesperson does that, and so does everyone who deals much with other persons—clerks at check-out counters, taxi drivers, counselors, clergy, librarians, hairdressers, nurses, politicians, managers, social workers, police, waitpersons, and so on. When we are with our families, we deal with their actions and our own almost constantly.

Some of us spend long hours alone, out of reach of others. Some people spend hour after hour in front of a computer-screen writing programs. Some spend hours in a lonely laboratory working with chemicals or bacteria. Some people go off into the wilderness to be "away from it all." Charles Proteus Steinmetz (1865–1923), the famous electrical engineer and inventor, liked to get in a canoe and paddle into the middle of a lake to think about electrical machinery. I do not know how much Steinmetz, afloat, thought about his relations with other people. But some people go off to a quiet place expressly for the purpose of reflecting on relations among people more deeply than is possible while interacting with others. Henry David Thoreau (1817–1862) went off to Walden Pond and wrote a good many essays

about his relations with other people in the world and their relations to one another. (Actually, he was not as isolated as the popular tale has it. One biographer writes, ". . . hardly a day went by that Thoreau did not visit the village [of Concord] or was not visited at the pond.") People who think even a little about the complexities of social life often feel the urge to get away from the constant demands of others upon their attention—to get to a place where they can sort through their own thoughts about all those demands. Sometimes they think about the subject while riding on the subway, sitting in a waiting room, or lying in bed. Sometimes they go into a study, close the door, and write books.

We do not, any of us, think about the actions of ourselves and others at every opportunity. I might go up to a clerk in a store and ask, "Do you have any sport shirts cut straight across the bottom?" If the clerk says "Yes, right over there," or "No, sorry," I go on to the next step without pausing to wonder about how the clerk came to say "yes" or "no." If, however, the clerk says, "Who cares?" and walks away, I am likely to wonder how that reply could have come about. Most of us, I think, reflect upon human action now and then, fitfully, and unsystematically.

Some of us, sometimes, take pains to think about human action systematically—to search for features of human action that always stay the same, to examine carefully the reliability of the information we get, to examine the logical connection between the information and our beliefs about the constant features of action, and to look for instances of behavior that could *contradict* the beliefs we are forming. When we take all that care with information, logic, evidential connections, and disproof—when we search for statements about human action that will hold up against all conceivable observations of action in the actual world—then we are thinking about human action in the way *scientists* are presumed to do. I will try in this book to maintain the scientific point of view, but I will try also to give as much respect to information from everyday experience as to information from the laboratory. You saw me do that in the introduction to this part of the book when I wrote that it is obvious that living and nonliving things obey different laws of behavior. By "obvious," I meant that nobody has to do a systematic experiment to ascertain that fact.

When I want to refer to the scientific study of human action, the available terminology is awkward. "Psychology," "social science," and "life science" all have their advantages and disadvantages for use here. I will be writing mostly in the domain where those subjects overlap, but I will also stray now and then to one side or another. Instead of trying to be precise, I think it will be best merely to ask you to understand that I will be using those labels and some others, too, all somewhat sloppily.

TWO SPRINGS OF ACTION

In thinking about human action, we must pay attention to two sources of the need to act. One source is the person, or more precisely, the mind—the many patterns of electrochemical activity in the nervous system (or neural net) of the individual. The other source is the environment—the many events out there producing energies that impinge upon our sense organs and the many objects and materials we can use in our daily pursuits. Action or inaction depends on the interaction of those two sources. Neither source alone can produce action in a living creature. I will give several examples here of the way acts result from the linking of the two sources. I'll begin with the intensity of light striking the retina of the eye.

