



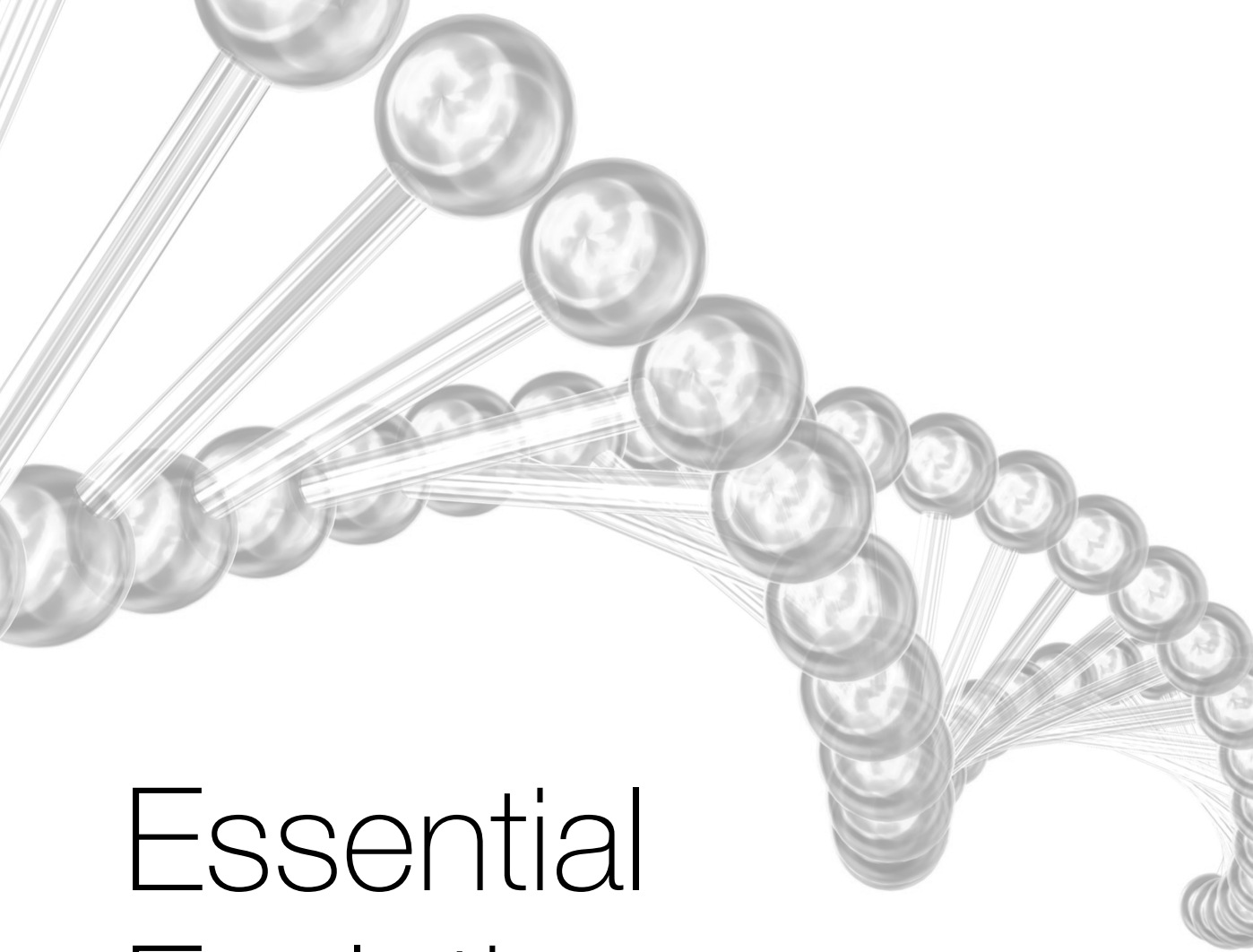
Essential Evolutionary Psychology

Simon Hampton





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Los Angeles | London | New Delhi
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DEDICATION

This book is dedicated to Abigail, Susanna, and Edward.

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PREFACE

This book works on and from the following assumptions. One, that academic psychology and the social sciences are very largely secularised. This means that they do not invoke metaphysical concepts such as 'god', 'gods', 'spirit' or some other conception of a supreme being or grand designer in order to explain how people think and behave. And the second assumption is that psychology and the social sciences embrace a secular view of life and humanity which encompasses a more-or-less explicit acceptance that life forms on earth, including human beings, and that there is at least tacit acceptance that evolution has come about by the process of **natural selection**.

