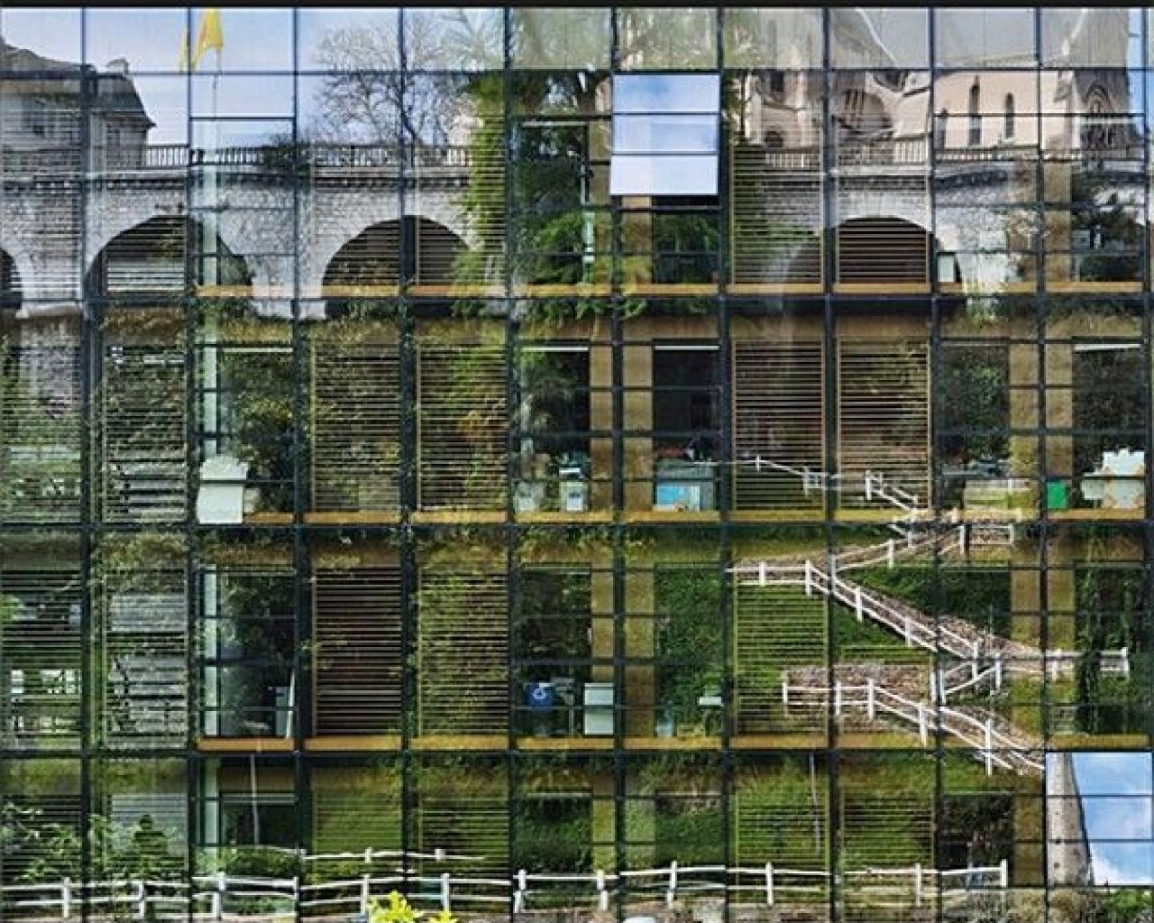


Eighth Edition

A History of PSYCHOLOGY

From Antiquity to Modernity



THOMAS HARDY LEAHEY

ROUTLEDGE

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Preface to the Eighth Edition

This new edition of *A History of Psychology* has taken longer than usual to appear because of a change in publisher from Pearson to Routledge. This move has, however, allowed me profitable time to research and write new material and rewrite older material that was awkwardly phrased, misleading, or out-of-date. Throughout, I have updated a lot, especially by adding paragraphs illustrating how psychological ideas have been shaped by the cultures in which they developed, strengthening a major theme of this book. For example, in [chapter 2](#), I discuss how early Christians' wrestling with the problem of the expiation of sin—a concern unknown to pagans—deepened the mind-body problem bequeathed it by the Greeks and Romans. I have also worked to clarify and advance my contention that as a science, psychology was a product of modernism and a maker of postmodernism, by rewriting the Boxes and reinforcing their linkages to the main narrative of the text.

Larger changes include:

- At the request of reviewers, I have expanded my treatment of psychoanalysis as a movement past its founding by Freud, in [chapters 9](#) and [14](#).
- In the chapter on Cognitive Science ([chapter 12](#)), I have added sections on important recent developments, including:
 - The appearance of embodied cognition theorists who reject the information-processing view of the mind, seeking to replace it with a radical behaviorism-like view emphasizing bodily doing over inner thinking.
 - Recent breakthroughs in artificial intelligence, such as building computers that are structured like the brain, and the deep learning algorithms fundamental to social

media and driverless cars.

- The rise of behavioral economics, a fusion of economics and psychology, whose findings are being used by social policy wonks at the highest levels of government to manage human behavior in the postmodern world, as in the Affordable Care Act (aka, Obamacare) in the US.
- I have added sections called Crisis calling attention to critical developments in both scientific and applied psychology.
- In [chapter 12](#) on Cognitive Science, I discuss the important recent discovery that many seemingly established and, importantly, widely reported psychological research findings fail to reproduce, casting doubt on the always dodgy status of psychology as a science.
- In [chapter 14](#) on the Psychological Society, I discuss the black eye received by the discovery of the American Psychological Association's complicity in the conduct of torture on detainees at Guantanamo Bay, revealing the temptations of power to practitioners of what considers itself to be a benign helping profession. As the British Lord Acton said, "Power corrupts."

I hope you find this new edition useful. Let me know what you think: tleahey@vcu.edu.

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March 26, 2017

Part I

Situating Psychology

Chapter 1

Introduction



Figure 1.1 When Wilhelm Wundt proclaimed the founding of psychological science, he said it was the outcome of an “alliance” between philosophical psychology and the new science of physiology. While this ambition proved premature, it is now coming to fruition in cognitive neuroscience, which uses methods undreamed of by Wundt to connect mind and brain.

Source: Bettmann / Getty Images.

Understanding Science

Plato observed that philosophy begins in wonder. Science also begins in wonder—wonder at the inner workings of nature—and

all sciences, including psychology, were originally part of philosophy. Over the centuries, the special sciences gradually became independent of philosophy. Psychology was one of the last of the special sciences to separate from the parent, remaining part of philosophy until the nineteenth century. The founders of psychology were philosophers as well as psychologists, attempting to find scientific answers for many philosophical questions.

Psychology means *psyche-logos*, literally, the study of the soul, though the term was not coined until the seventeenth century and was not widely used until the nineteenth century. Philosophers and religious teachers around the world have wrestled with the nature of the soul: Does the soul exist? What is its nature? What are its functions? How is it related to the body? While psychologists resist the term *soul*, preferring the less religiously loaded term *mind*, they have continued to address these vexing questions. Even psychologists who define psychology not as the study of the mind but as the study of behavior have different answers to these questions.

Since the time of the ancient Greeks, philosophers have inquired into how human beings know the world. This enterprise is called *epistemology*, from the Greek words *episteme* (knowledge) and *logos* (discourse). Asking how human beings know the world involves questions about sensation, perception, memory, and thinking—the whole realm of what psychologists call *cognitive psychology*.

Ethics is another area shared by philosophers (and religious thinkers) and psychologists. Although ethics is centrally concerned with how people ought to act, practical ethics depends on a conception of human nature. Are people, by nature, good? What motives do people have? Which ones are wholesome and which should be repressed? Are people social by nature? Is there a common good life all humans ought to live? Such questions are profoundly psychological and can be informed by scientific research on human nature. Ethical concerns manifest themselves in many areas of psychology. In

scientific psychology, we find them in the studies of motivation and emotion, social behavior, and sexual behavior. *Applied psychology*, whether in business, industry, government, or in individual clinical and counseling psychology, is deeply involved in human ethics. People come to psychologists wanting to be happier or more productive, seeking the psychologist's scientifically informed help. The psychologist's knowledge of motivation, emotion, learning, and memory gives him or her tools to change behavior, but the psychologist must not be merely the client's servant. A business-consulting psychologist may need to tell a client that he or she is the problem in the company, and no ethical psychologist would teach a con artist how to improve his or her self-presentation skills. Science is traditionally value-neutral in pursuing the secrets of nature, but, as Francis Bacon said, "Knowledge is power," and the tools of the applied scientist must be rightly used.

Although the conceptual foundations of psychology are to be found in philosophy, the inspiration for the creation of an independent science of psychology came from biology. The idea that the functions philosophers and others ascribed to the mind depended on underlying processes of the brain had been fitfully entertained since the days of the Greeks but had attained the status of a conviction by the mid-nineteenth century. The founders of psychology hoped that, by taking a path to the mind through physiology, what had been speculative philosophy and religion might become naturalistic science. A younger branch of biology—evolution—also shaped the founding of scientific psychology. Especially in Britain and America, philosophers and psychologists began to ask what the mind was good for in the struggle for existence that was evolution by natural selection. Why should we be conscious at all? Were animals conscious? These new questions would disturb, yet animate, psychologists from the beginning. Therefore, we will be concerned not just with the abstract questions of philosophy, but with the growing understanding of the brain and nervous system from the Classical era to the present.

Modes of Scientific Explanation

From the nineteenth century onward there has been general agreement that psychology is, or at least ought to be, a science. The nature of science—what psychology aspires to be—is a good starting point for understanding it. People expect science to explain how and why the world, the mind, and the body work as they do. *Philosophy of science* tries to understand how science works (Rosenberg, 2005). The modern style of scientific explanation began with Isaac Newton and the Scientific Revolution (see [chapter 5](#)).

Box 1.1 Positivism

Positivism was a self-consciously modern movement, and thus part of *modernism* even before the term came into use. It began with a rather eccentric Frenchman named Auguste Comte (1798–1857) and his positive philosophy. It wasn't positive in the sense of "positive psychology," but positive in a philosophical way. His enemy was speculative philosophy that trucked with unseen things like gods and Forms, and he wanted to replace it with a philosophy based on directly observable—positive—facts (if there are such things). He saw human history as passing through three stages, the first two of which were based on speculative philosophy. During the *theological stage*, people thought that gods caused events and the natural rulers of society were thus priests, who supposedly understood the gods and could entreat or control them to human advantage. The second stage was the *metaphysical stage*. People (or at least the elite) no longer believed that gods controlled the world, but did believe in unseen essences and forces that did. The natural rulers were thus kings and aristocrats—the elites—who understood these hidden Truths; we'll meet them as Plato's Guardians in the [next chapter](#).

The last—modern—stage was the *scientific stage*. Gods

and metaphysics were jettisoned for Newtonian science, which understood the genuine causes of events and which could therefore really deliver the goods for human welfare in a way that priests and aristocrats could only fake—to their own interest, rather than humanity's. The natural rulers would thus be scientists, specifically the scientists whose expertise was society itself—sociologists. Psychologists would count themselves among the number of the new elite. As founding psychologist James McKeen Cattell wrote, “Scientific men should take the place that is theirs as masters of the modern world” (quoted by Herman, 1996, p. 55).

The Nomological Approach: Explanation by Laws of Nature

Newton defined his scientific enterprise as the search for a small number of mathematical laws from which one could deduce observed regularities in nature. His domain was the physics of motion, which he proposed to explain in terms of three laws of motion and a law of gravity, and he showed how his laws could precisely account for the movement of the bodies in the solar system. As an example of the Newtonian style of explanation (Cohen, 1980), we will take the law of gravity: Between any two bodies there is a mutually attracting force whose strength is inversely proportional to the square of the distance between them. Newton was criticized by his contemporaries for failing to provide any mechanism to explain how gravity worked; to them, action at a distance between two objects smacked of magic. Newton, however, replied, “*Hypotheses non fingo*,” “I do not feign [propose] hypotheses.” Newton refused, in other words, to explain his principle of gravity; for him, it was sufficient to postulate a force from which one could predict the motions of the heavenly bodies.

With Newton began a new philosophy for understanding nature that was later codified in an extreme form by Auguste Comte (1798–1857) and his followers, the *positivists* (see [chapter 7](#)), who said science worked because of the Newtonian

style of remaining as close as possible to the observable facts and as far as possible from hypothetical explanations. Thus the basic job of science is *description* rather than explanation. Scientists are supposed to closely observe nature, looking for regular occurrences and reliable correlations. On the basis of their observations, scientists would propose scientific *laws*, such as Newton's law of gravity. Extending Newton's reluctance to frame hypotheses, positivists understood scientific laws to be mathematical summaries of past observations rather than truths of nature.

From the first function of science, description, ideally summarized as laws, arises the second function, *prediction*. Using Newton's law of gravity and his three laws of motion, scientists could predict future events, such as eclipses and the return of comets. Finally, prediction from laws made *control* of nature possible. Using Newton's laws, engineers could calculate the thrust required to throw satellites into precise orbits around the earth and send probes to the distant planets. Knowledge, as Francis Bacon said, is power, and control was the ultimate rationale for science in the positivist's philosophy. Comte looked forward to the scientific rule of society, and the desire to apply scientific psychological expertise to Comte's project played an important role in shaping twentieth-century psychology.

Description, prediction, and control were the only three functions assigned to science by the first positivists. They regarded the human desire for explanations—answers to *why* questions—as a dangerous temptation to indulge in metaphysical and theological speculation. However, in 1948, the contemporary era of philosophical understanding of explanation began with the publication of “Studies in the Logic of Explanation” by two logical positivists, Carl Hempel and Paul Oppenheim. Their “epoch-making” (Salmon, 1989) paper showed a way of incorporating an explanatory function for science within the positivist framework, and, despite its age and defects, the Hempel–Oppenheim model of explanation remains the starting point for all subsequent studies of explanation in

science.

Hempel and Oppenheim proposed that scientific explanations could be regarded as logical arguments in which the event to be explained, the *explanandum*, could be deduced from the *explanans*—relevant scientific laws and the observed initial conditions. So a physicist would explain a solar eclipse by showing that, given the relative position of sun, moon, and earth sometime before the eclipse, one could use Newton's laws of motion and gravity to deductively predict their arrival into an eclipse-producing alignment. Since Hempel and Oppenheim said that explanations are deductions from scientific laws, their scheme is called the *deductive-nomological* (from the Greek *nomos*, "law") model of explanation. It is also called the *covering-law* model of explanation, since an explanation shows how an event is subsumed, or covered, under some set of scientific laws.

Certain features of the Hempel–Oppenheim model are important. First, it makes explicit a central and crucial feature of explanation that I will call the *Iron Law of Explanation*: *The explanandum may not be contained explicitly or implicitly in the explanans.* Violation of this rule renders an explanation null and void on grounds of circularity. An example borrowed from the French playwright Molière illustrates a circular explanation. Imagine asking "Why does Somitol make me sleepy?" and receiving the reply "Because it possesses the soporific power!" At first glance, this appears to be an explanation of one thing (sleepiness) in terms of another (soporific power), and indeed, stated forcefully in an advertisement, it might be able to pass itself off as one. However, when we learn that "soporific" means "sleep-inducing," we see that the proffered explanation is empty because it says, in effect, Somitol makes you sleepy because it makes you sleepy. The explanandum, causing sleep, was implicitly contained in the explanans, so the explanation was circular. The Iron Law is easy to violate because we often think when we have named something—the soporific power—that we have explained it. Because much of the mind cannot be

observed, violating the Iron Law is especially easy in psychology. We may think we have explained why someone is shy and has few friends by calling him or her an “introvert,” but all we have done is given a shorthand label to a person who is shy and has few friends. If introversion is to be a real explanation of being shy, it must be linked to something other than shy behavior, perhaps to a genetic predisposition.

A more controversial feature of the deductive-nomological model is that it sees prediction and explanation as the same thing. In the Hempel–Oppenheim model, the explanation of an event consists of showing that it could have been predicted. Thus, an astronomer *predicts* an eclipse in the year 2010 but *explains* one in 1010. In each case, the procedure is the same—applying the laws of motion to the state of the sun, moon, and earth, and demonstrating the inevitability of the eclipse. However, the thesis that explanation and prediction are symmetrical runs into important problems. Consider a flagpole and its shadow (Rosenberg, 2005). If one knows the height of a flagpole and the position of the sun, one can deduce and so predict the length of the shadow from the laws governing light and the rules of geometry, and it seems reasonable to say that we have thereby explained the length of the shadow. By the same token, however, if we know the length of the shadow, we can deduce and so “predict” the height of the flagpole, but surely the length of the shadow does not explain the height of the flagpole.

The Causal Approach: Laws Are Not Enough

The covering-law model for scientific explanation deliberately avoids questions about the real causal structure of nature, preferring to focus instead on how we can predict and control nature. Usable knowledge need not pretend to be profound or true. Although how aspirin works is only now being understood, physicians have long prescribed it to relieve pain, inflammation, and fever. Following Newton, who refused to worry about why his laws of motion were true, positivists demand of scientific explanations only that they make successful predictions, not

that they reveal why they do so. Discomfited by the shortcomings of the positivist approach, some philosophers want science to probe deeper, telling us not merely how nature works as it does, but why it works as it does.

The main rival to the positivist approach to explanation is the *causal approach* (e.g., Salmon, 1984). Its starting point is the difficulty of identifying explanation with prediction. Although we can deduce the height of a flagpole from the length of its shadow, shadows cannot *cause* anything, and so they should not be cited in explanations; in contrast, objects blocking rays from the sun *causally* cast shadows. The mere existence of a predictive regularity is not the same as a law of nature, no matter how reliable and useful the regularity may be. The generalization “When the reading on a barometer drops, a storm will occur” states a useful correlation, not a causal law of nature.

More importantly for the explanation of human behavior, we intuitively accept explanations that cite no laws at all. When in the last chapter of a murder mystery the detective unravels the crime, explaining who did it, how, and why, he or she will not invoke laws of nature. Instead, he or she will show how a series of particular, unique events led, one after the other, to the commission of murder. We feel satisfied to learn that Lord X was murdered by his son to pay his gambling debts, but there is no law of nature saying “All (or even most) sons with gambling debts will kill their fathers.” Much explanation in everyday life and history is of this type, connecting events in a causal sequence without the mention of laws. Not all satisfying explanations fit the covering-law model.

From the causal perspective, the positivists’ fear of falling into metaphysics and their consequent unwillingness ever to stray beyond the facts have led them to miss the point of science and to ignore important intuitions about the nature of explanation. Instead of shunning metaphysics, the causal approach embraces it, arguing that the goal of science is to penetrate the causal structure of reality and discover—not just

invent—the laws of nature. Science is successful, they say, because it is more or less right about how nature works, and it gains predictive power and control from being true, not from being logically organized. Science protects itself from the positivists' bugaboo—superstition—by rigorously testing every hypothesis and challenging every theory.

Nevertheless, the causal view has its own weaknesses (Kitcher, 1989). For example, how can we ever be certain we have grasped the causal structure of the world when it lies, everyone concedes, beyond the reach of observation? Because we cannot directly verify our hunches about real causes, they might be a metaphysical luxury that ought not be indulged, no matter how tempting. The debate between the causal and epistemic accounts of scientific explanation is not over (Rosenberg, 2005).

Are Explanations True or Merely Useful?

The difference between the nomological and causal approaches to explanation is a deep one, because they rest upon competing ideas about what science can achieve. Nomological theorists believe that all we can hope to do is describe the world as we find it; causal theorists believe we can go deeper, penetrating the hidden causal structure of the universe. In philosophy of science, this argument is known as the debate over *realism* in science.

The dispute may be historically illustrated by the late-nineteenth-century debate regarding the existence of atoms. Since the late eighteenth century, widespread acceptance had been gained by the theory that various observable phenomena such as the behavior of gases and the regularities governing the combination of chemical elements could best be explained by supposing that objects were composed of infinitesimally small particles called atoms. Yet, how to interpret the concept of atoms remained unclear. In one camp were the positivists, led in this battle by the distinguished physicist Ernst Mach (1838–1916), who argued that because atoms could not be seen, belief in their existence was faith, not science. He said atoms

should be regarded at best as hypothetical fictions whose postulation made sense of data but whose existence could not be confirmed. The atomic camp was led by Russian chemist Dmitri Mendeleev (1834–1907), who believed atoms were real things whose properties and interactions explained the regularities of the periodic table he had invented.

