

CHAPTER ONE

Curious Histories

The Greek geographer and astronomer Ptolemy proposed around 150 A.D. that the Earth is the center of the universe. Based on the notion that a circle is a perfect form, together with what was then known about astronomical cycles, the Ptolemaic model conceived of the moon, the sun, the planets apart from the Earth, and all of the stars, as being in circular orbits around our planet. This view held for almost one-and-a-half thousand years. But as astronomical observation improved and accumulated the idea of circles within circles with the Earth at the center began to seem less certain. Nicolaus Copernicus, polymathic Polish adviser to governments and Popes, had pondered upon the Ptolemaic conception for decades whilst contemplating reform of the calendar. Copernicus was bothered both by the complexity of Ptolemy's scheme and the seeming inaccuracies of astronomical observation when mapped onto the Ptolemaic model. One possible solution to the failure of the observations to match the model well was to consider the model wrong, and Copernicus began to conjecture about the possibility that the Sun, not the Earth, was the center of all things. He developed a simple scheme, still based on circular orbits (Kepler later corrected this with elliptical orbits), which seemed to fit better with the astronomical data. Such data, however, were observations made with the naked eye and difficult to quantify with any accuracy. Copernicus knew that in offering an alternative model to that of Ptolemy he was playing with fire. The sixteenth century in Europe was a dangerous time to say or write anything that went against the teachings of the Church. Doing so risked torture on the rack or burning at the stake. He died of natural causes soon after he published his ideas and so was spared such a fate.

Galileo Galilei was born some twenty years after the death of Copernicus. Early in the seventeenth century Galileo improved upon the spyglass invented in Flanders. Increasing its magnification some ten-fold he built the first telescope, and turned it away from the trading and navigational concerns of the Venetian state and towards the heavens, thus ushering in the beginnings of the era of modern astronomy. In addition to mapping the moon's surface, discovering some of the satellites of Jupiter, and seeing for the first time stars in numbers never recorded before, he was able with certainty to see that Ptolemy had been wrong and Copernicus right.

Galileo was a wonderful scientist and mathematician, perhaps the first person that could be described as a scientist in the modern sense of that word. But he made the mistake of making his findings and thoughts too public at a time when the Catholic Church was launching a furious counter-attack on the rise of the Protestant reformation. One consequence was a ferocious resistance to the idea that the universe could be understood outside of Divine law, and science, albeit it embryonic science, was seen flagrantly to flout this edict. The fate Copernicus feared very nearly fell upon Galileo. In 1633 Galileo was brought to trial by the Holy Roman and Universal Inquisition. Threatened with the instruments of torture he was frightened and humiliated, and forced to retract his claim that Copernicus' model had been correct.

Never again was a scientist or scholar of Galileo's eminence tortured or threatened with torture for holding and communicating ideas that ran counter to religious doctrine. Newton, Priestly, Lavoisier, and Dalton, amongst many others, were subsequently allowed to ply their trades in relative freedom of action, and even of censure, from authorities of any kind. Never again were astronomy, physics, and chemistry seriously trampled by ideology or religion. More mundane social sanction, however, is a powerful force, and biology, especially those parts of biology concerned with the human mind, remained vulnerable to potent criticism not just only from official religious quarters but from a more general public consensus. Planets and their orbits are one thing. Living creatures and the minds of humans are quite another.

There is a pervasive view, present to this day, that life is a gift from the Divine and that our minds are a special instrument that

allows us an awareness of God the Creator. Even that most extraordinary feature of the human mind, our intelligence, has been thought of as existing in order that we may comprehend God's law and adhere to it, or otherwise, with appropriate consequences in the afterlife. Most modern scientists are thoroughgoing materialists convinced that living things, including human minds, are nothing more than physics and chemistry, albeit very complex physics and chemistry. The average nonscientist in industrialized societies is, perhaps, coming to a similar view, if much troubled by how to deal with consciousness. But this is a very modern phenomenon. And even major scientists in the none-too-distant past were adherents to nonmaterialist beliefs. For example, Johannes Müller was a major figure in nineteenth-century German physiology, and hence as will become clear in a later chapter, of great significance to early psychology. Yet throughout his career Muller subscribed to a form of vitalism, believing in a nonmaterial essence of life and conscious mind. Similarly Hans Driesch, an important nineteenth-century embryologist, was a persistent and influential purveyor of the view that a purely materialist approach to any science of life would never be enough. Some kind of *elan vital* or *entelechy*, to use Aristotle's phrase, is an essential part of any and every living thing. Alfred Russell Wallace no less, codiscoverer with Darwin of the process of natural selection, had some starkly nonmaterialist ideas about both the human mind and human evolution. That such views increasingly lost the respect of fellow scientists is beside the point. Many biologists in the nineteenth and twentieth centuries, especially evolutionists and that includes Charles Darwin, performed at times what might be termed "attitudinal acrobatics" in order not to offend the traditional public view that if the divine cannot easily be seen in the cosmos, it certainly can be apprehended in living things, and particularly so in the human mind. No evolutionist or psychologist has ever received the treatment meted out to Galileo. But without wishing to labor the point, it is worth noting that the center of twentieth-century science, the United States of America, was home in that century to two major legal battles about the teaching of evolution science, the second as recently as the early 1980s. In 1999 the state of Kansas withdrew evolutionary theory from its schools curriculum and several states, like Washington, are preparing to take similar moves now in the beginnings of the twenty-first century.