Subscribing to these assumptions, this book goes one step further and adopts the view that an evolutionary approach to the human mind and human behaviour is fruitful and can compliment other approaches. There are, of course, streams and schools of thought in psychology and social science which have and continue to explicitly exclude evolutionary and biological considerations and explanations. And some proponents of an evolutionary approach have made much of the antagonisms and disputes. Herein the antagonisms and disputes are acknowledged but not given centre stage. Rather, the focus will be the literature which shows us that in psychology, and the social sciences more widely, a Darwinian approach has long been entertained as serious and useful by a visible cohort of thinkers and researchers.

There are advantages to this approach. First of all it encompasses the fact that evolutionary explanations to mind and behaviour are not really new. **Evolutionary psychology** and allied theoretical viewpoints really ought to be considered as contemporary manifestations of a mature and persistent way of thinking which has an interesting history within psychology and the social sciences. Also, the history can be used as a guide to which have been the more and less useful lines of inquiry. Second, it enables us to see an evolutionary approach as a **meta-theory** or **grand-paradigm** rather than as an alternative to many of the specific theories that comprise psychology and the social sciences and which populate general textbooks. A prime objective of this book is to equip readers with a 'way of seeing', with a way of thinking about common behaviours. An explicit acceptance of the idea that

humans have evolved can allow us to use the theory to evaluate more specific theories. And a third advantage to seeing evolutionary psychology as part of a long and fruitful tradition is that it enables us to place evolutionary psychology within the wider context of psychology and the social sciences and our attempts to explain ourselves to ourselves. It enables us to contextualise controversy that surrounds evolutionary psychology against the controversy that surrounds any concrete claims that are made about the human condition.

Appreciating the fact that evolutionary psychology is not new, that it can be used as a meta-theory, and that it is bound to be contentious just by virtue of its subject matter may facilitate another objective of this book which is to 'normalise' evolution in psychology. What is meant by 'normalise' is to make evolutionary theory a part of the fabric of psychology and social science, to make it one of the common-or-garden ways of thinking about thought and behaviour, to make it a part of your intellectual tool box. This objective will have been achieved if this book manages to get its readers to move from an acceptance that it is at the very least highly likely that our brains and minds have evolved to an exploration of what this may mean and to which aspects and facets of human psychology evolutionary theory is most usefully applied. In treating evolutionary approaches as an established school of thought we are hitching it to the claim that the major schools of thought in psychology that have persisted have done so because they are useful in that they describe and explain something about mind and/or behaviour.

EVOLUTION AND PSYCHOLOGY

As the phrase 'evolutionary approaches to mind and behaviour' that I used above suggests, the contemporary scene is comprised of slightly different ways of formulating and addressing hypotheses in what can be called 'the Darwinian tradition' or paradigm. We will be looking at the different approaches in Chapter 2 'Evolutionary approaches to thought and behaviour?' and again during the course of the book as and when the differences between the approaches help us to nuance our thinking and appreciation of evidence.

As we will see, the term 'evolutionary psychology' is just one of the ways of formulating and addressing hypotheses and it has a specific meaning. However, the term 'evolutionary psychology' has been used in the title of the book because it also has a general connotation: the Darwinian tradition of approaches in psychology and the social sciences has come to be most widely labelled as 'evolutionary psychology'. The title of the book, then, has come about by popular consent. The point to be made is that while adopting the term 'evolutionary psychology' the content of the book and the literature it reviews and examines is not constrained by the specific meaning of the term.

AIMS

This book has been prepared for readers with no prior knowledge of evolutionary approaches to psychology and social science. However, it is assumed that most readers (if not all) will have a more-or-less reliable working understanding of who Darwin was and the basic tenets of evolutionary theory. In light of these considerations the aim of the book is to take the reader to a level whereupon she or he should:

- Be conversant with and confident enough to give an exposition of the fundamentals of evolutionary theory and neo-Darwinism.
- Be able to evaluate arguments which claim an evolutionary basis for common human behaviours and conditions.
- Be able to evaluate the conceptual foundations of research conducted in the name of evolutionary theory.
- Be able to apply the theory to the day-to-day behaviour of individuals, groups and modern society as a whole with a view to generating testable hypotheses.
- Have an appreciation of debates within and objections to a Darwinian approach to mind and behaviour.

OUTLINE OF THE CONTENTS

The book comprises of 12 chapters. Chapter 1 is an explication of contemporary evolutionary theory, and Chapter 2 is an explication of how the theory has been and is used in psychology and the social sciences. There then follows two chapters which detail what is known about the evolution of humans and an outline of the development and functional structure of the mature human brain. Chapter 3 includes a cautionary tale about the use and abuse of the fossil record and **palaeontology**, and Chapter 4 explains why some think that the terms 'brain' and 'mind' refer to very different things. In Chapters 5, 6, 7 and 8 we move onto an introduction to evolutionary accounts, theories and research which purports to explain four central pillars of human behaviour: cooperation, families, mate selection, and aggression. Chapters 9, 10 and 11 address less obvious uses of evolutionary thought, namely, evolutionary accounts of abnormal behaviour, language and culture. And the closing chapter will look at wider objections to the very notion of evolutionary psychology and how evolutionary psychology may develop in the future.