Mendeleev's view is a *realist* view of inferred entities and processes: Behind observations lies a realm of unseen but real things about which science theorizes; observations are regarded as evidence for the underlying causal structure of the universe. Mach's positivist view is an *antirealist* view of science, regarding observations themselves as the only things science need explain. Antirealists come in agnostic and atheistic brands (Newton-Smith, 1981; Salmon, 1989). The most common form of antirealism is instrumentalism, which holds that scientific theories are merely tools—instruments—by which human beings come to grips with nature. If a theory predicts and explains events, we retain it as useful; if it fails to predict and explain, we discard it. We should ask no more of theories. At stake is the possibility of attaining truth in science. Realists say that science should strive to give us a true *picture* of the causal structure of the universe; antirealists say that science should strive to give us conceptual *tools* that enable us to deal with the universe. In short, the realist wants truth, the antirealist wants usefulness.

Disagreement over realism lies at the heart of the nomological versus causal dispute about explanation, and the nature of scientific theories. Science explains the world with theories, whether they are regarded as true (the causal–realist view) or merely useful (the nomological–antirealist view). Savage (1990) identifies three broad approaches to theories, with many variations within: (1) the *syntactic view*, holding that theories are axiomatized collections of sentences; (2) the *semantic view*, holding that theories are counterfactual models of the world; and (3) a view we will call *naturalism*, holding that theories are amorphous collections of ideas, values, practices,

and exemplars. From this *mélange*, I have chosen to discuss three issues of particular relevance to psychology. First, I will discuss the granddaddy of syntactic views, the Received View on Theories, which has greatly influenced psychology. Second, I will briefly consider the semantic view of theories as models, which will take us to the final topic of this section—theory testing. The naturalistic viewpoint will be taken up in the following section on rationality.

Theories about Scientific Theories

The Syntactic Approach: Theories Are Collections of Sentences

At the end of the nineteenth century, the positivism of Comte and Mach was melded with advances in logic and mathematics to produce the movement called *logical positivism* (see [chapter 11](#)), which dominated the philosophy of science for several decades. So great was its influence that it became known as the Received View on Theories (Suppe, 1977). The atomists had won the debate over the existence of atoms. The heirs to Comte and Mach, the logical positivists, therefore had to concede that, despite philosophical scruples, science could incorporate unseen, hypothetical concepts into its theories, and they attempted to show how it could be done without lapsing into the dangerous practices of metaphysics. Doing so, they set out a recipe for science that has had great influence.

Logical positivists divided the language of science into three sets of terms: *observation terms*, *theoretical terms*, and *mathematical terms*. Unsurprisingly, the logical positivists gave absolute priority to observation terms. The fundamental task of science remained description; observation terms referred to directly observable properties of nature and were taken to be unproblematically true. The bedrock of science was *protocol sentences*—descriptions of nature that contained only observation terms. Putative generalizations from the data—candidate laws of nature—were *axioms* that contained only theoretical terms connected by logico-mathematical terms.

The use of theoretical terms such as *atom* or *magnetic field*

raised the issue of realism and, for logical positivists, the dangerous lure of metaphysical inference. They preserved the antirealism of earlier positivism by denying that theoretical terms referred to anything at all. Instead, theoretical terms were said to be given meaning and epistemological significance via *explicit*, or, more familiarly, *operational definitions*. Operational definitions were the third sort of sentences recognized by the logical positivists—mixed sentences containing a theoretical term and an observational term to which it was linked. The resulting picture of science resembles a layer cake. On the bottom, representing the only reality for positivists, were observational terms; on top were purely hypothetical theoretical terms organized into axioms; in between were sandwiched the operational definitions connecting theory and data:

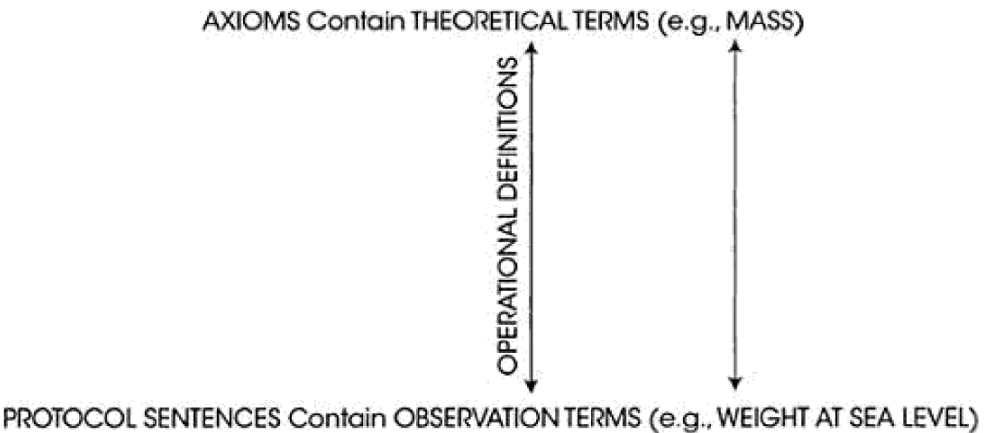


Figure 1.2 Logical positivism’s layer cake model of scientific language.

Let us take an example from physics. An important axiom in classical physics is:

$$F = m \times a$$

force equals mass times acceleration. Force, mass, and acceleration are theoretical terms. We do not observe them directly, but we must define them in terms of something we do observe—often, by some procedure—which is why operational definitions are so-called. For example, mass is defined as

weight of an object at sea level. Thus, in the Received View, theories are sentences (axioms) whose terms are explicitly defined by reference to observation terms. Note that, for the Received View, as for any antirealist philosophy of science, observations do not provide *evidence* for the existence and properties of inferred entities, but they *define* those entities the way a dictionary defines a word.

The Received View leads naturally to the Hempel and Oppenheim model of explanation. The laws of nature are theoretical sentences from which we logically deduce phenomena, or, more precisely, observation sentences. As we shall see, from 1930 to the 1960s psychology was greatly influenced by the ideals of logical positivism, and it remains influential through the concept of operational definition.

The Received View on Theories runs into a number of difficulties. The deepest difficulty with the Received View is its rigid separation of theory and data. Positivists always took it for granted that science was based on observation and that observation was entirely independent of theory. However, the positivist conception of perception was simplistic (Brewer & Loschky, 2005; Daston & Galison, 2007). At the very least, it's impossible to observe everything all the time; one must have some prior notion of what to observe in a given situation, some idea of which events are important and which are irrelevant, so that the significance of an event is determined by a theory. Moreover, psychologists have demonstrated how perception is influenced by people's expectations and values (Brewer & Loschky, 2005), so we know perception is never the immaculate process the positivists thought it was. Indeed, we may turn the positivist view on its head and regard the guiding of observation by theory as a virtue instead of as a sin. The point may be illustrated by a passage from the Sherlock Holmes story "Silver Blaze." We see the theoretically guided master detective triumph over the positivist policeman:

Holmes then [descended] into the hollow, ... [and]

stretching himself upon his face and leaning his chin upon his hands he made a careful study of the trampled mud in front of him.

“Halloa!” said he, suddenly, “what’s this?” It was a wax vesta [a sort of match], half burned, which was so coated with mud that it looked at first like a little chip of wood.

“I cannot think how I came to overlook it,” said the Inspector, with an expression of annoyance.

“It was invisible, buried in the mud. I only saw it because I was looking for it.”

“What! You expected to find it?”

“I thought it not unlikely.”

(Conan Doyle, 1892)

Here we see the importance of having a theory that tells investigators what to look for. Holmes found the match because he had formed a theory of the crime that led him to expect it, while the police—who had no theory—failed to find the match despite meticulous searching. To the fact-gatherer, all facts are equally meaningless and meaningful. To the theoretically guided researcher, each fact assumes its proper place in an overall framework.

The Semantic Approach: Theories Are Simplified Models of the World

The semantic approach (e.g., Suppe, 1989) builds on some highly technical developments in modern logic, but, for our purposes, the semantic approach is important for the central role it assigns to models in science, and the resulting indirect relationship between scientific theories and the world they purport to explain. The semantic approach regards theories as abstract mathematical structures that apply not to the world as it is but to an idealized world purged of irrelevant considerations.

From a theory, a scientist constructs a model of reality, a highly idealized, partial simulation of the world. It describes what the world would be like if the theory behind it were true and if

the variables found in it were the only ones involved in behavior. The physical theory of particle mechanics, for example, describes a block sliding down an inclined plane as a system of three frictionless, dimensionless, point-masses—one each for the block, the plane, and the earth. In the real world, these bodies are extended in space and there is friction between the block and the plane; in the model, such irrelevant or complicating factors disappear. Thus, the model is a simplified, idealized version of reality, which is all a theory can cope with. It is important to realize how limited a scientific theory is. It purports to explain only some phenomena, and only some aspects of these. A scientific theory is not about the real world as we experience it, but about abstract, idealized models.

The real world, unlike the model, is much too complex to be explained by a theory. To take a psychological example, a theory of paired-associate learning describes an ideal learner as untroubled by factors such as the time of day or personal stress that surely affect the memory-performance of actual subjects. Models allow scientists to focus on and think clearly about the aspects of nature in which they are interested. To a learning theorist, while stress is a factor that surely influences learning, it is a factor to be controlled or statistically washed away. To a stress theorist, on the other hand, stress is the main concern, and he may use paired-associate learning as a way to study it. Each theorist will construct a model that reflects his theoretical concerns about the same reality—how people learn under varied conditions.

Rationality: Why and When Do Scientists Change Their Theories?

The ancient Greeks defined the human being as the rational animal, but this definition has become increasingly suspect (e.g., Ariely, 2008; Mele & Rawling, 2004). Science, however, is one institution that seemed to meet the Greek ideal, its success apparently proclaiming it the paragon of rationality. The issue of the rationality of science is important because rationality, like

morality, is a *normative* concept. Being moral and rational is something people *ought* to be, and, over the years, philosophers have tried to establish standards of rationality to which people can be held accountable in the same way they are held accountable for moral or immoral conduct. The potential danger in abandoning standards of rationality is the same as in abandoning standards of morality: If either goes, how are we to be saved from anarchy, tyranny, and ignorance? How are we to know right from wrong and good from bad? If *science* is not rational, is anything?

Traditional philosophies of science, such as positivism and logical positivism, accepted the rationality of science and took it upon themselves to spell out the rational methodology of science in formal, logical detail. Moreover, the positivists' picture of science was *content-free*: They assumed that there is a single, logical structure to science whatever the historical period and whatever the science. Yet, the more we examine the history of science, the less it seems to be a purely rational affair following an abstract, changeless, content-free methodology. Scientists are human beings, and despite rigorous training, their perceptual and reasoning skills are subject to the same constraints and errors as other people's. Scientists are trained in and work within a community of scientists who share historically changing goals, values, and standards. In science, as in other walks of life, what seems eminently rational to one person seems like foolishness to another.

These considerations suggest that logical positivism was mistaken to look for a purely methodological account of science. Since the early 1960s, a movement in metascience (e.g., Daston & Galison, 2007) has been afoot that challenges—even denies—the assumption that science is defined by a constitutive rationality that sets it apart from other forms of human activity. Because it regards science as an institution to be examined empirically rather than dictated to philosophically, this new movement is called the *naturalistic approach* to science, and it incorporates philosophers, historians, sociologists, and

psychologists of science. There are many ways of conducting a naturalistic approach to science, and in this section I will discuss two, the *Weltanschauung* theorists, led by Thomas S. Kuhn (1922–1996), who have exerted direct influence on psychology in the past three decades, and theorists who regard science as a matter of intellectual *evolution* along Darwinian lines.

Reduction and Replacement

When two theories clash over their ability to explain the same phenomena, there are two possible outcomes. The first is *reduction*. It may be that the two theories explain the same facts at different levels: Higher levels deal with large objects and forces, lower levels deal with more basic objects and forces. In their attempt to get a unified picture of nature, scientists try to reduce larger theories to more elementary—more basic—theories, showing that the truth of the higher theory is a consequence of the truth of the more basic theory. The reduced theory is still considered valid and useful at its level of explanation. The second possibility is *replacement* or elimination. One of the theories is right; the other is wrong, and it is discarded.

Reduction of a higher-level theory by another can be illustrated by the reduction of the classical gas laws to the kinetic theory of gases and the reduction of Mendelian genetics to molecular genetics. Physicists in the eighteenth century determined that the pressure, volume, and temperature of gases were interrelated by a mathematical equation called the *ideal gas law*:

$$p = V \times T$$

Using this law—a paradigmatic example of a covering law—physicists could describe, predict, control, and explain the behavior of gases in precise and useful ways. The classical gas laws are an example of a high-level theory because it describes the behavior of complex objects, namely gases. One of the early triumphs of the atomic hypothesis was the kinetic theory of

gases, which gave a causal explanation of the ideal gas law. The kinetic theory held that gases (like everything else) were made up of billiard-ball-like atoms, whose degree of excitation—movement—was a function of energy, particularly heat. The ideal gas law predicted, for example, that if we heat the air in a balloon it will expand, and if we cool the air it will deflate (placed in liquid nitrogen, it deflates to nothing). The kinetic theory explains why. As we heat air, the particles that compose it move around more, bouncing into the skin of the balloon, pushing it outward in expansion. As we cool air, the atoms slow down, striking the balloon's skin less vigorously, and if they slow down enough, exerting no pressure at all.

Kinetic theory is a lower-level theory than the gas law theory because it deals with the constituent particles of which gases are composed. It is also a more basic theory than the gas law theory because it is more general, accounting for the behavior of any object, not just gases, made up of molecules. The behavior of gases emerges as a special case of the behavior of all matter. The kinetic theory shows why the ideal gas law works by postulating an underlying causal mechanism, and so it is said that the ideal gas law is *reduced* to the kinetic theory. In principle, we could do away with the gas law, but we keep it as valid and useful in its range of application. It is still a scientific theory, but it has been unified with a broader conception of the universe.

A similar story can be told about Mendelian genetics. Mendel proposed the existence of a unit of hereditary transmission, the *gene*, which was entirely hypothetical. Mendel's concept provided the basis for population genetics, but no one ever saw a gene or knew what one might look like. However, in the early 1950s, the structure of DNA began to be unraveled, and it emerged that it was the bearer of hereditary traits. As molecular genetics has progressed, we have learned that coding sequences on the DNA model are the real "genes," and they do not always behave in the simple ways that Mendel thought. Nevertheless, Mendelian genetics remains valid for its

purposes—population genetics—but, like the ideal gas law, has been reduced to and unified with molecular genetics.

In the case of reduction, the older theory is recognized as still scientific and usefully valid within its sphere of application; it simply takes a subsidiary place in the grand scheme of science. The fate of a replaced theory, on the other hand, is very different. Often, it turns out that an old theory is simply wrong and cannot be woven into the extending tapestry of scientific theory. In this case, it is abandoned and replaced by a better theory. The Ptolemaic theory of the heavens, which placed the earth at the center of the universe and described the sun, moon, and stars as revolving in complex and unlikely circles around it, was accepted by astronomers for centuries because it gave a usefully precise account of the motions of heavenly objects. Using it, they could describe, predict, and explain events such as eclipses. Despite its descriptive and predictive powers, after a long struggle the Ptolemaic view was shown to be hopelessly wrong, and it was replaced with the Copernican system, which placed the sun at the center with the rest of the solar system revolving around it. Like an old paradigm, the Ptolemaic view died off, eliminated from science.

The question of reduction or replacement is especially important in psychology (Schouten & Looren de Jong, 2007). By taking the path through physiology, psychologists tried to link psychological processes to physiological processes. But if we have a theory of some psychological process and in fact discover the underlying physiological process, will the psychological theory be reduced or replaced? Some observers believe that psychology is fated to disappear like Ptolemaic astronomy. Others hold that psychology will be reduced to physiology, becoming an outpost of biology, but some optimists among them think that at least some of human psychology can be neither reduced nor replaced by neurophysiology. We shall find that the relation of psychology to physiology has been an uneasy one.

Science as a Worldview

Box 1.2

What Kind of a Science Is Psychology?

One of the odd things about psychology is that people aren't sure where to put it in various classification schemes of the sciences. In most colleges and universities, psychology is lumped with the "social sciences," although occasionally it's called a "life science" and put in with biology. In a few places it's broken up into pieces, so that, for example, there will be a department of cognitive sciences housing that part of psychology while other parts are put elsewhere. Similarly, although most graduate programs in clinical psychology are in psychology departments, sometimes they are in medical schools along with psychiatry, and counseling programs are often found in schools of education.

Libraries tell another tale. Modern librarians like to classify books in systematic ways, and they treat psychology differently from university department structures. Thus if a library uses the Library of Congress system, most of psychology is in the BF section, which is part of the larger B classification comprising philosophy, while a few psychology books are in the Qs with science, the RCs with psychiatry, or the LBs in education. Psychology books are never found in the social science, H, section. Moreover, if one picks up a book dealing with methods and theory in the social sciences, one frequently finds nothing about psychology at all! Indeed, at least one author, Peter Manicas (2006) explicitly denied that psychology is a social science, although he included it in an earlier book (Manicas, 1987). This is the sort of thing that makes one wonder if there is a subject matter for all of psychology—it just doesn't fit in anywhere!

Particular and Universal Knowledge

Our everyday concerns and everyday knowledge focus on

particular people, places, things, and events. In an election, for example, we gather facts about specific issues and candidates in order to decide for whom to vote. As times change, issues and candidates come and go, and we learn new facts specific to new problems and proposed solutions. In everyday life, we need to get along with particular people and we build up knowledge about them as we do about particular things and events. We seek knowledge that is useful for our immediate, practical purposes.

Science, however, seeks to answer universal questions that are true for all times and all places. Thus, physics can tell us what an electron is, and it does not matter if the electron exists in my thumb today, whether it's in the star system Tau Ceti, whether it existed in the first six minutes after the Big Bang, or exists millions of years from now. Similarly, physics seeks to characterize forces like gravity that operate all over the universe and throughout all time.

While different from practical human knowledge, science is not unique in seeking universal truths. Mathematics and geometry also seek universal truths, such as the Pythagorean Theorem, that are true regardless of time and space. Sometimes—but not always and rarely at present—philosophy has been defined as a search for universal truths. And some religions—especially the proselytizing world religions such as Christianity and Islam—claim to be true for all people.

Science differs from mathematics, philosophy, or religion by doing something that at first seems paradoxical, basing its search for universal truths on the observations of particular things and events. Mathematics' search for universal truths is based on the notion of formal proof, in which a conclusion is shown to follow ineluctably from some premises. But mathematical proofs are not proofs about the world, because one may choose different premises and create fantastic but consistent alternative mathematical systems. Religions' claims to universality rest upon revelation from God, not observation or logical proof.

Only science starts by observing particular things and events but moves to asserting general hypotheses about the nature of the world. Thus, psychologists performing an attribution experiment (Jones & Harris, 1967) on attitudes about Fidel Castro did not care about Castro, or what their subjects believed about Castro, or how to change people's attitudes on Castro. They were trying to formulate a general theory about how people explain behavior, whatever that behavior might be: whether it's a political attitude, speculation about a friend's odd mental state, or why you think you did badly on your last math test. The goal of psychological research is to carefully study human behavior across such a wide range of circumstances that the circumstances fall away, revealing the universal mechanisms of the human mind and human behavior. Because science is concerned to achieve universal knowledge, apart from human thoughts and needs, the viewpoint of science is the *View from Nowhere*.

Science as the View from Nowhere

This is perhaps the oddest and most daunting part of natural science, yet it is also what has given science its purity, rigor, and power. Science searches for purely objective knowledge, for a description of the world in which people play no part at all; knowledge that has no point of view. The philosopher Thomas Nagel describes this viewpoint-that-is-not-a-viewpoint of natural science—the physical conception of objectivity—in his *The View from Nowhere* (1986):

The development [of the view from nowhere] goes in stages, each of which gives us a more objective picture than the one before. The first step is to see that our perceptions are caused by the actions of things on us, through their effects on our bodies, which are themselves part of the physical world. The next step is to realize that since the same physical properties that cause perceptions in us through our bodies also produce different effects on other physical things and can exist without causing any

perceptions at all, their true nature must be detachable from their physical appearance and need not resemble it. The third step is to try to form a conception of that true nature independent of its appearance either to us or to other types of perceivers. This means not only not thinking of the physical world from our own particular point of view, but not thinking of it from a more general human perceptual point of view either: not thinking of how it looks, feels, smells, tastes, or sounds. These secondary qualities then drop out of our picture of the external world, and the underlying primary qualities such as size, shape, weight, and motion are thought of structurally.