Example: Amount of light

Our nervous system is connected to the light-receptors in the eye in such a way as to regulate the amount of light falling on the retina. When the light is brighter, the nerve bundles from the retina send electrical pulses toward the brain at a more rapid rate than when the light is dimmer. The nervous system maintains a memory of the range of light intensity within which the retina will function properly. When the light is too bright, the iris contracts at the center so that the pupil becomes smaller, admitting less light. If the light is so bright that shrinking the pupil cannot keep out enough light, we can close our eyelids, hold a hand in front of our eyes, turn the head away from the source of the light, put on dark glasses, pull down a shade, walk to the shady side of the building, and so on. We act to maintain or achieve a desired perception—to maintain the desired level of some incoming energy that can be sensed. But if the light intensity is just right to match the internal standard for brightness, we do none of those things. The "act" we choose then is to leave things as they are; an observer would think we were paying no attention to the intensity of the light. When the incoming light is

within the "right" range of brightness, we usually pay the fact no conscious attention. We become aware of "too much" or "too little" light when the action of the iris and the eyelid no longer suffice to bring us the intensity we want.

Note the necessary sources of the act. First, there must be an internal standard for a level or range of incoming energy that we want to maintain. In this example, we want the incoming light to be neither too bright nor too dim. That standard is the (1) *internal source* of the act. Second, there must be a disturbance of that level or range such that, if the disturbance were not opposed, the perception of the incoming energy would no longer match the standard. In this case, I gave the example of the environment supplying light that is too bright. That disturbance of the desired level or range of perception is the (2) *external source* of the act. Neither of those necessary sources of the act, however, specifies a particular act by which the individual will bring the level of light back to the level wanted.

We choose acts (a) that we conceive to be likely to alter the magnitude of the disturbed perceptual variable so that it matches the internal standard and (b) that make use of objects that we perceive actually to be present in the environment. For example, I might think of reducing the general level of light in the room by covering a window. I might notice that the window is flanked by drapes pulled to each side. But if I believe the drapes to be purely decorative, and do not conceive that they might be brought together to cover the window, I will not act to do that. That is an example of the first case (a) conceiving a way to use a chunk of the environment. For an example of the second case (b), I might think of putting on dark glasses, but I could not do so if I had brought none with me and saw none nearby.

There is a third necessity if a particular act is to occur. Even though we judge some feature of the present environment to be suitable for use in restoring a perception to the level we desire, we will not choose that line of action if doing so will threaten some other variable we are controlling. For example, a friend might be sitting beside a window reading a book. In that case, I might not pull down the shade to reduce the general level of light in the room, because doing so would disturb what I perceive to be a comfortable environment for my friend. I would choose some other act instead.

Here I want you to think back (or even look back) at what I have been expecting you to find interesting about light falling on your retina. I have not been asking you to imagine yourself an experimenter watching someone else's actions when the experimenter shows the person certain kinds of things. Nor have I been writing about kinds of actions or conditions that an experimenter might find going along frequently with some other kinds of action on the part of some people the experimenter was watching. Instead, I have been asking you to imagine light falling upon your eye, to imagine what you might care about when that is happening, and to imagine what you might do to keep the light at an intensity you prefer. You will find that emphasis on perception and on *your* point of view (not an experimenter's) throughout this book. That emphasis is characteristic of Perceptual Control Theory (PCT). That is not to say that Perceptual Control theorists disdain experimentation. Quite the contrary. In their experiments, however, they are not seeking to learn how the world is experienced by experimenters, but how it is experienced in everyday life by anyone.

In this first example, I have set forth three necessary features of the two springs of action, though the matter gets complicated in a situation containing many persons, each controlling many perceptions simultaneously, those persons sharing an environment rich in opportunities to take action to restore levels of disturbed perceptions they want to control, cherishing differing understandings of the possibilities in the environment for restoring their disturbed perceptions, and sometimes acting in ways that interfere with the actions of others. Later parts of this book will be devoted to the ways we deal well and poorly with such a complicated situation. The early chapters, however, will explain how certain characteristics of individuals give them their *capacity* for dealing well or poorly with disturbances of their controlled perceptions.

Requisites for a Particular Act

Before going on to further examples, I will review now what I have said so far about the springs of action, but in a more formal way, and add some comments. For a *particular* act to occur, it is first necessary that the person be motivated to take *some* act—that is, it is necessary that the person experience (not necessarily consciously) a mismatch between (a) an internal standard for what the person wants to perceive and (b) the actual perception. That mismatch or discrepancy motivates action. The first two Requisites for action, therefore, are