All of this makes a simple point. As will be seen, the histories of psychology and evolutionary biology are in many ways curiously parallel. Scientific psychology, in the sense of an empirically based discipline, and the Darwinian theory of evolution, both came into the world at approximately the same time, from about 1860–75. Both had long nonscientific provenances. Speculation about the nature of the mind, either as complex narrative dilemmas and morality tales as in the writings of Homer or as philosophical analysis which predates Plato (427–347 B.C.), are as old as recorded history. Nor did evolution come to us first through Darwin with the publication in 1859 of his *The Origin of Species*. A number of philosophers and naturalists of the eighteenth century had toyed with the notion of the nonfixity of species; Lamarck had developed the first ever substantive theory of the transformation of species at the start of the nineteenth century; and something approximating to a functional theory in the form of final causes and teleological analysis, as well as vague ideas of universal relatedness of all living things, is present in the writings of Aristotle (384–322 B.C.). Also, both evolution and psychology are profoundly important to how humans see themselves. Thus when both achieved the status of being sciences, both were assailed by the world outside of each discipline, especially the theory of evolution. Both have also been riven by internal schisms and controversies. Psychology in particular has always been a refractory area of science. From its empirical beginnings in Germany in the mid-nineteenth century, psychologists themselves, as well as other prominent nineteenth-century social philosophers, held that the human mind had to be approached in two fundamentally different ways. On the one hand, there is the stuff of sensation, attention, learning and memory which can be studied as science through normal, if ingenious, empirical methodology. These are things that can be measured and experimentally manipulated. On the other hand, there was *Homo sapiens* as a social and conscious being whose essence could only be understood by interpretation of meaning – and which certainly cannot be measured. Are these even the same disciplines? Evolutionary science, in turn, suffered major divisions in terms both of theories and methodologies. The differences, deep differences, between Lamarkians and Darwinians, especially as these respective theories were applied to humans, had, as will be seen, a profound and damaging impact on the

naturalizing of the social sciences. As to whether a science rooted in history is even a science at all was not the kind of insulting question posed for more traditional natural sciences like chemistry or physiology.

But it is in the treading about as close as science can come to ideology that the most important shared feature lies. How humans should view themselves, and hence how best we should live our lives, is a burden that weighs heavily upon both disciplines and is, and always has been, a source of serious contention, both internally as well as being directed from outside of each science. So when people began, a few decades ago, to run the two sciences together, the effect was explosive and bitterly controversial.

That is the simple point referred to above. While there never has been an equivalent case to that of Galileo in either psychology or evolutionary biology – not even in so-called evolutionary psychology – these are sciences which, when compared with the likes of chemistry or physics over the same period of time, from about 1860 onwards, have been battered by extrascientific ideas and events; and many of those in the thick of the arguments have been influenced by external events far more than is common in most areas of science.

There is another feature in this most curious of histories of evolutionary ideas within psychology. This is that apart from the earliest period of their joint establishment as sciences of one kind or another, that is evolutionary biology on the one hand and psychology on the other, until quite recently, these were two areas of human thought that had little contact with one another. That is, psychology, whether of humans or animals, had almost no presence within evolutionary biology. And evolutionary theory in its various aspects played little or no part in the thinking of the great majority of academic psychologists. Indeed, there is good reason for this. Because of the empiricist origins of psychological science in western intellectual history as opposed to the inclination towards nativism within evolutionary theory, there has always been the tendency for each to see the other as a rival account of the human mind. Whilst this separation has never been absolute and complete it has always been a division between the two, and one that remains to a large extent. The empiricists lay stress upon the importance of experience in shaping minds, be they human or nonhuman. Nativists (or

rationalists in more traditional philosophical language) emphasize that much of human nature is inborn. That greatest of all rationalists, Plato, even believed that human knowledge is innate. Impelled along their separate conceptual courses by so profound a difference as this, ideas about the evolution of mind have long been at odds with those coming from most academic psychologists.