This has turned out to be an extremely fruitful strategy, [making science possible.] ...Our senses provide the evidence from which we start, but the detached character of this understanding is such that we could possess it even if we had none of our present senses, so long as we were rational and could understand the mathematical and formal properties of the objective conception of the physical world. We might even in a sense share an understanding of physics with other creatures to whom things appeared quite different, perceptually—so long as they too were rational and numerate.

The world described by this objective conception is not just centerless; it is also in a sense featureless. While the things in it have properties, none of these properties are perceptual aspects. All of those have been relegated to the mind... The physical world as it is supposed to be in itself contains no points of view and nothing that can appear only to a particular point of view.

(Nagel, 1986, pp. 14–15)

The most important historical source of science's view from nowhere was the Cartesian conception of consciousness and its relation to the world (see [chapter 4](#)). Descartes, in common with other early scientists, drew a radical division between

consciousness (which Descartes identified with the soul) and the material world. Consciousness is subjective; it is the perspective from which each of us observes the world; it is how the world appears to me, to each of us in his or her private, subjective consciousness. Science describes the world with the soul—consciousness and subjectivity—subtracted. Science describes the natural world as it is from no perspective, as if there were no people in it at all: It is the view from nowhere.

This view from nowhere may seem strange and bizarre, but all the other special characteristics that we associate with science follow from it. Quantified measurement eliminates any one observer's or theoretician's point of view. Careful checking of papers by peers purges the originating scientist's point of view. Replicating experiments guarantees that what is true for one scientist is true for all. Proposing universal laws that hold throughout the universe purges even the generic human point of view, because the same knowledge could be found by other species. The view from nowhere is critical to the success of natural science, but its applicability to the study of human beings is contentious, as we will see throughout this book.

Understanding History

The book that you are reading is called *A History of Psychology*. Because it's a book of history, its approach to psychology is different from what you are used to in your other scientific, applied, or professional courses. Their aim is to teach you psychological methods, the latest research and theory in psychology, how psychology can be used to solve individual and social problems, and about the jobs done by professional psychologists, such as clinical psychologists or health psychologists.

This course, however, is a story, the story of how psychology came to be what it is today. In this respect, the history of psychology is like developmental psychology, as it is concerned with explaining change from the inchoate ancient

stages of psychology to its more articulated modern form. The history of psychology is part of the larger, much broader field of history, and our first task is to place the history of psychology as a discipline into that larger context. Just as one can't understand human development without understanding a child's genetic inheritance from its ancestors, and the family and society in which its development takes place, one can't understand the development of psychology without considering what it inherited from prescientific psychology's ideas about mind, body, and behavior, and without considering how it was shaped by the larger culture and society around it. In addition, we need to learn about the methods and issues that have arisen in the larger field of history. Just as psychology has characteristic methods and perennial disputes, so does history, and we need to learn something about them. In this chapter we take up the second topic, *historiography*, with a special focus on the sub-field of the history of science, of which the history of psychology is a part.

Historiography

Historiography is about the methods and issues in the field of history. For the purposes of this book, we don't have to be concerned much with the former: how to read ancient texts, how to collect information about ancient peoples, and how to use large collections of manuscripts or letters. These questions will occasionally arise, but we will handle them as we go. Instead, we will focus here on enduring issues about how to explain human action in historical time, as they will pervade everything we will discuss in this book. Psychologists offer explanations of behavior, but historians have been doing it since the days of Thucydides (460–400 BCE), and have their own venerable modes of doing so.

Reasons and Causes

The most general problem in writing history, especially scientific history, is the tension between reasons and causes in

explaining human action. Imagine the investigation of a murder. The police first determine the cause of death; that is, they must find out what physical process (e.g., the ingestion of arsenic) caused the victim to die. Then investigators must determine the *reason* for the victim's death. They might discover that the victim's husband was having an affair with his secretary, had taken out an insurance policy on his wife, and had bought two air tickets to Rio—suggesting that the husband killed his wife in order to live in luxury with his mistress. Any given historical event may be explained in either or both of two ways, as a series of physical *causes* or of *reasons*. In our example, the series of physical causes is: placement of the arsenic in coffee, its ingestion by the victim, and its effect on the nervous system. The series of reasons, of rational acts carried out with intention and foresight, is: purchasing arsenic, putting it in one's intended victim's drink, setting up an alibi, and planning an escape.

Tension arises between rational and causal accounts of human action when it is unclear how much explanatory force to attribute to each. So far in our example, the causal story is relatively trivial, because we know the cause of death and the fixing of guilt seems clear. However, causal considerations may enter into our evaluations of an actor's behavior. During his first term, President Ronald Reagan was shot and wounded by a young man, John Hinckley. There was no doubt that Hinckley fired the bullet and was thereby part of the cause of Reagan's wound, but there were serious doubts about whether Hinckley's act could be explained rationally. The reason given for his attack on the president was to win the love of actress Jodie Foster, but this reason seems strange, certainly stranger than murdering one's wife to run off with one's mistress. Moreover, psychiatrists offered testimony that Hinckley was psychotic: Tests showed he had abnormal brain scans. Taken together, such evidence convinced the jury that Hinckley's shooting of the president had no reasons, only causes involving Hinckley's diseased brain. Thus, he was found not guilty because where there is no reason there can be no guilt. In cases such as John

Hinckley's, we feel the tension between rational and causal explanation at its highest pitch. We want to condemn a proven criminal, but we know we may only direct moral outrage at someone who chose a particular act when he or she could have done otherwise. We recognize that a person with a diseased brain cannot choose what to do and so deserves no blame.

The tension between reasons and causes arises in explaining every human action. Caesar's crossing the Rubicon (Goldsworthy, 2008) may be described either as a shrewd political move or as a result of his megalomaniacal ambitions to rule the world. One may choose to major in premed because of a desire to help people, or to make money, or because of an unconscious, neurotic need to show that one is just as good as one's older sibling.

In the history of science, the tension between reasons and causes is perennial. As, we will see in a moment, science is often presented as an ideally rational enterprise. Scientific theories are supposed to be proposed, tested, accepted, or rejected on rational grounds alone. Yet, as historians have amply shown, it is impossible to exempt scientists from the causal forces that play a part in determining human behavior. Scientists crave fame, fortune, and love as much as anyone else, and they may choose one hypothesis over another, one line of research among many, because of inner personal causes or outer sociological causes that cannot be rationally defended and may even be entirely unconscious. In every instance, the historian, including the historian of science, must consider both reasons and causes, weighing both the rational merits of a scientific idea and the causes that may have contributed to its proposal—and to its acceptance or rejection.

Presentism

Traditionally, the history of science has tended to overestimate reasons, producing *Whig* history and *presentism*. These failings are shared by other branches of history, too, but are most tempting to the historian of science. A Whig account of history sees history as a series of progressive steps leading up to our

current state of enlightenment. A Whig history of science similarly assumes that present-day science is essentially correct, or at least superior to that of the past, and tells the story of science in terms of how brilliant scientists discovered the truth known to us today. Error is condemned in a Whig account as an aberration of reason, and scientists whose ideas do not conform to present wisdom are either ignored or dismissed as fools.

Whig history is comforting to scientists and therefore is inevitably found in scientific textbooks, whose job, in part, is to convince students of a science's correctness (Brush, 1974).

However, Whig history is a fairytale history and is increasingly being supplanted by a more adequate history of science among professional historians of science. Unfortunately, because it shows scientists as human beings and science as, upon occasion, irrationally influenced by social and personal causes, a good history of science is sometimes seen by practicing scientists as undermining the norms of their discipline, and therefore as dangerous. I have written this book in the spirit of the new history of science, trusting, with historian of physics Stephen Brush (1974), that instead of harming science, a good history can help young scientists by liberating them from Whiggish dogma, making them more receptive to unusual and even radical ideas. A large-scale, historical survey of the sort I am writing must be, to some degree, presentist—that is, concerned with how psychology got to be the way it is. This is not because I think psychology today is for the best, as a Whig historian would, but because I wish to use history to understand psychology's current condition. As we shall find, psychology could have taken other paths than it did, but it is beyond the scope of this book to explore fully what might have been.

Internalism–Externalism

An important dimension in the history of science is *internalism–externalism*. Whig histories of science are typically internal, seeing science as a self-contained discipline solving well-

defined problems by the rational use of the scientific method, unaffected by whatever social changes may be occurring at the same time. An internal history of science could be written with few references to kings and presidents, wars and revolutions, economics and social structure. Recent history of science recognizes that although scientists might wish to be free of influence by society and social change, they cannot be. Science is a social institution with particular needs and goals within the larger society, and scientists are human beings socialized within a given culture and striving for success within a certain social setting. To take a simple example, getting federal grants is now so important to a scientist's career that choice of research projected is controlled more by what's "fundable" than what a scientist considers important. Recent history of science therefore tends to be externalist in orientation, considering science within the larger social context of which it is a part and within which it acts. In this book I have tried to balance internal and external perspectives, examining reasoned debate with psychology while at the same time placing psychology within larger social and historical patterns.

Ideas or People?

An old historical dispute tied up with reasons versus causes, Whig versus new history of science, and internalism versus externalism, is the dispute between those who see Great Men as the makers of history (The Great Man Theory), and those who see history made by large, impersonal forces outside human control. In the latter *Zeitgeist* (German for "spirit of the times") view of history, people are sometimes depicted as little more than puppets.

Great Man history is stirring, for it tells of individual struggles and triumphs. In science, Great Man history is the story of the research and theorizing of brilliant scientists unlocking the secrets of nature. Because Great Men are revered by later ages for their accomplishments, Great Man history told in this mode is usually Whiggish and internalist, precisely because it stresses rationality and success, downplaying cultural and social causes

of human thought and action.

The opposing, *Zeitgeist*, view was first proposed by the German philosopher Georg Wilhelm Friedrich Hegel (1770–1831):

[O]nly the study of world history itself can show that it has proceeded rationally, that it represents the rationally necessary course of the World Spirit, the Spirit whose nature is indeed always one and the same, but whose nature unfolds in the course of the world... [W]orld history goes on in the realm of the Spirit... Spirit, and the course of its development, is the substance of history.

(1837/1953, p. 12)

Zeitgeist history tends to ignore the actions of human beings, because people are believed to be living preordained lives controlled by hidden forces working themselves out through historical process. In Hegel's original formulation, the hidden force was the Absolute Spirit (often identified with God) developing through human history. Hegel's Spirit has gone out of fashion, but *Zeitgeist* histories remain. Hegel's student, Karl Marx, materialized Hegel's Spirit into economics and saw human history as the development of modes of economic production.

Because of its emphasis on the inevitability of progress, the *Zeitgeist* conception of history is Whiggish from Hegel's or Marx's perspective. Both Hegel and Marx saw human history directed toward some final end—the ultimate realization of the Spirit or God, or the ultimate achievement of socialism, the perfect economic order—and both viewed historical development as a rational process. Their history is not, however, internalist, because it places the determination of history outside the actions of men and women. The contribution of Hegel and Marx was in inventing externalism, directing historians' attention to the larger context in which people work, discovering that the context of action shapes action in ways at best dimly seen by historical actors themselves. Taking this

broad perspective, externalism provides a greater understanding of history. However, contrary to Hegel or Marx, history has no discernible direction. The history of the world, or of psychology, could have been other than it has been. We humans struggle in a semidarkness of social and personal causes, not as puppets of impersonal forces.

Historiography of Science and Psychology

The history and methodology of the field of history are called *historiography*. The historiography of science—of which the history of psychology is a part—has passed through two stages (Brush, 1974). In the earlier stage, from the nineteenth century until the 1950s, the history of science was mostly written by scientists themselves—typically, older scientists no longer active at the forefront of research. This is not surprising, because one of the special difficulties of writing the history of science is that one must be able to understand the details of scientific theory and research in order to chronicle its story. However, beginning in the 1950s, and gaining momentum in the 1960s, a “new” history of science emerged as the field was professionalized. The history of science was taken over by men and women trained as historians, although in many cases they had scientific backgrounds.

The history of psychology underwent the same change, although a little later and still incompletely. The classic “old” history of psychology is Edwin G. Boring’s magisterial *History of Experimental Psychology*, published first in 1929, with a revised edition in 1950. Boring was a psychologist, a student of introspectionist E. B. Titchener, and the psychology that Boring knew was being superseded by behaviorism and the rise of applied psychology. So, while Boring was by no means retired, he wrote his *History* as an internalist, Whiggish justification of his tradition (O’Donnell, 1979). Boring’s book was the standard text for decades, but, beginning in the mid-1960s, the new, professional history of psychology began to replace the old. In 1965, a specialized journal appeared, *Journal of the History of the Behavioral Sciences*, and the American Psychological

Association (APA) approved formation of a division (26) for the history of psychology. In 1967, the first graduate program in history of psychology was introduced at the University of New Hampshire, under the direction of Robert I. Watson, founder of the *Journal* (Furomoto, 1989; Watson, 1975). The development of the “new history of psychology” gathered steam in the 1970s and 1980s, until, in 1988, Laurel Furomoto could declare it fully matured and demanded its incorporation into the psychological curriculum. We should note that the change is incomplete. Although the text you are reading is one of the few to be influenced by the new history of psychology (Furomoto, 1989), I am a psychologist with no training in history. Today, an emerging niche is the psychologist-historian, who brings historical expertise to bear on psychological issues and policies (Vaughn-Blount, Rutherford, Baker, & Johnson, 2009). Nevertheless, as time has passed, the new history of psychology has become part of the history of psychology, practiced by historians rather than psychologists.

Much more than who writes it is involved in the change from the old history of science (and psychology) to the new. This change coincides with a longer-term movement in historiography from “old history” to “new history” (Furomoto, 1989; Himmelfarb, 1987; Lovett, 2006). “Old history” was “history from above”; it was primarily political, diplomatic, and military, concentrating on great people and great events. Its form was the narrative, telling readable stories—frequently written for a broadly educated public, not just other historians—of nations, men, and women. “*New history*” is history from below; it attempts to describe, even recreate in words, the intimate lives of the anonymous mass of people neglected by the old history. As Peter Stearns has put it, “When the history of menarche is widely recognized as equal in importance to the history of monarchy, we [new historians] will have arrived” (quoted by Himmelfarb, 1987, p. 13). Its form is analytic rather than narrative, often incorporating statistics and analytic techniques borrowed from sociology, psychology, and other

social sciences.

The new history of psychology is described by Furomoto:

The new history tends to be critical rather than ceremonial, contextual rather than simply the history of ideas, and more inclusive, going beyond the study of "great men." The new history utilizes primary sources and archival documents rather than relying on secondary sources, which can lead to the passing down of anecdotes and myths from one generation of textbook writers to the next. And finally, the new history tries to get inside the thought of a period to see issues as they appeared at the time, instead of looking for antecedents of current ideas or writing history backwards from the present context of the field.

(1989, p. 16)

Nevertheless, apart from its call for greater inclusiveness in writing history, Furomoto's description of the new history of psychology actually describes a good traditional history as well.

Where in the spectrum of old to new history does the present book fit? It is true that I have been influenced by and have used the new history of psychology in writing my book, but it is not entirely *of* the new history. I feel the greatest affinity for the traditional history of ideas and have not generally sought to find the causes of psychology's development in the biographies of psychologists. I believe that history is one of the humanities, not a science, and that when historians lean on the social sciences, they are leaning on weak reeds. I agree with Matthew Arnold that the humanities should concern themselves with the best (and most important) that has been said and done. Finally, I agree with English historian G. R. Elton that history "can instruct in the use of reason." I have tried, then, to write as narrative a history as the material allows, focusing on the leading ideas in psychological thought and aiming to instruct the young psychologist in the use of reason in psychology.

Science as a Historical Process

Beginning in the nineteenth century, positivism predicated the notion that science was a special, privileged, institution that stood outside history. After all, scientific truth was not bound by history: presumably electrons are unchanged from the beginning of time. Newton's laws of physics don't develop or change—they transcend history. So, it seemed that science as an institution was, or at least should be, ahistorical, too. There must be a scientific method that, like electrons or gravity, transcends time and place, and defines what science is. Importantly for the positivists, if we can work out what the scientific method is, we can then apply it to any subject at all, including society (sociology), human behavior (psychology), and politics (political science). In an important sense, the positivist hoped for the end of history, because finding the scientific truth about people would settle all old political disputes. An example of faith in social science was Marxism. Although Marx was not a positivist, he believed that *Das Kapital* offered a picture of history rooted in his supposedly scientific economics, and he “scientifically” predicted a final revolution that would end all revolutions, ushering in the final stage of human society, communism. More mundanely, positivism created the field of philosophy of science, whose aim was to describe science's metaphysical, universal, and ahistorical recipe for truth.

Philosophy of Science: Defining Science Statically

Positivism's approach to understanding science was traditionally philosophical. As we will see, the first philosopher-psychologists of ancient times asked the questions, “Where does truth come from?” and “How can we know if something is true?” These questions lie at the heart of epistemology in philosophy and cognitive science in psychology. Positivists endorsed empiricist psychology and philosophy: Truth comes from observation of the world and we know something is true because we can justify it by observations. Positivism would exert a powerful influence over psychology, especially in

America, as we will see in [chapter 11](#). It would, as we will also see, fail as a philosophy of science because it thought science could and should abandon reference to unobservable entities such as atoms, and because its treatment of observation was extremely naive, as psychologists showed.

A rival approach to the philosophy of science was proposed by the Austrian philosopher Karl Popper (1902–1994), who did without metaphysics (discussion of unobserved concepts) or psychology (positivism’s empiricism) to define science. Instead of asking how science worked, Popper asked what made a theory—any theory—a scientific theory rather than a theory in politics, aesthetics, ethics, or any other field of human thought. Living as a young man in one of the most creative times and places in the history of Europe, early nineteenth century Vienna, Popper was exposed to a rich ferment of movements and ideas from Bauhaus architecture to Freudian psychoanalysis to positivism to Einstein’s as yet unproven relativity to the profound puzzles of quantum physics. Rather than asking how one could tell which theories were true, Popper asked instead how one could tell if a theory was *scientific*. This move is extremely significant. As we will see, the question, “What is true?” had eluded answer for millennia, so another stab at that question seemed pointless. Moreover, there is nothing especially dishonorable about proposing a mistaken theory. Scientifically accounting for the behavior of the natural world is hard and failed hypotheses litter the landscape of scientific history.

Popper thought it more fruitful to look not for a new criterion of truth, but for a criterion that defined a theory as worthy of scientific scrutiny. To begin with, some theories, such as the Bauhaus’ novel ideas about architectural design didn’t pretend to be sciences. So, Popper looked at theories that claimed to be scientific but were unproven, such as psychoanalysis and relativity. Popper began by considering what are called pseudosciences, theories that claim to be scientific but have become outside the pale of acceptable science, such as astrology (Leahey & Leahey, 1983). What made them

unscientific? A positivist would answer that astrology isn't based on verified predictions from its theory. But astrologers could point to successful predictions: "In my practice," the astrologer could say, "I've had many cases where my fortunes proved true. Last week, I told a man that Monday would be a day for money. He bought a lottery ticket and won Powerball! I told another that love would call on Friday, and she got a great date on Tinder!"

Popper got his key insight when on May 29, 1919, an eclipse of the sun occurred whose observation tested relativity theory. Einstein predicted that light bent when passing by massive gravitational objects, such as the sun. When an eclipse occurs, stars can be seen on the edge of the sun's disc that are normally unseeable when there's sunlight. Astronomers discovered that light from such stars did indeed bend as Einstein predicted, and the verification of his counterintuitive proposal marked a major victory for relativity.

At first glance, such confirmation, albeit more spectacular, does not seem much different from the astrologer's verified predictions of love and money. But Popper saw that there was a difference. If an astrologer's prediction had *not* been verified, the theory offered many "outs" as magicians call them, ways of explaining away its failure. First, astrologers' predictions were vague: a "day for money" might mean finding a dollar on the street, losing your wallet, repaying a loan, treating a friend to an expensive meal, as well as winning the lottery. Second, astrology had so many variables it could explain even totally failed predictions. If nothing happened on Monday having anything even vaguely to do with money, the astrologer could say, "Well, you didn't tell me your *exact* time of birth," or even if you had, "Well, your birth certificate is just wrong!" Popper had already had conversations with psychoanalysts of just this sort. They treated any behavior, dream, or memory as a validation of psychoanalysis.

Einstein, however, had stuck his neck out: If light had not bent, relativity would have been shown to be false. Popper upended positivism. It wasn't producing verified predictions—

even astrology could do that—but the making of falsifiable predictions that marked a theory as scientific. It's important to see that Popper is carefully avoiding truth as the criterion of scientific status. His demarcation criterion did not rely on any particular psychological thesis about cognition, as positivism did. It was not committed to any metaphysics, as Kantian Idealism (see [chapter 6](#)) was. It was a purely logical question: Is the theory falsifiable? The title of his most important book was pointedly, *Logik der Forschung* (*The Logic of Research*). As a logical demand, falsifiability also seemed to stand outside history. One could ask at any moment the single, decisive question, “Does the theory make falsifiable predictions?” It did not even matter whether experiments had been done or observations had been made yet, or even what their outcome was. If the theory was testable, it was scientific; whether it was true or not did not matter.

However, Popper was wrong. A theory's scientific standing depends on how it changes over time, specifically, how it responds to apparent falsifications.

After Kuhn: Defining Science Dynamically

If any academic book deserves the sobriquet “blockbuster,” it is Thomas S. Kuhn's *Structure of Scientific Revolutions* (1970). It completely upended philosophy and the history of science, and its influence extended outside academic walls to the culture at large. If you have never heard of Kuhn's book, you have almost certainly heard the term “paradigm” and the phrase “paradigm shift” that Kuhn introduced. In various parts of this book we will be looking at different aspects of Kuhn's revolutionary picture of science, but for present purposes his most important thesis is the centrality of history to the philosophy of science.

For Kuhn, a scientific theory is embedded in a larger intellectual and social structure called a *paradigm*. Some of the elements of a paradigm are consciously held by scientists, others are hidden, deep background assumptions about the world that scientists are only dimly aware of, or are just taken for granted as true. Some elements have to do with acceptable

methods in the sciences, and the ways in which specific hypotheses must be cast to be taken seriously. For example, a given paradigm might insist on an experimental method and quantitative theories, while another might prefer naturalistic observation and eschew quantification altogether. Once established in a scientific community, a paradigm poses research puzzles to be solved by its practitioners, and here is where Kuhn's anti-Popperian historicity begins to bite, because how a paradigm or theory deals with its puzzles over time determines its success or failure as a science.

To illustrate, I will develop a tidied up version of learning theory, whose true messiness we will return to in [chapters 10](#) and [11](#). In the eighteenth century, philosophers such as David Hume ([chapter 6](#)) proposed that learning was a matter of associating one idea with another, following certain laws of association. One main law was *similarity*: if one idea resembles another idea, then if we experience one we automatically think of the other. An example is seeing a portrait; seeing the picture makes us think of the person it resembles. The other main law was contiguity: if two ideas have been presented to the mind together, they get associated, so experiencing one of the two ideas brings the other to mind. So, if I know a couple who are always together and one day meet one without the other, I automatically think of the other one.

These laws, however, though intuitive, create puzzles for psychological scientists to solve. How similar do two ideas have to be to become associated? Hume did not say. How close in space and time do two ideas have to occur to become associated? Hume did not say. Research, however, can investigate these little puzzles, fleshing out philosophical associationism, a broad paradigm, into a scientific theory and research program. Ivan Pavlov, among others (see [chapters 10–11](#)), accomplished this. Pavlov trained a dog to salivate to one stimulus, such as a circle, and then presented it with a variety of ellipses, showing that the more circular an ellipse was, the more it made the dog salivate. He could manipulate the

temporal distance between a neutral stimulus, such as a vibration on a dog’s skin and a stimulus that naturally caused salivation, such as food, finding that the closer the two were presented together, the more powerfully the neutral stimulus came to itself cause salivation, though it was always best if the neutral stimulus preceded the food.

Step-by-step progress of this sort characterized what Kuhn called the *puzzle solving* style of *normal science*. Thus the scientific status of a theory was established not by one dramatic test, such as Einstein’s eclipse, but by progressive problem solving across years and decades. More interesting, and relevant to Popper’s demarcation criterion, were puzzles that resisted solution, observations that were inconsistent with a reigning theory or paradigm. According to Popper, such observations should have slain the theory they appeared to falsify. But this, Kuhn observed, was rarely the case.

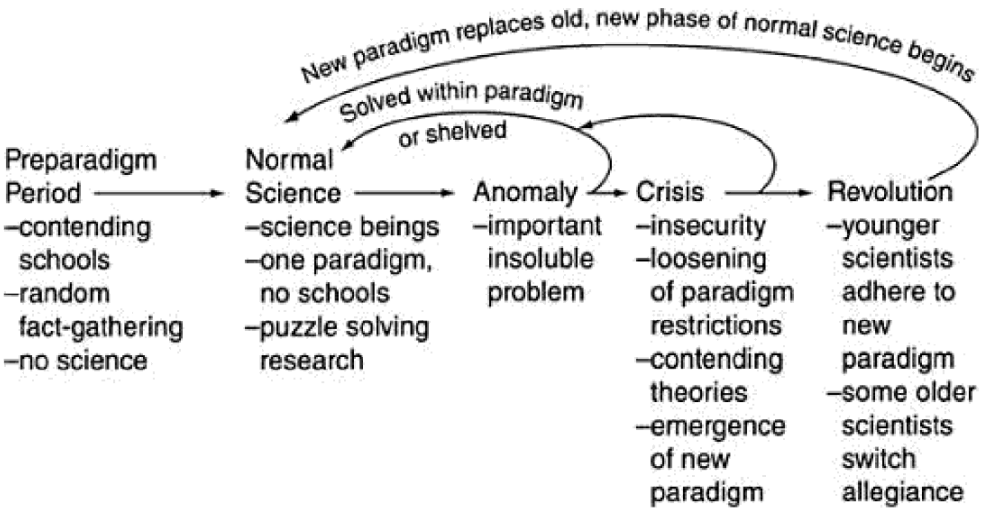


Figure 1.3 Kuhn’s schematization of scientific change.

Scientists are, in a nonpolitical sense, very conservative. They prefer to retain and protect a theory or paradigm that has proved itself over decades from new findings that challenge it. Often, they are right to do so, because troubling findings—Kuhn called them *anomalies*—can be reconciled with a reigning paradigm. Sometimes, anomalies are just flukes or results of

poor research, as we will see later in the case of the replication crisis in cognitive science. Sometimes, minor adjustments to existing theories can accommodate anomalies. Sometimes, however, anomalies resist such defensive maneuvers, and can cause the overthrow of a reigning paradigm, a scientific revolution in the title of Kuhn's book. The paradigmatic example of a scientific revolution was the replacement of the Ptolemaic account of the solar system in which the earth was at the center of the universe with the Copernican one in which the sun was at the center of the solar system. Scientists may resist revolutions, but will accept them if a new paradigm can explain the world better than the old one. Such conservatism coupled with openness to radical change is entirely rational, and is an important reason for the success of science as an institution. Too much conservatism creates rigid dogma, while too little undermines skepticism and would render science unstable.

Psychology in History

Was Mind Discovered, Invented, or Constructed?

A central question confronting the history of psychology, *psyche-logos*—the study of the soul—is the nature of the soul or mind. Does the mind exist the way atoms exist, a thing awaiting discovery, or does the mind exist the way money exists, a thing constructed by humans?

In 1953, the German philologist Bruno Snell published *The Discovery of the Mind: The Greek Origins of European Thought*, and his preface exemplifies the difficulties of defining the mind as an object. Despite the bold thesis proclaimed by his title, Snell was not entirely sure that the Greeks had actually discovered something that already existed. Although he asserted that “the rise of thinking among the Greeks [after Homer] was nothing less than a revolution... They discovered the human mind,” he hedged his claim by writing that the Greek discovery “cannot be compared with the discovery of, let us say, a new continent” (Snell, 1953, p. v). Snell wrestled with

possibilities that have since loomed large in psychological metatheory. He specifically rejected the possibility now espoused by some in cognitive science that the mind might be an artifact (see below). The mind, Snell wrote, “was not invented, as a man would invent a tool ... to master a certain type of problem. As a rule, inventions are arbitrarily determined; they are adapted to the purpose from which they take their cue. No objectives, no aims were involved in the discovery of the intellect” (p. viii). Snell also perceived but did not fully articulate the conception of the mind favored by today’s constructivists. He wrote, “[I]n spite of our statement that the Greeks discovered the intellect, we also assert that the discovery was necessary for the intellect to come into existence” (p. viii), hinting that the mind was socially constructed by Greek philosophers, poets, and dramatists during the Classical Age.

The three alternatives raised by Snell create different conceptions of the discipline of psychology and of its history. If the mind was truly discovered (or awaits discovery), then psychology, *psyche-logos*—the study of the soul—might be a natural science in the usual sense of the term, and its history will be similar to the histories of physics and chemistry. The second possibility, that mind is a tool, an artifact, suggests that while minds exist as do hammers and modems, psychological science must be reconceived as a science of the artificial (Simon, 1980). Natural science concerns itself with spatio-temporal universals, objects such as electrons or quarks that are the same everywhere and everywhen. Hammers and modems are real, but as human artifacts, they do not fall under the purview of natural science. Science explains how hammers and modems work, but hammers and modems are objects of engineering, not science.

The mind as artifact shades over into the third possibility—the mind as a social construction. If the mind is socially constructed, then it is uncertain whether there can be any science (as science is usually understood) of mind. Perhaps the study of the mind is a historical, not a scientific, undertaking. As

Snell (1953) remarks, “The intellect, however, comes into the world, it is ‘effected,’ in the process of revealing itself, i.e. in the course of history” (pp. vi–vii). Furthermore, the constructivist thesis gives rise to a darker prospect for scientific psychology. On the artifact interpretation, minds are real but lack the universality of the proper objects of science. In contrast, the mind might be a social construction along the lines of the Greek gods, a profound illusion. If these social constructivist formulations of the mind are correct, a history of psychology is not a history of discovery, but is a history of invention and construction, indeed a history of the mind itself. If so, then the story of the mind we tell in the West might be different from that told in other cultures.

Psychologists tend to take for granted the Western tradition descended from the Greeks that is traced by Snell. But other cultures have very different views of the mind and self. For example, in *Selfless Persons*, Steven Collins (1982) discusses the mind and personality as conceived by Theravada Buddhism. Collins agrees that the Western notion of the mind, or person, is “a rather peculiar idea within the context of the world’s cultures” (p. 2).

The Buddhist monk Nyanatiloka contrasts Buddhist and Western conceptions of the mind:

[T]here are three teachers in the world. The first teacher teaches the existence of an eternal ego-entity outlasting death: that is the Eternalist, as for example the Christian. The second teacher teaches a temporary ego-entity which becomes annihilated at death: that is the annihilationist, or materialist. The third teacher teaches neither an eternal nor a temporary ego-entity: that is the Buddha. The Buddha teaches that what we call ego, self, soul, personality, etc., are merely conventional terms not referring to any real independent entity. And he teaches that there is only to be found this psychophysical process of existence changing from moment to moment... This

doctrine of egolessness of existence forms the essence of the Buddha's doctrine of emancipation. Thus with this doctrine of egolessness, or *anatta*, stands or falls the entire Buddhist structure.

(Collins, 1982, p. 5)

Moreover, Theravada Buddhists regard the self—the mind—as a dangerous illusion from which we should free ourselves. According to the Sinhalese monk Rahula, “the idea of self is an imaginary, false belief which has no corresponding reality, and it produces harmful thoughts of ‘me’ and ‘mine,’ selfish desire, craving, attachment, hatred, ill-will, conceit, pride, egotism, and other defilements, impurities and problems... In short, to this false view can be traced all the evil in the world” (Collins, 1982, p. 4). For Buddhists, it appears, psychology is the study of a nothing, a misbegotten enterprise.

A third book title, *The Discovery of the Individual 1050–1200* (Morris, 1972), reminds us that more than the scientific character of psychology is at stake in the existence of the mind, because the possession of a mind is strongly linked to personhood. In the West today, we assign supreme importance to the individual human being, bearer of inalienable rights against the state and other humans. As Morris says, “The hard core of this individualism lies in the psychological experience ... [of] the sense of a clear distinction between my self and other people” (p. 3). Traditionally, a human being is treated as a person who transcends animal status by virtue of possessing a soul, or mind. Even in nonreligious contexts, possession of a mind is critical to one's status as a person and a citizen. A human in a persistent vegetative state may be ruled without a mind, and therefore may be deliberately allowed to die, and the death is not regarded as murder. A human being with dementia—literally, de-minded—may be stripped of civil rights and assigned a guardian or consigned to an institution. In psychology, questions of personhood manifest themselves in the study of the *self*, a less religious term than *soul* and a more

personal one than *mind*.

Western conceptions of the mind began in religion before moving first to philosophy and then to science. Although there are differences in detail, religions around the world have a remarkably concordant picture of the mind, positing the existence of two immaterial souls for two distinct reasons (Onians, 1951). The first, universal reason, is to explain the difference between living and nonliving things. Objects with souls are living; those without are nonliving. The second, less universal, reason is to explain human personality. Some religions propose that in addition to the breath of life, there is a soul that constitutes the essence of each person's personality, and sometimes this personal soul was believed able to survive the death of the material body, though this was not guaranteed. Christianity and Islam, for example, teach that each human being is composed of a material body and a nonmaterial soul. The soul is said to be the essence of the person, containing personal memories and personal identity. Moreover, while the body is mortal, the soul is immortal, leaving the body at death and traveling to an afterlife in Heaven or Hell.

For two reasons psychologists have underestimated the influence of religious ideas of the soul—the *psyche* of our science—on conceptions of the mind and self. First, psychology is an aggressively secular enterprise, and psychologists like to think that they put religion behind them when they assumed their role as scientists. A more subtle reason concerns the dominance of historical scholarship by Christian belief. When we as psychologists read about past thinkers such as Plato and Descartes, not only do we look at them as protopsychologists, we see them through the eyes of historians and classicists who until recently worked within a quietly but univocally held Christian framework. That framework rarely intrudes explicitly, but it filters out the rough splinters, odd conceptions, and obscure but vital disputes concerning the mind and soul held from Greek times through to at least Descartes. Thus, we psychologists inherit a conception of the mind subtly shaped by

forces of which we know little, drain it of its specifically supernatural content (e.g., survival of bodily death), and fancy that what remains is somehow natural, and therefore a proper object of science. I will try briefly to put back some of the lost splinters, conceptions, and disputes to provide a ground against which to see the figure of the mind as an object of psychological science.

What Is the History of Psychology About?

Since you are holding in your hands a book with the title *A History of Psychology*, you assume it's about something, but these reflections on the nature of the mind ought to make you wonder (Smith, 2010). You are probably reading this book because you have to, as a text assignment in a course, probably called History of Psychology or History and Systems of Psychology. You might check the library and find a journal called *History of Psychology*, so there must be something for there to be books, courses, and journals about. But if we look at other fields the situation is very different. In physics, for example, there are no (that I can find) courses or textbooks on its history. There are books and resources about the history of physics, but no special texts and courses devoted to it. The history of physics is part of the larger history of natural science. The other social sciences similarly lack texts, courses, and journals. So we can add a new oddity to psychology: Psychologists care more about their history than other scientists or practitioners care about theirs.

In the history of science in general there have been two approaches to defining a field of study. In the natural sciences, for example, the Scientific Revolution forms an important hinge point. Older (roughly before the publication of Kuhn, 1962) histories tended to focus on ideas about the physical world up to the Scientific Revolution, with the Revolution itself—the establishment of modern science—being the end point. Thus one learns about Aristotle's theories of motion and the earth-centered astronomy of Ptolemy, and how these were replaced

by Newtonian physics and Copernican astronomy. Before the Scientific Revolution there were people who studied the topics that make up modern science, but there were no self-conscious professions or institutions of science as such until they were created in the Scientific Revolution. More recent histories tend to focus on the Scientific Revolution as the starting point when a given science became self-conscious and its formal scientific institutions were established. We might say that the older histories studied the prehistory of a field—protoscientific ideas—while the newer histories study a field after its emergence as a distinct and self-consciously scientific enterprise—a science as such.

One can apply the same schemes to psychology, defining the prehistory of psychology as concerned with ideas about mind and behavior up to the professionalization of psychology in the late nineteenth century, and the history of psychology proper as concerned with the century and a half or so following its scientific founding around 1879. In fact, if one looks at the journal *History of Psychology*, the latter focus is what you will find. However, in the cases of the social sciences, and psychology in particular, we run into some special problems not met with in the case of the natural sciences. First, and this is unique to psychology as a science, people have their own, probably built-in, set of ideas about the mind and behavior, called variously *folk psychology* (the term I'll use), *commonsense psychology*, or the *theory of mind*. Thus in the prehistory phase of psychology we find not only the consciously developed ideas about the mind and behavior developed by thinkers such as Aristotle or John Locke, but a robust and powerful set of ideas—often only dimly articulated if at all—that ordinary people used to understand themselves and others. Moreover, unlike Ptolemaic astronomy or alchemy, which died after the Scientific Revolution, folk psychology did not go away when psychology became a science. Everybody, including psychologists, uses it every day. What will become of folk psychology is a debated question in cognitive science (see

chapter 12).

The other special problem for psychology is shared by other social sciences; it goes by the relatively unhelpful word *reflexivity*. The sun has always been at the center of the solar system regardless of what people thought, and the development of scientific astronomy had no effect on the behavior of the cosmos. However, social science is about people, not things, and people can learn social science concepts—you have done so in the course of your education and also by reading books, articles and blogs by psychologists and from folks like Dr. Phil—and can thus be influenced by what scientists say is human nature. Thus psychology can change the “reality” it is attempting to describe, even to the point of creating that reality (see chapter 9 on psychoanalysis).

One way to see the importance of reflexivity as a problem is to consider the work of anthropologists. An anthropologist studies an unfamiliar culture, and a major part of that study is talking to people about their ideas about medicine, religion, how the world works, and so on. Anthropologists listen attentively and take seriously what their people tell them, but they don't have to accept folk accounts as valid theories of disease, the gods, or nature. They respect the beliefs as sincere but not as true. But importantly for our current concern, they don't try to replace their peoples' folk beliefs. They don't say, “Your god Kador does not exist, he does not cause illness or floods, or bring you victory in battle.” Anthropologists leave folk beliefs intact because they fear that if they challenge them they will destroy the culture they have studied. In fact, the folk web of beliefs *constitutes* the alien culture. Psychologists, however, do not act like anthropologists. They proclaim their findings and theories, shaping, perhaps even constituting, a new culture rooted in psychology's scientific theories about mind and behavior, part of a larger movement called modernity.

The Theme of This Book

Modernity and Modernism

Historians divide history into various and diverse periods and sub-periods. The loosest division—the one most important to the narrative of this book—is between the premodern, modern, and postmodern periods, although as we'll see, where to draw the boundaries between them is contested. A further issue with labeling and describing these periods lies in the problem of reflexivity just discussed: How did people in each period think about the times they lived in? Obviously, premodern people did not think of themselves as premodern, because they did not know modernity was coming, but people in the later periods did describe themselves as modern or postmodern, especially among educated, intellectual, elites. They created ideologies, *modernism* and *postmodernism*, to describe and understand their times and the processes of historical change.

The concepts modernity and modernism can be vexing, because the concepts are diffuse and contested, and because they can mean different things to different scholars. Even determining when “modernity” began can be difficult. On the early end, intellectual historian of modernity Michael Gillespie (2008) places the origins of modernity in fourteenth-century theology, beginning his narrative in 1326. On the other end, political historians C. A. Bayly (2004) and Paul Johnson (1992) center their narratives around 1815, Bayly ending in 1914 and Johnson in 1830. Novelist and historian A. N. Wilson (1999, p. 69) dramatically gives a precise date for the beginning of modernity, “... what had been poured forth at the French Revolution [1789] was something rather more destructive than the Vials of the Apocalypse. It was the dawning of the Modern.” Then, there is *modernism*, best known as a movement in the arts, whose beginnings Joyce Medina (1993), following early critic Roger Fry (1909), locates in the inception of the late works of Paul Cézanne around 1885.

In this book I will use “modernity” and “modernism” in ways that are specific to how I see the history and prehistory of psychology. Let's begin by distinguishing a realm of ideas and a

realm of everyday life. Gillespie (2008) sees the origins of modernity in an important dispute about concepts that we will discuss more fully in [chapter 4](#), a dispute seen even in the fourteenth century as between the Way of Antiquity (*via antiqua*) and the Way of Modernity (*via moderna*). When I use a name such as *the White House* it's clear what I'm talking about: the individual home of the US president. But when I use the generic term *house* it's not so clear what I'm referring to. A name points to a concrete thing, but a concept does not. Puzzling about this, as we'll see in [chapter 2](#), is pretty much the origin point of cognitive psychology.