Yet the views of outsiders have been otherwise. Human origins have always been of powerful interest to people at large. So too is the workings of the human mind. Running the two together in recent years has led to unprecedented media interest. Any linkage that can be established between the mind and our origins is widely felt to be at once fascinating and important, and has attracted public interest way beyond the importance accorded to it by insiders. Nor has the intense interest been confined to that famous person on the Clapham omnibus. Fellow academics and scholars, especially philosophers, have evinced similar enthusiasm.

There is a further complicating thread that needs to be woven into the complex fabric of a history of evolutionary thinking within psychology. This is that there have been, and continue to be, two ways of bringing evolution into psychology. The one is by way of the "standard" evolutionary idea that many features of humankind, perhaps most, including the structure and function of our minds, are a product of evolutionary forces. We are the way we are because of the evolutionary history of our species. The other is that evolutionary processes operate both within our minds as well as between them, an idea sometimes referred to as universal Darwinism. We are the way we are because there is a common set of processes that governs the transformation of living systems, be it the change in species in geological time or alterations in the memories and thoughts of an individual within their lifetime. As will be seen, the relationship between these two notions is not simple.

One of the distinctions historians of science make is between intellectual history and more socially oriented accounts. Intellectual histories are concerned only with the ways in which factors intrinsic to a science have determined its course. The interplay between theory and data, the way in which new methodologies have led to deeper reaches within the phenomena under study, and improvements in theory by recasting and re-

analyzing existing theories relative to the findings from empirical study, all these are grist to the intellectual historical mill of how sciences have changed over the years. Social accounts concentrate on how scientists are affected by, and are products of, the social circumstances of their lives and the times in which they live; and hence how science, and hence the history of science, is the product of such external social and ideological forces. Now, claims upon truth are always precarious if not plain foolhardy. But the prevailing view amongst most scientists is that science does gradually move towards some kind of truth about the world. The astonishing success of science and its application, which ranges from placing humans on the moon and soon enough on Mars too, to linking human nervous systems to computers, and on to cloning, is some sort of measure of truth. Thus most **scientists** writing history would incline to an intellectual perspective, believing that insofar as science is truth-seeking, it does so under the harsh disciplines of accuracy of observations, the adequacy of theory to explain them, and the ingenuity of their application. Yet no scientist is immune to the effects of their lives outside of science on their thinking within their science. And when their science sails close to the ideological winds of what it means to be human, which is what both human evolution and psychology do, then some degree of awareness of a social perspective must be allowed to enter the picture. What follows, then, is largely an intellectual history. But external social forces cannot be left out, and where they seem relevant they will be considered.

All of this means that any history of evolutionary ideas within psychology faces structural problems. What we have here are two difficult, cantankerous, edgy and socially vulnerable sciences which have two rather different ways of relating to one another. Apart from an initial period dating from around 1870 to the turn of the twentieth century when there was a relationship, if tenuous and relatively ungrounded conceptually, evolution and psychology had little to say to one another through much of the twentieth century. Then things began to change, but the engines driving this change came from sciences neighboring upon psychology, and not from psychology itself. *This is because evolutionary theory only effectively enters psychology when specific aspects of the theory drive empirical studies and frame causal explanations.* This will be referred to as the principle of specific application. In the nineteenth century a vague notion of continuity

between species formed the less than robust basis for considering the evolution of the human mind. During the first half of the twentieth century no credible basis at all was presented for thinking of the workings of the mind in evolutionary terms. Then from the 1950s into the 1980s ethology and sociobiology emerged with strong claims to understanding the behavior of animals in evolutionary terms. Following overzealous applications of these ideas to humans came a more focused, more cautious (in the main, though with some notably reckless exceptions), more specific insertion of evolutionary thinking into psychology. The result now is a more defensible, if still minority, and still controversial, view that evolutionary theory can be gainfully applied to the study and understanding of the human mind.

That, then, is how this history proceeds. It is largely intellectual, though not wholly so. It runs two parallel lines of thought and theory, the mind as product of evolution versus the mind as a Darwin machine, with an attempt to show how these relate to one another and how they do not. And it runs the history in roughly chronological order. But the history of evolutionary thought in psychology has a curious shape. There is something, perhaps not much that impinges upon contemporary theory but historically an important something, to tell about the nineteenth century. Then there is relatively little to say about the first and largest part of the twentieth century. Here there is a gaping, and intellectually shameful, hole in the body of psychological theory. After that there is the need to switch disciplines slightly, with a return to psychology proper from the 1980s to the present. Because the time covered is, to the historian, very limited, there is no disguising the fact that this is not a history that can fruitfully apportion equal space to equal time periods over the last two hundred years. We will begin at the beginning, which is in the years before Darwin, because it was in that pre-Darwinian era that important mistakes were made that took decades to put right and which, in some ways, echo through to the present.