The ancients—Greek philosophers and European theologians up to the fourteenth century—had in different ways assimilated concepts to names. They said that every particular house or cat or rock or flower or person was an instance of a fixed and unchanging ideal type of House or Cat or Flower or Person so that our words *house* or *cat* or *flower* or *person* refer to—are really the names of—those ideal types. This *via antiqua* was (confusingly to modern ears) called Realism, because it said that just as *the White House* refers to a *real* thing; so does *house*, even though we can't visit it. Moreover, the ability to understand these ideal types was seen as the key ability separating the human soul from animal minds.

The moderns, for a variety of reasons, rejected Realism. They said that concepts such as house or cat were just convenient names—their view was thus called nominalism—we humans have invented to conveniently group together things that resemble each other. Ideal types are useful fictions that don't name anything outside our own thoughts.

What does this have to do with modernity and modernism? It's generally agreed that a characteristic of modern life is that it's secular rather than religious: The dominant authorities today are science and government, not theology and the Church. When theology and the *via antiqua* reigned, to know concepts was to know God's divine Truth, for He created the ideal types of The House, The Cat, The Flower, and Everything else.

Nominalism pried apart human and divine knowledge. Concepts were human constructions, not connections to God's mind and Heaven. Concepts could no longer be defined as True or False by their resemblance to divine Ideas, and philosophers searched for new bases by which to understand and justify human ideas as true or false, eventually coming up with notions such as objectivity, peer review, and statistical significance—in short, science (Gaukroger, 2006), the authority of modernity.

The battle over nominalism began in the realm of ideas, involving only a handful of cloistered (literally) academic theologians, for whom the stakes were religious and metaphysical, such as whether there were any limits on God's power. Nevertheless, the nominalist ball that started rolling from the ivory tower of theology eventually landed on everyday life, undermining religion and creating modernity, a way of life based more on reason than revelation. The term *modernity*, then, will have in this book two uses, an intellectual one, referring to the ideas that helped create the second use, the way of life that we live today. To borrow a term from cognitive psychology, much of [chapters 2–7](#) will concern the top-down story by which changes in ideas about the human mind and man's place in nature lead to a change in how we live in society.

But there's a bottom-up influence from modernity as a way of life on intellectual thought about the human mind and man's place(s) in nature and society, bringing us to *modernism*. The modern way of life gets noticed and intellectuals begin to think about how to respond to it. Thus Cézanne and the other modernists, including critics such as Fry, begin to reject traditional art as belonging to the premodern way of life, and rethink how art should be done in the modern world. In a sense it's the *via moderna* rejecting the *via antiqua* all over again, except that this time the moving influence is from below—life has changed and so should art (and philosophy and science) to become modern. Modernism, then, can be regarded as the ideology of modernity—a reflection by intellectuals on the modern condition, to praise it, reject it, criticize it, improve it.

And to be created by it, which brings us to psychology as a discipline. Its traditional starting date, along with Cézanne and modernism in art, is 1879. Psychology will, as we will see, have special and crucial roles to play in the story of the creation of modernity and the response of modernism. The Realism vs. Nominalism debate was an argument in cognitive psychology about how we learn general concept terms (a debate still in progress, by the way), and much of this book will be about how psychology helped lead to modernity.

There is one other aspect of modernity that I have left out and that leads to the creation of applied psychology and its importance in modern life. [Figure 1.4](#) is possibly the most important historical graph you will ever see (from Clark, 2007, p. 2):

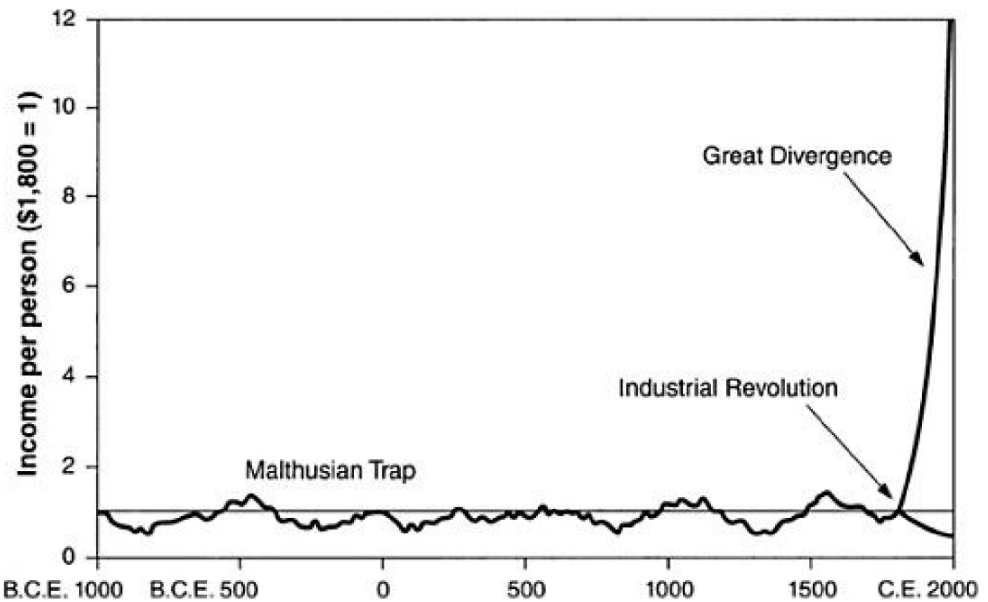


Figure 1.4 World annual personal income per capita in constant year 2000 dollars for 3,000 years of recorded history.

Source: CLARK, GREGORY; *A farewell to alms*, © 2007 by Princeton University Press. Reprinted by permission of Princeton University Press.

[Figure 1.4](#) shows that although the Vials of the Apocalypse may not have poured out in 1789, something else did: wealth. The figure shows income per person in inflation-adjusted units

from 1000 BCE onward. Note that there is no sustained income growth for thousands of years. Premodern people lived under what economists call Malthusian conditions, after the political economist Thomas Malthus (1768–1834), an important influence on Darwin (see [chapter 10](#)). In the Malthusian economy, or trap, the amount of wealth is fixed and population growth is constrained only by the amount of available food. When there are occasional good times—good harvests, because the only source of wealth was agriculture—and wealth increased, so does the population, wiping out the per person increase in wealth. The other way per capita income increased was by famine, disease, or war; the same amount of wealth was distributed among fewer people. Premodern people, even relatively well-off ones, lived lives of grinding poverty that ended in most cases by age 35 or so.¹

From the standpoint of everyday life, modernity was made by the Industrial Revolution, not by nominalism or even the Scientific Revolution. What brought it about is still being investigated and debated by economic historians (Clark, 2007; Mokyr, 2009), but it is the biggest cause of modernity. A key development of the Industrial Revolution was the division of labor (Smith, 1776). People possess different skills and abilities, and if each person does what he or she does best, rather than trying to produce everything for themselves, as most farmers did, the result is increased productivity. Thus, economic output can be improved by finding the right job for the right person, the initial task of mental testing, and the foundation stone of applied, clinical, psychology. Testing is thus an example of modernism, of intellectuals reflecting on the modern way of life and seeking to improve it.

Postmodernism

You may have heard the terms postmodern or postmodernism. Like modernism, postmodernism began as a movement in the arts, specifically architecture (Jencks, 1981). Architects became tired of the undecorated boxy structures of modern architecture

that represented an austere, clean, scientifically inspired view of building as opposed to the colorful and decorated styles of premodern architecture as found in churches and ancient temples. By the way, ancient Greek and Roman art did not present the uniform pure white marble appearance as we see it today—it was vividly painted. Enabled by developments in building materials and construction techniques, architects began designing playful structures, more suited, as they saw it, to a “postmodern” way of life. Perhaps the most famous postmodern building is Frank Gehry’s Guggenheim Museum in Bilbao, Spain.

What, then, was the “postmodern” life that the new architecture was supposed to express? When did it start? Not too long after postmodern architecture began, the Cold War ended with a sudden whimper in December, 1991, when the Soviet Union unexpectedly collapsed. If the French Revolution was the dawning of the modern, the collapse of the Soviet Union and communist countries of eastern Europe was perhaps the dawning of the postmodern. Whether postmodernity existed and what it was like was much debated among intellectuals (Cahoone, 1996; Fukuyama, 1999, Leahey, 1997, 2001, 2008). As with modernity, we should look at changes in the nature of work to see if there’s anything to the idea of the postmodern. Look at [Figure 1.4](#) again. The growth of wealth in developed nations has been exponential, about half of it coming since about 1960. This is a quantitative change that has brought qualitative results to everyday life. When I was in college there were no computers. I was typing, not word processing, until at least 1982. There were no iPods, iPhones (or cell phones), or iPads, no Apple, no Internet, no Facebook, no Twitter, and only chalk and blackboards in the classroom (and no Blackboard).

And the nature of work has changed, too (Drucker, 1994). The antique, premodern, and modern eras were both eras of what I call heavy lifting. Before machines, warfare and agriculture required strong muscles. So did much factory work. In general, people worked with their bodies rather than their

minds, and a premium was placed on physical strength, favoring males. In the developed late-modern/postmodern world, however, people are information workers (Drucker, 1994), producing with their minds rather than their bodies. The productivity premium shifted to intelligence and education, and more jobs could be done equally well by both sexes. Note that the new—to me, if not to you—things I listed above are all information-using devices. Apple’s products say they are designed in Cupertino, CA, by highly educated engineers, but constructed in China, which is beginning its ascent right through modernity to postmodernity in a fraction of the time of the West (Cowen, 2015).

Psychology has changed, too (Leahey, 1997, 2001, 2008). The great explosion in the numbers of psychologists has come after World War II on an ever-upward path of growth. The APA is comprised by divisions defined by the work done and/or scholarly interest of its members. Most of the current divisions did not exist when I was an undergraduate psychology major, and, moreover, most divisions are related to applied work rather than to academic work. In fact, as postmodernism was being proclaimed in architecture, the APA split in two in 1988, into the APA and the Association for Psychological Science (APS). As the name of the latter group implies, the divorce was between professional psychologists and academic scientists, which is why I called the APA a guild earlier. There was always tension between the professional and scientific branches of psychology, as we will see.

Having reviewed the nature of science and of history, and having surveyed various ways in which psychology might be a science, let us now set out, carrying as few preconceptions as we can get away with, on our 2,500-year tour of psychology’s fascinating zoo.

Note

- 1 In Clark’s graph, the Great Divergence refers to the fact that some nations still live under premodern, Malthusian, conditions.

Part II

The Premodern World

Chapter 2

The Legacy of Ancient Greece (EEA–323 BCE)



Figure 2.1 The Parthenon is one of the most famous buildings in the world. Erected under the rule of Pericles in the days of Socrates and Plato, it expresses the confidence of an imperial civilization at the height of its powers. It was in Greece that the history of secular thought in Western civilization began. Psychology began there in the Greek motto “know thyself.”

Source: Library of Congress.

Introduction

The Era of Evolutionary Adaptation

When does history begin? Traditionally, scholars distinguish between the disciplines of history, which draws on written records of human thought and behavior, and prehistory, which uses archeology to illuminate the past. However, this distinction is no longer viable (Smail, 2008; Shryock & Smail, 2011). To begin with, the investigations of archeologists and evolutionary biologists have now invaded historians' territory, sometimes challenging traditional ideas about the past (Renfrew, 2009). More importantly—especially for the history of psychology—is the seemingly obvious point that human beings make history, and that human nature was shaped by evolution long before literacy, let alone historical writing, existed. Thus, just as psychology's founder, Wilhelm Wundt, said, history is an expression of human nature and historians therefore need to attend to what evolutionary psychologists (Buss, 2011; Cosmides & Tooby, 1992) call the Era of Evolutionary Adaptation (EEA), practicing what Smail (2008) calls Deep History. Most notably, it now appears that *Homo sapiens*' most important evolutionary adaptation was not physical (upright posture and the precision grip that enable tool use), but psychological, the development of folk psychology (Dunbar, 2014). Humans are an intensely social species (Buss, 2011), so that individual survival depends both on cooperation—lone people are poor hunters—and competition—reproductive success depends on outwitting one's fellow humans. It became very adaptive to be able to figure out what other people were thinking and planning, and to be able to deceive others (and oneself) when useful. Folk psychology thus appears to be an innate feature of the human mind (Gangestad & Simpson, 2007). The capacity to think about other people's mental states then naturally became an object of reflective thought—of philosophy and science—giving rise to the discipline of psychology.

The Past Is Another Country

A few years ago, I visited the British Museum in London. As an undergraduate, I had narrowly chosen psychology over archeology as a career, and I was eager to visit the treasures of the past to be found in the Museum. Among the greatest are the Elgin Marbles, named after Lord Elgin, a British Hellenophile who brought them back to the United Kingdom for preservation. The Elgin Marbles are large, flat slabs of carved stone that were part of the decorative frieze around the top of the Parthenon on the Acropolis in Athens. In the Museum, they are rightly given a large room of their own, mounted around the walls to give the viewer some sense of the original experience of seeing them. They are marvelous works of art, but I was disappointed by how the Marbles were described by the Museum's labels. They discussed the purely formal, aesthetic properties of the Marbles, pointing out, for example, how the figures on one echoed the forms on another across the room. They did not tell what the figures and forms meant, what the people, gods, and animals were doing. At first, I thought this formal approach simply reflected the fact that archeology developed in Europe as a branch of art history and therefore stressed aesthetic appreciation, whereas archeology developed in America as a branch of anthropology and stressed cultural interpretation. The treatment of other artifacts seemed to confirm my hypothesis.

Box 2.1

Forward to the Past

Looking on human life from outside, it's interesting to ponder this question: Humans evolved in one environment—the grassy savannahs of east central Africa in small libertarian social bands—but have lived ever since in different environments and social structures. What kind of fit is there between evolved human nature and later human environments? Sometimes it's clear that the fit is poor. When humans evolved, food was scarce and so you evolved to eat

whenever food was available. Now that food is always available, you eat all the time and there's an epidemic of obesity. In psychology, philosophers such as Colin McGinn (2000) think the human mind evolved to solve only a certain range of problems and that understanding itself isn't one of them. It may take aliens to understand our minds.

On the other hand, the emerging way of life of late modernism or postmodernism, whatever you choose to call it, looks in many respects like the life of the EEA. Of course, early *Homo sapiens* did not have iPads and iPhones; the similarity is in social structure. In the EEA people lived in small bands and probably mated somewhat promiscuously, mostly forming short-term mother—father bonds to care for helpless infants. People moved around to take advantage of food and safety opportunities as they offered themselves, traveling light with a small kit of tools and often making tools on the spot as jobs needed to be done. Agriculture changed all that. People settled down to farm and accumulated capital, especially land, that might be passed down to heirs, so that short-term mother—father bonds turned into long-term monogamy, with men being especially worried about adulterous wives. Women at Athens were supposed to stay home all the time, with household slaves going out to run errands. You could not move around as before but had to stay in one place to farm. You built homes and other buildings. Formal social structures arose to adjudicate disputes, and as these larger groups began to conflict with one another, states became larger and more powerful. Organized religions came into existence.

Today, only a tiny fraction of people are farmers. Increasingly, workers move from job to job, traveling light. As a character said on *CSI: New York*, “A phone isn't just a phone anymore, it's your whole life” (*Out of the sky*; October 22, 2010). Large libraries can be carried in a Kindle or iPad, and the World Wide Web is available from your phone, tablet, or laptop. You don't have to live in one place

anymore, and like the stone toolmakers of the past, you can download apps as jobs need to be done. Virginity at marriage is no longer as prized as it used to be, and people expect to have had a half dozen or so sexual partners by midlife. Divorce is easier—an unhappy spouse in the Age of Agriculture couldn't pick up her or his part of the farm and leave; walking out with your phone and laptop is more practical. In the EEA women worked via gathering food and men hunted. In the era of agriculture women came to depend on men to do the heavy lifting of agriculture and war. Today, work rarely involves heavy lifting, even in much of the military, and women have become independent again. It may be that as evolutionary theorists would say, human nature is preadapted for the postmodern lifestyle.

Subsequently, however, I learned that the story was less simple: No one really knows what the Elgin Marbles mean. Traditionally, they are thought to show the Panathenaic Procession. Once a year, the leaders and citizens of Athens staged a grand parade to the Parthenon to honor their city's special god, Athena. However, the traditional story has been challenged (Biers, 1987), and some scholars think the Marbles commemorate a legendary sacrifice by a mother of her two daughters to gain an Athenian military victory. Had she borne sons, they would have died in battle, so she gave her daughters in their stead (Adler, 1995). That the Marbles are something of a mystery is especially surprising because the Parthenon is not especially old. The Parthenon was erected in the heyday of the "glory that was Greece" era, during the leadership of Pericles (495–429 BCE) and under the guidance of the great sculptor Phidias (500–432 BCE), as a replacement for structures destroyed by Persian invaders. The Greeks were then inventing philosophy, science, and history, yet we have no discussions of the meaning of the Parthenon frieze. People rarely write down what they take for granted.

My experience with the Elgin Marbles is an important lesson

as we begin our historical journey. The job of any historian is to describe the past, bringing alive the thoughts and actions of people who lived in earlier times, to see the world as they saw it. Yet, as the title of one book has it, *The Past Is Another Country* (Foster, 1988). Often, our grip on the past will be loose, for much quotidian detail is gone forever. We will try to think like Greeks or nineteenth-century German intellectuals, and thus improve ourselves as we do by travel. The quest for historical understanding is worth the effort, but the goal of complete understanding will never be reached.

For intellectual history, another reason why the past is mysterious is that premodern writers (roughly up to the Scientific Revolution) did not always write what they actually believed, as most modern writers do. Instead, many of them wrote obscurely, masking secret (esoteric) doctrines with public (exoteric) words meant to deceive the public while leaving hints about their real beliefs for the more knowledgeable (Strauss, 1988; Kennedy, 2010). There were a number of motives for writing in the esoteric-exoteric style (Melzer, 2007, 2014). Many ancient teachers, including Socrates, shunned writing altogether, believing that wisdom could not be plainly taught but had to emerge from personal dialogue with a challenging teacher. Later philosophers, including Plato, did write, but tried to make their readers' experience more dialogue-like by requiring them to dig for the meaning of the text.

More important for the development of social science, including psychology, was a form of elitism. Plato and many other social thinkers believed that few people are capable of handling the truth about the world, human nature, and how societies ought to be organized and run, and this belief had several consequences. First, it led to fear of persecution: ordinary people might be outraged when their settled ideas are challenged and lash out dangerously at their critics. Plato saw his beloved Socrates tried and condemned by the Greek democracy for corrupting the youth of Athens. The charge was, in fact, arguably true, because he did seek to disabuse his

students of conventional beliefs. Second, a philosopher might worry that if his ideas became generally known, they might destabilize existing society. In the seventeenth century, when Descartes set out to doubt everything in order to find a fixed truth, he resolved to not offend conventional beliefs in public. In the eighteenth century, Kant restricted the use of reason to the private sphere, teaching that professors and prelates had a duty to teach conventional beliefs in public, even when they disagreed with them. In modern times, anthropologists don't challenge the traditional tenets of the cultures they study for fear of destroying them.

A final aspect of elitism in social science came into play in the twentieth century, when social science began to become a basis for public policy. As remarked in [chapter 1](#), and as will be explored in [chapter 14](#), as objects of scientific study people are profoundly unlike physical objects. What scientists publish about atoms and planets has no effect on what atoms and planets do. What scientists publish about human beings can affect what people do and think they should do. Should social scientific knowledge be shared with the general public? Most social scientists think so, and write innumerable public policy and self-help books sharing their insights. But others have continued the attitude expressed in Plato's *Republic*; general knowledge of the truth of human nature might destroy society and diminish scientists' ability to control people for their own good (Thaler & Sunstein, 2008) by exposing their methods.

All this makes the history of philosophy, science, and psychology even more complex than the paucity of records and the opacity of ancient presuppositions. Some of the most important premodern thinkers hid what they really thought. If we take them literally, we may misunderstand them; if we try to penetrate exoteric words to esoteric belief, we may misread them; and if we arrive at the correct interpretation, we have no sure way to confirm it. Finally, a thinker's historical influence might derive more from what he exoterically said than what he esoterically meant. Not only is the past another country—it

sometimes tries to hide.

The Bronze (3000–1200 BCE) and Dark Ages (1200–700 BCE)

The psychology of any era, scientific or folk, is inevitably affected by the society and culture that produced it. When people seek to explain human soul, mind, and behavior, their ideas rest upon unexamined assumptions about human nature and about how humans ought to live. For example, we will learn in this chapter that Classical Greeks thought the greatest goal in life was to seek eternal honor in the service of their city-state, despising anyone who pursued private self-interest. Because psychological theories reflect their time and place, I will in this book set psychological concepts in their social contexts, rather than treating them as isolated Great Ideas. Beginning this journey with the Greeks is appropriate because it was in Classical Athens that Socrates began to examine his culture's previously unexamined assumptions—and was tried, convicted, and sentenced to death for doing so.

The intellectual life of the West is deeply rooted in ancient Greece. Greek ideas were adopted by the Romans, who transmitted them around the Mediterranean and into Gaul (modern France), Germania, and Britain. The history of ancient Greece began in the Bronze Age, a royal culture that collapsed suddenly around 1200 BCE, leaving a Dark Age in history about which we know next to nothing. Written history appears with the Archaic Age, during which the unique center of Greek political and cultural order, the *polis*, was created. Then came the cultural efflorescence of the fourth and fifth centuries BCE, brought to its knees by external and internal warfare and destroyed by Macedonian conquest. This Greek Classical era was followed by the Hellenistic Age, which blended into the Roman Era when, as has been said by Horace in the *Epistles*, the Romans were conquered culturally by vanquished Greece.

The Social Context: Warriors and Kings

Ancient Greek men—who totally dominated Greek society—were warriors and they ceased to be warriors only when they were militarily conquered by Philip of Macedon and then the Romans. Their warrior ethos is the key to understanding Greek concepts of mind and behavior. Greek men prized physical strength and despised weakness and, hence, women; they prized fame and glory, not private life or the pursuit of private interest; they cultivated close, even homoerotic friendships among the members of their warrior bands. In the Bronze and Dark Ages, semi-divine kings and their supporting aristocrats ruled Greek society, and it was in this context of royal rule that the Greeks formulated their masculine warrior ethic. It was transmuted with the rise of the polis, but endured until modern times (Mansfield, 2007).

The Greek warrior ethos cast a long shadow over Greek philosophical psychology and ethics. The Bronze Age heroic conception of virtue—the good life—meant living honorably by the warriors' code and achieving immortality through prowess in battle. When fate offered young Achilles the choice between a long, quiet, private life or a short but glorious life, he chose what any Bronze Age man would—the short life of glory won in battle (which did, indeed, make Achilles' name immortal).

The Homeric concept of virtue is radically unlike ours in two important respects. First, virtue—*arête*—was an achievement, not a state of being; and second, as a consequence, virtue could be achieved by only a lucky few. Women, children, adolescents, slaves, the poor, and cripples (few of whom were buried) could not achieve virtue because they could not gain glory in battle. Greeks ever walked in fear of fate—*Tyche*—that might keep virtue from them. An accident of birth—being a woman, poor, or a slave—put virtue out of reach. A childhood accident or disease might cripple one, keeping one from achieving glory and, thereby, *arête*. Although the emphasis on glory won in battle was muted in later Classical philosophy, the idea that only those few men who attained public greatness

were virtuous remained intact until the Hellenistic Age. Today, we tend to think that virtue may belong to anyone, rich or poor, man or woman, athletic or crippled, because we think of virtue as a psychological state of mind, or of the soul, not as a prize to be won by action. Our conception of virtue was developed by the philosophy of Stoicism in the last centuries BCE, and was incorporated into and spread by Christianity.

The pursuit of the good life is important to ancient and modern psychology. First, we want to know *what* the good life is, and answering this question requires investigating human nature. Achieving happiness depends on satisfying human motives, so we must figure out what motives humans have. Bronze Age Greeks thought that the most important motive was desire for fame and glory won on the battlefield, and they defined virtue and the good life as pursuing fulfillment of that desire. Second, we want to know *how* to achieve happiness and virtue. Bronze Age Greeks had a simple answer: Fight well. Their successors in the polis would have another, still rooted in *arête*: Fight well in democratic debate and lead your polis to fame and glory. Later, as conceptions of human motives changed further, various therapeutic recipes and exercises for happiness would be offered. Third, we want to know the *limits* on human knowledge and happiness. Can the human mind genuinely know the world in which we act and genuinely know what the good life is? Greeks tended to be optimistic about answering both questions, but later thinkers would be less so.

The pursuit of happiness and the good life is the nexus through which society affects psychology and psychology affects society. Psychologists are born into a society that has certain conceptions about human nature, happiness, and virtue, and their research and practical projects are necessarily shaped, although not completely determined, by these conceptions. At the same time, psychologists' theories and findings are made known to their fellow citizens, whose pursuit of happiness is shaped by what experts tell them happiness is and the most effective means to possess it.

Psychology of the Bronze Age

Our oldest window on Western psychology is opened by the Homeric poems the *Iliad* and *Odyssey*, which gave permanent voice to an oral tradition already millennia old, reaching back to the Bronze Age. Because they are tales of love and loyalty, passion and battle, they contain explanations of human behavior, indirectly revealing the oldest folk psychology of which we have record.

One object of ancient wonder was surely the difference between living and nonliving things. Only plants, animals, and humans are born, develop, reproduce, and die; only animals and humans perceive and move about. Religions all over the world mark this distinction by ascribing to living things a soul that animates their inanimate bodies, producing life. When the life-spirit is present, the body is alive, and when it departs, the body becomes a corpse. Some, but not all, religions add a second, personal soul that is the psychological essence of each person and that may survive the death of the body.

At least as recorded by Homer, Bronze Age Greek concepts of the soul are distinctive and, to a modern eye, rather odd (Bremmer, 1983; Onians, 1951; Snell, 1953). To begin with, the *Iliad* and *Odyssey* contain no word designating the mind or personality as a whole. Closest is the word *psuche* (traditionally, but misleadingly, transliterated as *psyche*, and usually translated as soul) from which the field of psychology—the study of (logos) the soul (*psuche*)—takes its name. *Psuche* is the breath of life, or life-spirit, because its departure from a wounded warrior means his death. However, *psuche* is also more than the breath of life but less than the complete individual mind or soul. During sleep or a swoon, it may leave the body and travel around, and it may survive bodily death, but it is never described as being active when a person is awake, and it is never implicated in causing behavior.

Instead, behavior is attributed to several independently operating, soul-like entities residing in different parts of the body. For example, the function of *phrenes*, located in the

diaphragm, was rationally planning action. On the other hand, *thumos*, in the heart, governed action driven by emotion. *Noos* was responsible for accurate perception and clear cognition of the world, and there were other, less frequently cited mini-souls as well. None of these mini-souls survived the death of the body, giving the afterlife of the Homeric *psuche* a rather bizarre character. Deprived of their body-souls, *psuches* in the afterlife were mental cripples, deprived of feeling, thought, and speech, and incapable even of normal movement. The appearance of the *psuche* was exactly that of the body at death, complete with wounds. Moreover, not every *psuche* went to Hades, because proper burial of the body was felt necessary to effect the transition from life to afterlife. Women, children, adolescents, and the elderly could not be warriors, could not, therefore, achieve *arête*, and so were never ritually buried. Thus, their *psuches* were not believed to survive death, and warriors feared death without burial—for example, by drowning at sea. On the other hand, when buried with honor, a great warrior earned *arête*, fame, and an exalted place in the afterlife.

The Archaic Period (700–500 BCE)

The end of the Dark Ages was marked by the appearance of a new form of social and political organization unique to the Greeks, the city-state, or *polis*. Citizens' allegiance shifted from divine kings to city-states, comprised of a small city and a few surrounding square miles of territory and governed by their citizens rather than by a king. The *polis* marked the beginning of rule by the people, although none of the *poleis* were democracies in our modern sense of the world. Citizenship was highly restricted: Only men born of citizens were citizens; women and slaves were excluded from citizenship. In each city-state, especially wealthy Athens, there were many noncitizens, called *metics*, who could never become citizens. *Metics* tended to be the economically productive backbone of the *poleis*, because citizens preoccupied themselves with politics and war,

viewing productive work with disdain. One of Athens' most famous philosophers, Aristotle, was a metic. Moreover, the old warrior values of *arête* continued in the polis, though in altered form, as citizens sought glory through service to their city-state. The poleis lived by the rule of democratically enacted law but they were never liberal democracies open to participation by all (Rahe, 1994).

The Social Context: The Rise of the *Polis*

The Phalanx and the *polis*

The Greeks were warriors, and it was a change in how Greeks fought that created the polis, maintaining while altering the warrior ethos of *arête* (Green, 1973, Pomeroy, Burstein, Donlan & Roberts, 1999; Rahe, 1994). Bronze Age warriors fought as individuals. The great warrior-aristocrats were driven in chariots to the field of battle where they dismounted and engaged in single combat with their personal enemies. This form of warfare is described beautifully in the last chapters of the *Iliad*, when Achilles fights and defeats a series of Trojan heroes, ending with Troy's battle-leader, Hector, whom Achilles denied *arête* by dragging his corpse around the walls of the city he died to protect. Because chariots were expensive to own and maintain, they remained aristocratic status symbols for centuries (Pomeroy et al., 1999). Bronze Age warriors also wore magnificent armor that, like the armor of the Middle Ages, signaled their aristocratic or royal status. However, during the Archaic Age, the Greeks developed a radically new form of warfare, the phalanx, composed of lightly armored soldiers called *hoplites* wielding long pikes. The phalanx democratized warfare. The hoplite did not need to own horses and a chariot, nor expensive armor. All citizens, rich or poor, fought on foot as a closely coordinated single unit. Aristocrats lost their monopoly on military prowess, and with it their monopoly on political power. Because they fought for the polis on equal footing with aristocrats, ordinary citizens staked a claim to political power, and they became the decisive class in making political

decisions.

The phalanx mentality had important effects on the values and psychology of Archaic and Classical Greece. The phalanx fought almost as a single man; the key to its success was complete coordination of the motions of the hoplites. Emphasis on unit cohesion has remained central to Western military success (Hanson, 2002, 2005). In the movie *Sands of Iwo Jima* (1949) (endorsed by the Marine Corps), the tough Sergeant John Stryker (John Wayne) tells his new recruits, “Before I’m through with you, you’re going to move like one man and think like one man. If you don’t, you’ll be dead.” This was the ethos of the phalanx.

The egalitarian ethos of the phalanx created an intense emphasis on economic equality in the poleis. Their goal was *hominioia*, a state in which every citizen thought the same thoughts and served only the interests of the polis instead of their self-interest. Accumulation of wealth was discouraged, and displays of wealth brought opprobrium. Being called a “fish eater” was an insult because fish were rare and expensive in the eastern Mediterranean, so a person who ate fish was showing off his wealth (Davidson, 1997). There were sumptuary laws regulating what clothes one could wear, ensuring sameness of appearance. When a city-state founded a colony (the Greek world expanded from the original city-states of Greece to include Sicily, southern Italy, and the Mediterranean coast of modern Turkey), equal-sized lots of land were geometrically laid out and allotted to the colony’s citizens. Laws were passed making it difficult for anyone to accumulate large landholdings. Above all, the Greeks valued the virtue they called *sophrosyne*. This word is very difficult to translate. Its simplest meaning is self-control, but it’s a self-control that springs from wisdom and honors the Greek maxims “know thyself” and “nothing in excess.” It is not the self-control of a Christian or Buddhist monk who rejects the world, the flesh, and the Devil, but the self-control of a person who accepts and enjoys the pleasures of the world, but is not captured by them.

Now one might think that in such an egalitarian political order, the old concept of *arête* would die. It did not, but was placed in service of the polis rather than individual glory. The democratic polis made it possible for any citizen, not only the wealthy aristocrats, to achieve *arête*; remember that metics, though residents, were not citizens. Aristotle wrote, “the city exists for the sake of noble action” (quoted by Rahe, 1994, p. 184), *action* meaning *political* action. Just as the phalanx demanded the active participation of all hoplites, the polis demanded the active participation of all citizens. Speaking of those who do not participate in politics, but preferred to live a quiet life at home—Greeks called them *idiots*—the greatest Athenian leader, Pericles, said “we judge him utterly worthless.” The pursuit of fame and glory survived from the Bronze Age. Thus, Pericles also said, “The love of honor is the only thing that never grows old... Turning a profit [is inferior to] ... enjoying the respect of one’s fellows” (quoted by Rahe, 1994, p. 185). The ancients never cared for the creation of wealth or economic productivity. What counted above all else was greatness of action and the fame it brought.

The polis at the Extreme: Sparta

The ethos of the polis was carried to its extreme by the Spartans (Rahe, 1994). Each young Spartan male was allotted a farm worked by slaves called *helots*; thus Spartan males could devote themselves entirely to the service of the polis in war. They were trained to be tough, masculine, and warlike from a young age. Each warrior was annually issued a standard garment he wore at all times and in all weather, and Spartan warriors called themselves collectively *hoi hominoi*, “The Equals.” When they became youths, Spartan men moved into barracks, where they lived as a band of warriors, and they perfected their warrior skills by nighttime attacks on any poor helot unfortunate enough to cross their path; indeed, one reason the Spartans had to be warlike was that the helots outnumbered the Spartans by at least ten to one, so that a slave revolt was a constant possibility. Even when coinage of silver

and gold was introduced to the Greek world about 600 BCE, the Spartans forbid anyone to own coins, and used little iron bars as their only means of exchange. Greek disdain for wealth and passions for equality and service to the State was at the heart of the Spartan way of life, and we see that equality (the Spartan ideal) and democracy are not the same.

An important aspect of Spartan life that also illuminates Greek values more generally was the tension between the demands of the polis and the attractions of home, the *oikos*. People are naturally drawn to their spouses and children, but Spartans, like other Greeks, attempted to constrain or even eliminate the *oikos*. For example, every Greek infant was inspected at birth and exposed to death if physically deformed. Elsewhere, it was the male head of the family who judged the infant, but at Sparta it was a government official. Although a man might marry in his twenties, he continued to live with his messmates until age 30, mating with his wife secretly and briefly in the night. Success in warfare was the highest value for Spartans. There is a story of a soldier returning home to tell his mother that all of his fellows had been killed in battle. Rather than rejoicing that her son was alive, she threw a rock at his head and killed him for failing to die with his comrades.

Although the Spartan way of life was harsh, being designed to produce invincible soldiers, it was much admired by subsequent thinkers as an apparently successful exercise in social engineering (Pomeroy et al., 1999). Plato modeled the Guardian class of his utopian *Republic* on The Equals, and in the Enlightenment, Jean-Jacques Rousseau (see [chapter 6](#)) wrote that Sparta “was a Republic of demigods rather than of men” (quoted by Pomeroy et al., 1999, p. 235). Similarly, one of the American Revolutionaries, Samuel Adams said that the new republic should be a “Christian Sparta” (quoted by Goetzmann, 2009, Kindle location 725). However, Sparta’s exercise in social engineering was not a total success. Although Rousseau admired the Spartans, he recognized that their way of life did violence to human nature (Rahe, 1994), and they earned a

reputation as hypocrites among later historians. In public they were austere, but in private they accumulated hoards of forbidden silver and gold. Self-interest and the appeal of home, spouse, and children are not easily extinguished.

Politics, Argument, Law, and Nature: Philosophy and Psychology Begin

Greek Democracy and the Critical Tradition

It is difficult for people to accept criticism of their ideas or to reflect critically on them. Consequently, many systems of thought are *closed*. Adherents of a closed system of thought believe that they possess truths beyond criticism and improvement. If criticism is offered, the system is defended not with reason or evidence, but by attacking the character of the critic as somehow defective. Religions often become closed systems because they rest on divinely revealed dogma and persecute critics as heretics and revile outsiders as wicked infidels. Secular systems of thought may become closed, too. In psychology, psychoanalysis sometimes showed tendencies to intolerance, attacking criticisms as neuroses rather than as potentially legitimate objections.

In Archaic Greece, however, when ordinary citizens earned a say in the conduct of their poleis, intellectual life took a different turn, unique in human history and often called the *Greek Miracle*. The ancient Greek philosophers were the first thinkers to seek progress through criticism. Beginning with Thales of Miletus (flourished 585 BCE), a tradition of systematic criticism arose whose aim was the improvement of ideas about the natural world. As the philosopher Karl Popper (1965, p. 151) wrote, “Thales was the first teacher who said to his pupils: ‘This is how I see things—how I believe that things are. Try to improve upon my teaching.’” Thales did not teach his ideas as received Truths to be conserved, but as a set of hypotheses to be improved. Thales and his followers knew that only by making errors and then correcting them may we approach truth. This critical approach to philosophy is what Popper called an open

system of thought. In addition, the Greek democracies achieved the fundamental basis of all free discussion, separating the character of persons from the value of their ideas. In an open system of thought, ideas are considered on their own, apart from the personality, character, ethnic background, or faith of the person who advances them. Without this separation, arguments degenerate into name-calling and heresy hunting. The critical attitude is fundamental to both philosophy and science, but it requires overcoming intellectual laziness and the natural feeling of hostility toward critics. Founding a critical tradition of thought was the major achievement of the Greek inventors of philosophy and science.

The critical tradition of philosophy and science was an outgrowth of the democratic polis (Vernant, 1982). Instead of simply obeying the orders of a king, democratic Greeks came together to argue over the best course of action, opening the debate to all citizens. Because citizens were equal, charges of bad faith or bad character became unseemly, and ideas were debated on their own merits (Clark, 1992). Law was no longer given by a king who could change it or disregard it at will, but was agreed on and written down, becoming binding on everyone equally. As Euripides wrote in *The Suppliants*, "... when the laws are written down, the weak Enjoy the same protection as the rich." The idea of law governing all people eventually was mirrored in an important scientific idea: natural laws governing natural events, laws that could be discovered by human minds. This extension of law from the polis to nature first appeared in Greek myths, wherein the chief god Zeus is subjected to constraints even he cannot escape (Clark, 1992). Philosophy and science flourish only in a free society based on law.

Despite Greek emphasis on hominoia in society, the democratic rule of law made the Greek poleis wealthy; indeed they experienced the first sustained period of economic growth in the world (Ober, 2015). In a society ruled by kings or aristocrats who are above the law, entrepreneurship, risk-taking,

and information sharing are discouraged, because aristocrats can just seize the fruits of one's labor without working for it, what economists call, misleadingly, rent-seeking. In the new Greek democratic order, however, seeking to better one's lot through specialization of work, cooperation, or trade could pay off, encouraging economic investment and thus generating wealth. In turn wealth made possible the creative efflorescence for which ancient Greece is famous. Creativity in arts and architecture was encouraged by the value of *hominoia*, as the wealthy were expected to improve the polis by spending on public works—*liturgies*—rather than private splendor.

The First Natural Philosophers

Understanding the Universe: The Physicists. The earliest Greek philosophers addressed the fundamental nature of reality. Thales proposed that although the world appears to be made up of many different substances (wood, stone, air, smoke, etc.), there is in reality only one element—water—which takes on many forms. Water can be liquid, gaseous, or solid, and was, Thales proposed, the underlying constituent of all things. The Greek word for the single element out of which all things are made was *phusis*, and so those who followed Thales in searching for some such universal element were called *physicists*. Modern physicists continue their search, asserting that all the substances of common experience are really composed of a few elementary particles.

Besides inaugurating a critical tradition, then, Thales began a line of *physical* investigation. In doing so, he moved away from supernatural interpretations of the universe toward naturalistic explanations of how things are constituted and how they work. Thus, Thales asserted that humans could understand the world because it is made of ordinary matter and is not affected by the capricious whims of gods. Naturalism is the essential commitment of science because science seeks to explain things and events without reference to supernatural powers or entities of any kind. In psychology—the study of the

soul—naturalism poses a profound challenge to dualistic conceptions of life and human personality. As scientists, psychologists seek to explain animal and human behavior without reference to soul or spirit, bringing them into conflict with an ancient and durable tradition—subscribed to by many psychologists themselves—of faith in a supernatural soul. In the rest of science, Thales’ naturalism reigns; in psychology, it remains at odds with dualism. Coming to terms with this tension is a serious problem for contemporary psychology.

Thales’ physicist tradition continued with Anaximander of Miletus (fl. 560 BCE), who criticized Thales’ hypothesis that the phusis was water, proposing instead the existence of a phusis (the *apeiron*) that was not any recognizable element but was instead something less definite that could take on many forms. Although he was a poet rather than a philosopher, Xenophanes of Colophon (fl. 530 BCE) broadened the critical and naturalistic traditions by criticizing Greek religion. Xenophanes maintained that the Olympian gods were anthropomorphic constructions, behaving like human beings: lying, stealing, murdering, and philandering. Xenophanes said that if animals had gods, they would make them in their own images, inventing horse gods, cat gods, dog gods, and so on.

More directly influential on later philosophers, especially Plato, was Pythagoras of Samos (fl. 530 BCE). Pythagoras was an enigmatic figure, a great mathematician, a philosopher—indeed, he coined the term, meaning “lover of wisdom,” (Artz, 1980)—and, yet, the founder of a cult. He is famous for the Pythagorean Theorem, and he also formulated the first mathematical law of physics, expressing the harmonic ratios of vibrating strings of different lengths. In his geometrical reasoning, Pythagoras contributed an idea unique to Western civilization and crucial to science—the notion of *proof*. Pythagoras showed that one could argue logically step-by-step to a conclusion that must be accepted by all who followed the argument.

Mathematics, however, was more than just a tool of science

for Pythagoras. He founded a cult whose devotees believed that mathematics held the keys to nature. Influenced by Eastern religions such as Hinduism, Pythagoreans introduced dualism into Western thought, drawing a sharp distinction between soul and body and believing that souls could migrate from one body to another. Not only could the soul exist without the body, but, going further, Pythagoreans considered the body a corrupting prison in which the soul was trapped. An important part of Pythagorean teaching concerned purifying the flesh—for example, by dietary restrictions—so the soul could more easily attain truth. Unlike other Greeks, for whom sex was a natural part of life, Pythagoreans viewed sexual pleasure as sin: “Pleasure is in all circumstances bad; for we come here to be punished, and we ought to be punished” (quoted by Garrison, 2000, p. 253). As we shall see, in his emphasis on the care of the soul and the purifying and transcendental character of mathematics, Plato was a follower of Pythagoras.

Being and Becoming; Appearance and Reality: Parmenides and Heraclitus. An important intellectual polarity in Western thought has been the tension between the philosophies of *Being* and of *Becoming*. The first spokesman for Being was Parmenides of Elea (fl. 475 BCE). Parmenides wrote his philosophy as a poem and declared it the inspiration of a goddess, suggesting, as with Pythagoras, that the line between science and religion, philosopher and shaman, was not yet clear and sharp (Clark, 1992). Parmenides’ basic thesis was simply stated, “It is.” Presumably influenced by the physicists, Parmenides asserted that the underlying permanent reality of the universe was an unchanging substance, a simple and immutable *It*: pure Being. Change—*Becoming*, to the Greeks—was an illusion of the human mind, because *It* simply is, beyond change or alteration. Expanded by Plato, the philosophy of Being became a moral doctrine asserting that beyond the flux of changing human opinions there are eternal Truths and Values that exist apart from humanity, truths we should seek and use to

guide our lives. These Truths exist in a realm of pure Being; they exist changelessly apart from the changing physical world.

Advocates of Becoming, on the other hand, deny that any such eternal, immutable Truths, or realm of pure Being, exist. Instead, the only constant in the universe is change; things never simply *are*, but are always becoming something else. For such thinkers, moral values change as society changes. There are useful truths, but no eternal Truth. The Greek spokesman for Becoming was Heraclitus of Ephesus (fl. 500 BCE). Like Parmenides, Heraclitus was as much seer as philosopher, speaking in metaphorical aphorisms that earned him the nickname “the Obscure.” He asserted that the physis was fire. This idea led to the conclusion that there is even less permanence in the world than there seems to be. What looks like a stone is really a condensed ball of ever-changing fire, a reality not unlike the modern physicist’s swarm of particles. Heraclitus’ most famous aphorism was that no one ever steps in the same river twice. The statement aptly sums up his philosophy, in which nothing in the universe is ever the same twice. Nevertheless, Heraclitus also believed that, although change is the only constant, it is lawful rather than capricious. Thus, whatever truth philosophy and science may attain will be truth about change—Becoming—rather than about static things.

The debate between Being and Becoming was a metaphysical one, but it created an important epistemological difficulty that led to the first theory in psychology. Both Parmenides’ philosophy of Being and Heraclitus’ philosophy of Becoming imply a sharp difference between *Appearance* and *Reality*. For Parmenides, the Appearance was Change and the Reality was Being; for Heraclitus, it was the other way around. Parmenides made the distinction explicit, sharply distinguishing a *Way of Seeming* (Appearances) from a *Way of Truth* (Reality).

The idea that the human mind might not be able to know reality as it is jolted the Greeks into self-consciousness about how best to search for truth and promoted inquiry into the workings of the human mind, especially what today we call the

cognitive functions. With regard to the first issue, how best to discover Truth, Parmenides concluded that because the senses deceive, they should not be trusted, and one should rely on logic instead. Thus was founded the approach to philosophy known as *rationalism*, which after being further developed and combined with Being by Plato, would emerge as a powerful general theory of the universe. Concern with the second issue, how the mind is connected to the world, resulted in the first psychological theories about sensation and perception. These psychologically minded philosophers tended to defend the accuracy of human perception against the charges of rationalism, developing the opposing viewpoint of empiricism, which maintains that the way to truth is through the senses, not logic.

The First Protopsychoanalysts: Alcmaeon and Empedocles

When psychology was founded as a science in the nineteenth century, it took a path through physiology. The new psychology was conceived as the scientific offspring of a fruitful marriage between philosophy of mind and the science of physiology. This marriage—or alliance, as Wilhelm Wundt called it—was reflected in the careers of psychology’s main founders, Wundt, William James, and Sigmund Freud, all of whom received MD degrees before becoming psychologists. However, long before psychology established itself as a science on the path through physiology, there were physician-philosophers—protopsychoanalysts—who approached explaining mind and behavior using the methods and findings of physiology.

The first seems to have been Alcmaeon of Croton (fl. 500 BCE). He was interested in philosophy and directed his attention to understanding perception. He dissected the eye and traced the optic nerves to the brain. Unlike later thinkers, such as Empedocles and Aristotle, Alcmaeon correctly believed that sensation and thought occur in the brain. Alcmaeon also proposed a view of perception that was developed into the first

theory in psychology by another physician-philosopher who opposed Parmenides' rejection of the validity of experience.

The ideas of this protopsychologist, Empedocles of Acragas (fl. 450 BCE), may be regarded as the forerunner of empiricism, the orientation to philosophy that finds truth in appearances and rejects reason as tending to fantasy. Following Alcmaeon, Empedocles believed that the senses are “duct[s] of understanding” through which information about the world travels to the brain (Vlastos, 1991, p. 68), and upon that basis developed a theory of perception that would justify our commonsense reliance on our senses. Empedocles proposed that objects emit “effluences,” sense-modality-specific copies of themselves that enter the body through the ducts of the senses. Unlike Alcmaeon, Empedocles returned to the usual Greek location of the mind in the heart or chest, saying that the effluences get in the bloodstream where they meet and mix in the heart. The agitation of the effluences in the beating of the heart, Empedocles argued, was thinking. Although it sounds absurd, his theory was an important step for naturalism in psychology because it proposed a purely physical basis for mental activity, which was usually attributed to a soul.

A key feature of the various protopsychologists we will meet along the way to the founding of scientific psychology is that they worked in an intersection between philosophy and psychology. That is, they took up philosophical questions such as, “Do we know the world truly?” or “What is the best way for people to live?” and addressed them from a psychological perspective. Instead of speculating about human knowledge, they inquired into how sensation, perception, and thought actually work, using their findings to reflect back on philosophical issues about the possibilities and means of justifying knowledge. Instead of debating ethical positions, they inquired into human nature, trying to discover what motives people have and how they might be managed to attain the good life. Scientific psychologists have kept up this tradition, using scientific inquiries into human nature to address issues in

epistemology, decision-making, and the relations between human beings and human society (e.g., Keyes & Schwartz, 2007).

The Last Physicists: Atomism

The last Classical philosophers to be concerned primarily with the nature of physical reality were Leucippus of Miletus (fl. 430 BCE) and his better-known student, Democritus of Abdera (fl. 420 BCE). After them, philosophers turned to questions about human knowledge, morality, and happiness. These *atomists* proposed an idea that has proven immensely fruitful in physics: that all objects are composed of infinitesimally small atoms. The atomists pushed their hypothesis to its limit, supporting two ideas that have seemed dangerous to some philosophers and ordinary people: *materialism* and *determinism*. A recurring motto of Democritus was that only “atoms and [the] Void exist in reality.” There is no God and no soul, only material atoms in empty space. If only atoms exist, then free will must be an illusion. Leucippus said, “Nothing happens at random; everything happens out of reason and by necessity,” providing a naturalistic explanation of Tyche. Soul and free will are illusions that should be abandoned and replaced by naturalistic science. Democritus became known as the “Laughing Philosopher” for the moral conclusions he drew from his naturalism. The Hellenistic dramatist Lucian (120–200 CE), imagining Democritus and other philosophers put on sale by the gods, has a prospective buyer exclaim, “You’re laughing at us all? You think our life’s nothing?” Democritus replies, “That’s right. It’s just atoms moving in the infinite” (in Saunders, 1966, p. 189).

Atomism deepened the divide between Appearance and Reality. Democritus wrote, “We know nothing accurately in reality, but only as it changes according to the bodily condition and the constitution of those things that impinge upon [the body]” (Freeman, 1971, p. 93), concluding that only reason can penetrate to the reality of the atoms (Irwin, 1989). Democritus adopted a version of Empedocles’ theory of cognition.

Democritus said that every object gives off special kinds of atoms called *eidola*, which are copies of the object. When these reach our senses, we perceive the object indirectly through its copy. Thus, our thought processes are restricted to putting together or taking apart the *eidola*-images in our brains. Democritus also maintained an ethical doctrine that came to trouble later ethical philosophers and psychologists. A consistent materialism, denying as it does God and the soul, typically offers a sensuous guide to the conduct of life: the pursuit of pleasure and the avoidance of pain. This doctrine is called *hedonism*, and it will be fully developed as a psychology of motivation and political philosophy by the utilitarians of the nineteenth century. Democritus said, “The best thing for man is to pass his life so as to have as much joy and as little trouble as may be” (Copleston, 1964, p. 93). Hedonism reduces moral values to our natural bodily experiences of pleasure and pain. To many, however, it is offensive, for if an individual’s pleasure is the sole criterion of the good, what right has anyone to condemn the happy and successful criminal or tyrant? Such moral concerns were at the heart of Socrates’ and Plato’s thinking, and Plato once suggested burning Democritus’ books on ethics, but not his books on science.

The Classical Period (500–323 BCE)

The Social Context: Empire and War

As the Greek city-states established themselves and colonized the Mediterranean, they came into conflict with the Persian Empire. In a series of campaigns, the Persians tried to capture Greece, but due to battles fought with great heroism and cleverness by the Greeks, the Persians failed. Had the Greeks lost any of the close-run battles against the Persians, the history of the world would have been changed radically. The Persian wars also revealed the great political weakness of the polis system—the Greeks never fully united against the Persians, but set up short-term alliances that encouraged jockeying for

supremacy. The main rivals were Sparta, the most potent, land-based military power, and Athens, the largest and wealthiest of the poleis.

Athens' citizens numbered as many as 40,000, far more than other poleis, and its rich silver mines gave it enormous wealth. Because Athens had a port, the Piraeus, it became a great trading center, and it developed as a sea power against Sparta's formidable land power. As the Persian wars continued, Athens became the most important Greek city, developing an empire controlling most of the Greek peninsula and reaching into Persian territories as the Persians retreated. Unsurprisingly, the Athenians fell victim to the Greek sin of *hubris*—excessive pride. They styled themselves the teachers of the Greeks, and other cities came to feel threatened by Athenian hegemony. Some poleis allied with Athens' power, while others rallied around Athens' rival, Sparta, setting in motion a series of horrifically destructive civil wars known collectively as the Peloponnesian War. In the end, Sparta defeated Athens with the help of the Persians, but the devastation and loss of life and wealth were so great that no one could justly be called the victor. Greece was fatally weakened, set up for conquest by Philip of Macedon and his son, Alexander, who in turn were replaced by the Romans.

At its height, Athens was the cultural center of the Greek world, producing art, architecture, and philosophy whose influence lasted for millennia. It also became, for a while, a radical democracy, completely erasing status differences between the few aristocrats and the many common citizens. As the fortunes of war with Sparta ebbed and flowed, the aristocrats tried several times to seize power, only to be defeated by the partisans of democracy. The internal squabbling of Athenian citizens aided their enemies as disaffected aristocrats periodically defected to the Spartan or Persian cause. The tumults within Greece and within Athens are important to understanding the philosophy of Plato, who sought to find a world of unchanging Truth behind the appearance of

chaos.

Teaching the *Polis*

Humanism: The Sophists

Because it was a democracy, the key to success in the Athenian polis was rhetoric: the art of persuasion. Gaining political power depended on effective speech in the assembly, and being a litigious people, Athenian citizens had to argue lawsuits and sit in judgment on juries. Therefore, the ability to make and critically comprehend complex arguments was a skill of great value. Naturally, then, rhetoric became an object of study, a profession, and a body of expertise to be taught. The new teachers of rhetoric were called *Sophists*, from *sophistes* (meaning expert), the source of our word “sophisticated.” The art of rhetoric arrived in Athens from Syracuse in 427 BCE. The Sophist Gorgias came from Sicily to obtain Athenian aid for his city of Leontini against its enemy Syracuse (Davidson, 1997). Although Gorgias does not come off well in Plato’s eponymous dialogue, the art of persuasion had come to stay. The Sophists were the first paid professionals in history, and they represent the beginnings of higher, as opposed to childhood, education (Clark, 1992). The practical concerns of the Sophists mark an important turn in philosophy from concern with physics to concern with human life and how it ought to be lived.

As hired advocates and teachers of rhetoric, the Sophists did not profess a general system of philosophy, but certain important philosophical attitudes emerged from their practice. If the Sophists had a central idea, it was stated by Protagoras (approximately 490–420 BCE): “Of all things the measure is man, of things that are that they are, and of things that are not that they are not” (Sprague, 1972). Protagoras’ motto contains a range of meanings from the personal through the cultural to the metaphysical. At the center of all of them, however, is *humanism*, a concern with human nature and human living.

On its narrowest, personal, interpretation, “man is the measure of all things” endorses a *relativistic empiricism*, a

humanistic preference for Appearance over Reality. Whatever may be the ultimate constituent of nature—water, fire, or atoms—the world we humans live in is the world as it appears to us in our immediate experience. Truth for us, as a practical matter, will never be the physis, but will be the familiar world of people and things; usable truth therefore lies in Appearances, not in a speculative Reality. Yet, because truth is in Appearances, truth is relative to each perceiver: Each human being is the only qualified judge of how things appear to him or her. Two people may enter the same room, yet to one the room is warm, to the other cool, if the former has been out in a blizzard and the latter downstairs stoking the furnace. Neither perception is incorrect; each is true for its perceiver, and there is no hidden Reality of the matter.

“Man is the measure of all things” also carries a cultural, or, to use a term of today, a multicultural meaning. The Greeks were cultural chauvinists: their word *barbarian*, with all of its negative connotations, simply meant non-Greek-speaking. For them, there is only one right way of life—the Greek way—and all others were ways of folly or wickedness. The Sophists challenged Greek thinking on this point, championing a form of cultural relativism. Just as each person knows what is true for himself, so cultures may arrange their affairs in any number of equally valid and satisfying ways. Hellenes speak Greek and Romans speak Latin; neither is superior to the other. Greeks worship Zeus, the Anglo-Saxons, Wotan; each is the god of his people.

Finally, “man is the measure of all things” has a metaphysical meaning. If the alleged Reality of nature is unknowable, so, too, are the gods (Luce, 1992). There is no divine truth or God-given law to which human beings are subject. Right and wrong are matters for cultures, not gods, to decide. Science and philosophy ought not waste time on idle speculation about Reality or the gods, but concern itself with practical achievements conducive to human happiness and work.

The Sophists' relativism was an important innovation in the history of Western thought, but carried dangers for Greek democracy and for Western social and political thought down to the present. The Sophists sharpened the division between *physis* (nature) and *nomos* (human law). By considering their way of life the best life, traditional Greeks identified *physis* and *nomos*: the Greek way of life, their *nomos*, was the best—that is, the natural (*physis*) way of life, ideally suited to human nature (*physis*). The Sophists denied this identification, making *nomos* a matter of arbitrary convention, a set of equal ways of life lived in different cultures, none superior to another. Indeed, the Sophist Antiphon elevated convention (*nomos*) above nature, saying that human laws bind human nature (*physis*), presumably in different ways in different cultures.

Psychological inquiry is important to the dispute between traditional Athenians and the Sophists. The Sophists assumed that human nature is quite flexible, being happily adaptable to very different ways of life. Traditional Athenians saw human nature as relatively fixed, so that one culture—the free polis—was most suited to it. Submerged for a time by the dominance of Christian thought, the nature of human nature—and its implications for social policies—became a prime problem for the Enlightenment. Psychology began to be politically important in the eighteenth century, when politicians rejected traditional forms of social organization (*nomos*) in favor of forms rooted in a scientific understanding of human nature (*physis*). The tension between *physis* and *nomos* is as intense now as ever in the history of humankind. Is freedom the natural (*physis*) yearning of the human heart, justifying the overthrow of despotic regimes, or should they be left alone as *nomoi* different from, but no better or worse than, our own?

The immediate danger from Sophistic humanism for Athenian democracy emerged in Plato's lifetime. The aristocrat Callicles says in Plato's dialogue *Gorgias* that laws are made by the weak and inferior—but more numerous—citizens to fetter the naturally strong and superior aristocrats who ought naturally

to rule over the weak masses. De Sade, Nietzsche, and, in some moods, Freud, later agreed with Callicles' position. Callicles put his claim into action, participating in an aristocratic coup against Athenian democracy. Ever since the time of the Sophists, the questions of what human nature is and what, if any, way of life is natural to it, have challenged those parts of psychology and philosophy devoted to human happiness. These challenges were first met head-on by Socrates.

Box 2.2

Socrates: The First Modern

It seems silly to say that the first modern was a Greek who lived in the fourth century BCE, but it could be true. A big question about modernity—science, industrialization, urbanization, and spectacular economic growth—was why it occurred in Western civilization and not in another of the world's great civilizations such as Islam or China. As one book asks, "Why does the West rule?" (Morris, 2010). One feasible answer is the Greek Miracle and Socrates' place at the heart of that miracle. Socrates went around asking people why they did what they did. Most people and societies are content to just keep doing what they have been doing as long as things work out OK. But Socrates stepped back and asked people to think about and to *justify* their beliefs and actions. This can bring trouble—it brought Socrates death—but it provokes change. Only if one thinks about why one is doing things can one then think about doing things differently, and doing things better: one can move past results that are OK to trying for better outcomes—for economic innovation and growth, not the static outcomes of the Malthusian economy. The restlessness of modernism, seeking for constant change and improvement began with the restless moral questioning of Socrates.

Enlightenment and Eudaemonia: Socrates

Much to his own liking, Socrates was a troublesome and troubling figure in his own lifetime and has remained so in the history of Western thought, esteemed the greatest of philosophers. For conventional Athenians, Socrates was a troublemaker whose deliberately provocative questions about virtue corrupted their children and undermined their morals. For Christian philosophers, and especially for people still Christian in outlook if not in faith, Socrates became an attractive figure—a poor, wandering seeker after virtue who annoyed the smug and the self-righteous—and whose reward was execution. Although a citizen of Athens and an admired soldier, Socrates, like Jesus, came from a modest background, being the son of a stonemason, and challenged the reigning values of the day, whether the aristocrat's love of power and glory or the merchant's love of money. Speaking to the jury that condemned him, Socrates said, "I go about doing nothing but persuading you, young and old, to care not for the body or money in place of it, or so much as, excellence of soul" (Plato, *Apology*, 30a, trans. R. E. Allen, 1991). For the old aristocratic class of Athens, and later for Friedrich Nietzsche and the German neo-Pagans of the turn of the century—some of whom turned to that decisive leader Hitler—Socrates and Jesus were evil teachers who clouded the minds of the naturally strong with altruistic morality and bound their hands with manacles of law passed by the weak.

Socrates, it seems, was a dangerous man, but what did he teach? In a sense, nothing. Socrates was a moral philosopher, unconcerned with physics and, though Athenians took him for one, he was not a Sophist teaching expertise for a fee. He was on a self-defined quest for the nature of true virtue and goodness, though he professed not to know what they were. In his teaching, he would closely question a young man or group of young men about some topic related to virtue. What is Justice? Beauty? Courage? The Good? Socrates' interlocutors would offer conventional definitions that Socrates dismantled with clever and penetrating questions. For example, in the

Gorgias, Callicles defines justice as “the rule of the strong,” reflecting his aristocratic birth and Sophistic training. So devastating is Socrates’ assault on Callicles’ beliefs, however, that Callicles flees rather than give them up. Those who stayed with Socrates came to share his own mental state of *aporia*, or enlightened ignorance. With Socrates, they had to confess they were ignorant about what justice (or whatever virtue was under discussion) really was, but realized they were better off than before because they had been disabused of their conventional, but wrong, beliefs. Socrates feared that in their acquisition of an empire and the hubris that it had engendered, Athenians had strayed from the path of *sophrosyne*, and his mission was to deflate imperial arrogance and restore traditional Greek self-control.

Although Socrates taught no positive doctrine, his philosophical and psychological approaches contained several important innovations. The philosophical innovation was his search for the general nature of the virtues and of virtue itself. We intuitively recognize that repaying a loan and establishing a democracy are just acts, but what they have in common—what justice itself as such is—remains elusive. A spectacular sunset and a Mozart symphony are both beautiful, but what they share in common, what beauty itself is, remains likewise elusive. Moreover, Socrates took his inquiries to a higher level. Justice, beauty, honor, and so on are all good, but what they have in common, or what *good* itself is, remains elusive. In his domain of moral philosophy, Socrates began to try to understand the meaning and nature of abstract human concepts such as justice and beauty. Plato and Aristotle would broaden Socrates’ quest from ethics to include the whole range of human concepts in every area, creating the field of epistemology—the search for truth itself—a central undertaking of later philosophy and cognitive psychology.

Socrates’ method, a special sort of dialogue called the *elenchus*, was innovative as well. Socrates believed that everyone possesses moral truth, even if they are unaware of it.

Socrates called himself a “midwife” to knowledge of virtue, bringing it out of people by questions rather than simply teaching it to them. So, for example, he would use specific cases to undermine false ideas about virtue. A young man might define courage in Bronze Age fashion, as fighting honorably and fearlessly against one’s enemies, and Socrates might counter it with something like the Charge of the Light Brigade: brave but foolish, and bringing death and defeat to one’s family, followers, and fellow citizens. Such questions and problems weakened and eventually—for those who stayed—dislodged false beliefs and ended in *aporia*, uncertainty about the real nature of virtue. In some respects, the Socratic elenchus is the starting point of various forms of psychotherapy. With Socrates, psychotherapists maintain that we have learned false beliefs that make us ill, yet we possess hidden and liberating truths that can be found through dialogue with a personal guide.

Socrates also believed that nothing deserves the name knowledge or truth unless we are conscious of it and can explain it. A person might infallibly do the right things, but for Socrates, he or she was not truly virtuous without being able to explicitly and rationally justify his or her actions. In his quest for virtue, Socrates demanded more than good behavior or correct intuitions about right and wrong; he demanded a theory of virtue—the Greek word *theoria* means “contemplation.” In the *Symposium*, the semi-divine seeress and alleged teacher of Socrates, Diotima, says to him, “Don’t you know that right opinion without ability to render an account is not knowledge—how could an unaccountable thing be knowledge? ... Right opinion ... is intermediate between wisdom and ignorance” (Plato, *Apology*, 202a).

Socrates’ requirement that knowledge be an explicitly stated and defended theory was adopted by Plato and became a standard goal of Western philosophy, setting it off from two other forms of human thought. The first are dogmatic religions that do not allow natural reason to question divine revelation.

Islam after the thirteenth century failed to develop natural philosophy and science on just this ground. In a somewhat similar way, China, too, failed to develop science because of the total control of thought exercised by its divinely appointed emperors and their bureaucrats, the Confucian mandarins (see [chapter 8](#)). The other traditions are those that value intuition rather than logic, such as Buddhism or Western romanticism (see [chapter 6](#)). Within psychology today there is a movement called embodied cognition that deprecates the explicit and verbal side of knowledge and elevates intuitive knowledge of the world we use to practically interact with it (Ratcliffe, 2007; Shapiro, 2010).

Finally, in his concern with virtue, Socrates raised important psychological questions about human motivation. Central problems for any moral philosophy are providing reasons why people should do right and explaining why they so often do wrong. The first problem—why people should be virtuous—was never a difficulty for Greek and Roman philosophers because they assumed, entirely without discussion, that virtue and *eudaemonia* were deeply linked, if not identical. The usual translation of *eudaemonia* into English is “happiness,” but *eudaemonia* meant more than the attainment of pleasure, though it included pleasure. It meant living well, or flourishing. Like all Greeks, Socrates assumed that the proper end of life was *eudaemonia*, and he believed that virtuous living would bring *eudaemonia*. Thus, he, in common with Greeks generally, assumed that because all people seek happiness, *eudaemonia*, they naturally seek virtue, and there was therefore no need to provide special reasons for doing good. Plato asserts in the *Symposium* (205a, trans. R. E. Allen, 1991), “... the happy are happy by possession of good things, and there is no need in addition to ask further for what purpose he who wishes to be happy wishes it. On the contrary, the answer seems final.” In their causal linking of virtue and happiness, the Greeks differed sharply from later ethical systems, including Christianity, which urge us to be ethical but warn that pursuing virtue often brings

suffering rather than happiness. Classical Greeks also differed from the Stoics ([chapter 3](#)) and Christians ([chapters 3 and 4](#)) in restricting moral concern to an individual's happiness and perhaps the happiness of his polis. Concern with other human beings simply because they were human beings formed no part of the Classical concept of virtue (MacIntyre, 1981).

Because Greek and Roman ethical philosophers had no problem explaining why people should behave well, they focused instead on the question of why people don't always do so. If virtue and happiness are almost the same, the existence of bad behavior—behavior that makes a person unhappy—becomes hard to explain. Because people want to be happy, they therefore ought always to act rightly. Socrates proposed a purely intellectual answer to the problem of bad behavior, maintaining that people act wrongly only when they are ignorant of the good. A thirsty person would not knowingly drink poison, but might do so on the false belief that it was pure water. Harmful acts are never chosen as such, but only when the actor is ignorant of their bad consequences.

Socrates' explanation of bad behavior was predicated on the assumption behind the elenchus that people intuitively know what virtue is, but that false beliefs acquired from their upbringing mask this knowledge and may lead them to do wrong. Once someone knows what virtue truly is, he will automatically act correctly. Thus, Callicles, having abandoned his dialogue with Socrates, participated in the aristocratic coup because he remained in the grip of the false belief that justice was the rule of the strong. In Socrates' account, Callicles was not evil, but simply misguided. Had he continued his encounter with Socrates, he would have learned that justice was not the rule of the strong, and would not have sought the overthrow of democracy. For Socrates, knowledge of the good—not a good will or virtuous character—was all that was needed to effect good behavior. Later Greek and Roman ethical philosophers, including Plato himself and the early Christians, found Socrates' intellectual solution implausible because, manifestly, some

people enjoy wrongdoing, and even virtuous people sometimes knowingly do wrong because their wills are too weak to overcome temptation, a mental condition the Greeks called *akrasia*. Wrestling with the sources of evil in human behavior became an important question for motivational psychology.

The Great Classical Philosophies

Plato: The Quest for Perfect Knowledge

Unlike his teacher, the son of a stonemason, Plato sprang from the old aristocratic class that was losing power as the Athenian polis became more democratic. When Sparta finally defeated Athens at the end of the Peloponnesian wars, a clique of aristocrats, including two of Plato's relatives, carried out the short-lived coup against the Athenian democracy in which Callicles participated. Ironically, when the coup was defeated, Socrates was caught up in the purge of aristocrats and their supporters because so many of them, like Callicles, had been in his circle of students. Socrates was condemned to the death he chose in preference to exile from the city he loved. As a result, Plato became disenchanted with politics as he knew it. Aristocrats, even relatives, friends, and students, might selfishly sacrifice the general good to personal ambition. A democracy might fear and kill a loyal yet critical citizen because he questioned conventional ideas of virtue.

Socrates, the first moral philosopher, had tried to find an overarching idea of the Good. His student, Plato, built on and broadened Socrates' moral concerns, filling Socrates' *aporia* with his own philosophy. Plato dedicated his philosophy above all to the pursuit of justice both in the state and in the individual. The Greek word for justice, *dikaiosune*, had a specific meaning: getting out of life what one fairly deserved, no more and no less, reflecting the Greek goal of *hominoia*. Fish eaters and the aristocratic junta were guilty of justice's corresponding vice, *pleonexia*, grasping for more than one is fairly due. Plato tried to lead his students from their conventional Greek understanding

of justice to a new one, doing good for its own sake and not for the parochial sake of the health of their own polis. Plato's new understanding of virtue would later make its way into Christianity.

Cognition: What Is Knowledge?

Socrates had tried to find a general definition of Virtue. Plato saw that Socrates' quest was part of a larger undertaking—that of finding definitions for any sort of general terms. Just as we can define *courage* apart from particular courageous actions, or *beauty* apart from particular beautiful things or people, so we can define *cat* apart from any particular cats, or *fish* apart from any particular fish.

Talk of cats and fish may seem to make Plato's quest trivial, but it is not. According to the Greeks, what sets human beings apart from animals is the capacity for abstract knowledge, while animals respond only to the concrete here and now. Science, including psychology, searches for general knowledge about how things are everywhere in the universe at any point in time. Psychologists run experiments on small groups of people, but build theories about human nature. In a social psychology experiment, for example, our concern is not why Bob Smith or Susan Jones failed to help a person in distress, but why people so often fail to help others in similar situations. Plato was the first thinker to inquire into how knowledge is possible and how it may be justified. In philosophy, he created the field of epistemology—the study of knowledge—that eventually gave rise to cognitive psychology.

Modern science, heir to the empiricist tradition in epistemology that Empedocles inaugurated, justifies its claims to knowledge by citing observations. However, science has learned to live with an ugly fact about generalizations based on past experience: As Plato was the first to point out, what seems true based on today's data may be overturned by tomorrow's. The truth for which Socrates died could not be so transient, so tentative, Plato thought. Truth had to be permanent and knowable with certainty.

Wrestling with Skepticism. For the Platonist, then, Truth, and hence our knowledge of it, has two defining characteristics. First, a belief is True—is Knowledge—if and only if it is true in all times and all places absolutely. Socrates wanted to know what justice or beauty *is*, apart from just acts and beautiful things, and knowledge of justice or beauty itself would therefore be true of all just acts and beautiful things in the past, now, and forever. Second, for Plato, as for Socrates, knowledge had to be rationally justifiable. A judge who always judges rightly or a connoisseur of impeccable taste does not, for Plato, genuinely know the truth unless he can explain his judgments and by force of argument convince others they are correct.

Unlike the later Skeptics, who were also students of Socrates, Plato never questioned Socrates' faith that there was a Truth to replace aporia, and he accepted earlier philosophers' arguments that sense perception was not the path to knowledge. From Heraclitus, Plato took the belief that the phusis was fire, and thus the conclusion that the physical world was always in a state of becoming. Because the truth Plato sought lay in the realm of Being—eternally and unchangeably True—knowledge of it could not derive from material senses reflecting the changing material world. From the Sophists, Plato took the belief that how the world seems to each person and each culture is relative to each of them. Observation, therefore, is tainted by individual differences and the sort of cultural preconceptions that Socrates had challenged. For Plato, then, even if the copy theory of cognition was an accurate account of human perception, it was not adequate as a theory for finding eternal Truth. Plato rejected psychology for an idealistic metaphysics.

Mathematics and the Theory of the Forms. So far, Plato had not gotten past Socratic aporia; Plato was convinced that transcendental Truth exists, and that perception was not the path to knowledge. Then, in midlife, Plato studied geometry with the Pythagoreans and was transformed by it, as Thomas

Hobbes and Clark Hull would be centuries later. In mathematics, Plato found not only a path to Truth but also something of the nature of Truth itself. Plato came to side with Parmenides in holding that the Way of Truth was the inward path of logical reasoning about ideas rather than the outward path of Seeming about physical objects, but he went beyond them to describe what Truth—a picture of Reality beyond observation—was. In the *Phaedo*, Plato has Socrates conclude, “So when does the soul grasp truth? For whenever she undertakes to investigate anything with the body it is clear that she will be thoroughly deceived by the body... Therefore it is in reasoning, if anywhere, that any reality becomes clearly revealed to the soul” (65b–c, trans. G. Vlastos, 1991).

Most of us have, in high school or college, done proofs in geometry, such as of the Pythagorean Theorem that the area of a square erected on the hypotenuse of a right-angled triangle is equal to the sum of the areas of squares erected on the other two sides. For Plato, the first revelation of geometry was the notion of proof. The Pythagorean Theorem was provable, and therefore True, a piece of genuine knowledge supported by logical argument rather than observation and measurement. The Socratic requirement that knowledge be justified by reason was satisfied by geometry because anyone who followed the steps of the proof is compelled to believe the theorem. Geometry supported rationalism’s claim that logic was the Way of Truth.

Plato went on to assert that reason was the way to Reality and the realm of Being, too. The Pythagorean Theorem is true not merely of a triangle drawn by someone doing the proof, or of all the people who have ever done or will do the proof, but of every right-angled triangle. However, given that the Pythagorean Theorem is true, and that it is not true simply of triangles drawn by mathematicians, or a mere statistical generalization from a sample of triangles, but is a real universal Truth, of what object is it true? Plato asserted that it was true of what he called the *Form* of the Right-Angled Triangle, an

eternally existing, perfect right-angled-triangle of no particular size.

The idea of Form helped reconcile Being and Becoming and provided a solution for Socrates' questions about Virtue that had implications beyond ethical philosophy. Forms belong to the realm of Being, subsisting eternally, while their material but ephemeral copies belong to the realm of Becoming. Similarly, in Socrates' ethical realm, every courageous act resembles the *Form of Courage*, every beautiful object resembles the *Form of Beauty*, and every just act resembles the *Form of Justice*. Courage, Beauty, and Justice—each of them being good—resemble the *Form of the Good*. Genuine knowledge then, which Socrates had sought in the moral domain, was knowledge of the Forms of things, not of physical things or events.

It is important to grasp an aspect of Plato's thinking that is alien to us. We tend to believe that thinking a sculpture or a person is beautiful is a matter of subjective, aesthetic judgment, shaped by what our society or our friends and family tell us is beautiful. Other people in other cultures might have different opinions, and like the Sophists, we accept these as individual differences rooted in culture or individual taste. From Socrates, Plato accepted that societies might instill different views of beauty and ugliness, but, unlike the Sophists, he did not conclude that judgments of beauty were therefore matters of local taste. For Plato, a person or sculpture was beautiful by resembling the Form of Beauty; a sculpture or person was ugly by departing from the Form of Beauty. Similarly, an act was good because it participated in the Form of the Good. Beauty and virtue were not subjective judgments of people and cultures, but real properties that objects actually possessed, like size or weight. If two people (or cultures) disagreed about whether a person was beautiful or an act virtuous, at least one of them was wrong because he or she was ignorant of the Form of Beauty or the Good. Socrates' goal was to find out what virtue was and teach it to people—regardless of social opinion

—so they could act upon their knowledge. Plato elaborated Socrates' idea into metaphysical realism: The Forms *really* exist as *nonphysical* objects. Indeed, for Plato, the Forms were more real than their observable copies, because they were eternal, existing outside the physical realm of Becoming.

The Greek word Plato used to talk about the Forms was ἰδέα. The history of later usages of this word is significant both in psychology and philosophy. You can see that the word is the same as the modern English word *idea*, a psychological entity. Descartes and Locke introduced this use of the term in the seventeenth century ([chapters 5](#) and [6](#)), giving rise to the representational theory of mind found in modern cognitive psychology ([chapter 12](#)). But it is not what Plato meant, hence the translation of ἰδέα as Form. For Plato, Forms were emphatically not just private thoughts, but existed outside human minds as fixed, universal, objects of thought. He would have been horrified at the subjectivity implied by *idea*, the subjective, transient conception of truth he wanted to destroy, that of the two people in the winter room with their private ideas about its temperature. Nevertheless, in philosophy, the term idealism still is used to characterize later descendants of Plato's, such as Kant, who regarded the world of ἰδέας outside any human's personal experience as the realm of the True and Beautiful.

Imagining the Forms. As Plato realized, describing the Forms is difficult, if not impossible, because by their very nature they cannot be displayed. Instead, Plato offered metaphors for the Forms, descriptions of the “child of goodness” rather than Goodness itself (*Republic*, 506e, trans. R. Waterfield, 1993). Three of these similes: the Sun, the Line, and the Cave are given in the *Republic*. A fourth, which offers a psychological path to the Forms, the Ladder of Love, occurs in the *Symposium*, probably written just before the *Republic*.

The Simile of the Sun: Illumination by the Good. In the Simile of the Sun, Plato says that the Form of the Good is to the

intelligible world of the Forms what the sun is to the physical world of objects, the copies of the Forms. Plato did not think of vision as happening because light entered the eye, as we do today; that conception was developed centuries later (Lindberg, 1992). Instead, the eye was thought to have a power of seeing by sending out rays that struck physical objects. Nevertheless, because it's hard to see at night, everyone recognized that light had to be present in order for vision to occur. The light of the sun was the “other third thing” needed (in addition to the eye and an object) for vision to occur. In the intelligible realm, reason has the power to grasp the Forms as in the physical world the eye has the power to see. However, in the intelligible realm, an “other third thing” is needed to illuminate the Forms, making it possible for reason to know them. By themselves, the senses lack the power to perceive the world accurately, but need the help of divine illumination. Plato says that the “third thing—the source of divine illumination—is the Form of the Good, analogous to the light of the Sun on earth.”

The Metaphor of the Line: The Hierarchy of Opinion and Knowledge. The Simile of the Sun is followed by the appropriately geometrical Metaphor of the Line. Imagine a line (Figure 2.2) divided into four unequal sections each of whose relative length is a measure of its degree of truth. The line is first divided into two large sections. The lower and shorter section stands for the world of Appearances and opinions—beliefs without proof—based on perception. The higher and longer section stands for the world of the Forms and provable knowledge about them. The world of Appearances line is further divided into segments for the worlds of *Imagining*, the shortest line segment of all, and of *Belief*, the next shortest in length.

	OBJECTS	STATES OF MIND
INTELLIGIBLE WORLD	The Good	Intelligence or D Knowledge
	Forms	C Thinking
	Mathematical Objects	
WORLD OF APPEARANCES	Visible Things	B Belief
	Images	A Imagining

Figure 2.2 Plato's Metaphor of the Line.
Source: Adapted from Cornford, 1945.

Apprehension of images is the most imperfect way of knowing. Imagining is the lowest level of cognition, dealing with mere images of concrete objects, such as images cast in water. Plato relegated representational art to this realm, for when we see a portrait of a man we are seeing only an image, an imperfect copy of a thing. Plato banished representational art from his utopian Republic, and his hostility to images entered some later religions. In 2002, the world looked on with horror as the Taliban of Afghanistan destroyed large statues of Buddha because they represented a physical human form, a destructive tradition carried on today by ISIS at Nineveh and Palmyra. Better than looking at images is looking at objects themselves; Plato called this Belief. With the next, longer section of the line, *Thinking*, we move from mere opinion to real knowledge, beginning with mathematical knowledge. Proofs vouchsafe the truth of mathematical propositions, and the objects of mathematical knowledge are not observable things but Forms themselves.

Mathematics, however, while providing a model of

knowledge, was recognized by Plato to be imperfect and incomplete. It is imperfect because mathematical proofs rest upon assumptions that cannot themselves be proven, falling short of the Socratic ideal of justified knowledge. For example, geometrical proofs—the form of mathematics most developed in Plato’s time—depend on unproven positing of axioms that may be intuitively appealing, such as the axiom that parallel lines never meet. Plato sensed what later turned out to be correct, that if one changes the axioms, different systems of geometry emerge. To be True in Plato’s sense, then, geometry needed metaphysical support, which he provided with the Forms. Mathematics is incomplete because not all knowledge concerns mathematics. Highest in importance were the moral truths sought by Socrates. The highest and longest segment of the line, then, represents the world of the Forms, the place of all Truth, mathematical or otherwise. Greatest among the Forms is, naturally, the Form of the Good, the ultimate object of Socrates’ and Plato’s quest.

The Allegory of the Cave: The Prison of Culture. The third “child of goodness” in the *Republic* is the most famous and influential, the Allegory of the Cave. Imagine people imprisoned in a deep cave, chained in such a way that they can look only at the back wall of the cave. Behind them is a fire with a short wall between it and the prisoners. Bearers walk along a path behind the wall, holding above it statues of various objects, so that the objects cast shadows on the wall for the prisoners to see. For the prisoners, “the shadows of artifacts would constitute their only reality” (515c, trans. R. Waterfield, 1993).

“Imagine that one of them has been set free and is suddenly made to stand up, to turn his head and walk, and to look toward the firelight” (515c–d). Plato (1993) goes on to tell how hard it would be for the liberated prisoner to give up his familiar reality for the greater reality of the fire and the statues. Harder still—he must be “dragged forcibly” through “pain and distress”—is the ascent past the fire out the mouth of the cave and into the world itself and the sun that illuminates it. Ultimately, he would feel joy