INDEPENDENCE AND INTERDEPENDENCE OF THE CHAPTERS

Chapter 1 'Darwin's argument and three problems' is a 'must read' if you are not familiar with the theory of evolution by natural selection as it was presented by

Charles Darwin and as it has developed since. I say ‘must read’ for one simple reason: to paraphrase Theodosius Dobzhansky, nothing much in evolutionary psychology makes sense if you are not familiar with the tenets of the theory. Accordingly, nothing much in the rest of the book will make sense if you are not familiar with the ideas expounded in Chapter 1.

Apart from a dependence on Chapter 1 (or existing knowledge that you have which is equivalent to it), the remainder of the chapters should be self-contained and can be read alone and in any order. That said, most chapters contain cross-references wherein ideas and evidence in other chapters are referred to. For example, Chapter 11 ‘Evolution and culture’ begins with a list of examples derived from previous chapters of how evolutionary psychologists invoke social conditions and circumstances to explain how evolved mental mechanisms **function** in modern environments.

LITTLE EXTRAS TO AID YOUR LEARNING

Each chapter is prefaced by a list of questions that are addressed in the chapter. The idea behind presenting you with questions before material that provides some answers is to get you actively thinking about what the content of the chapter might be and what sort of purpose it might serve. You may also find that your existing knowledge allows you to have stab at some of the questions. For example, theories that you have encountered and first- and second-hand experience might have left you with the confidence to answer a question such as ‘What do women find attractive in men?’ Some of the questions may bring to mind knowledge that you already have but may have forgotten that you know; e.g. why might an evolutionary theorist broadly agree with the sentiments behind the claim that blood is thicker than water? Also, in such cases you can use the text that follows the questions to check if what you think you know is sound. In those instances where the questions that preface the chapters make no sense or seem very complicated you may need to take a little extra care over the text so to develop your knowledge.

Each chapter is also prefaced by a list of learning objectives. Think of these as targets which the text is supposed to hit, of things I hope you come to understand or be able to do come the end of the chapter. And each chapter is also prefaced by a list of key terms and concepts. You may already have noticed that some terms in the text are in bold. You can also find definitions and examples of these key terms and concepts in the glossary at the end of the book. You may find it useful to look at these definitions before you begin each chapter and as you go along because it may either remind of what they mean, or give you a modest headstart. You will also find that definitions of key terms given in the chapters are worded differently from those given in the glossary. This is not designed to confused but rather to give you two ways of getting to grips with the meaning of key terms.

For a similar reason you will find text boxes dotted throughout the book. Some of these are headed ‘Try it this way’. Experience both as a student and as a lecturer has

taught me that it should be possible to present or explain the same idea in more than one way. This is a good thing because any one given way of explaining something doesn't make sense to everyone. Paraphrasing Abraham Lincoln this time, a given way of explaining or defining an idea will make sense to some people first time, all people sometimes, but it won't make sense to all people every time. Typically through metaphors and analogies the 'Try it this way' boxes offer a different way of thinking about concepts. The hope is that if you already get the idea your understanding will be enhanced, and if you don't get the idea the 'Try it this way' boxes give you a second shot at it.

You will also find boxes headed 'Before we continue, ask yourself . . .' dotted throughout the book. These boxes are filled with questions that appeal to your own experience and, in most cases, you ought to be able to offer a reply. The purpose of the questions is to link the associated content to your own experience, to show that the text has something to say about the world around you, and to help you tap into yourself as a resource in your own learning. The use of yourself as a resource is possible courtesy of the fact we live, work, and play amongst the phenomenon that psychology and social science studies.

THE END OF THE BEGINNING

It is probable that you have read this far because you have, or are planning to, enrol on a course about evolution and psychology and the relevance of one for the other. The very existence of such courses tells us that the idea that the two are mutually relevant is at large. This fact alone makes this book worth reading. Having read it you may come to the conclusion that evolution can tell you nothing about yourself or others. But I am confident that should you reach such a conclusion you will have been challenged by some of the most thought provoking and powerful ideas in psychology and the behavioural sciences along the way.

ACKNOWLEDGEMENTS

I am indebted to all who have taught me. Special thanks go to those who have encouraged me to think a little harder than is my natural inclination – Alfred Newman, Erroll Cooke, Margaret O’Sullivan, Richard Mansfield, Alan Marks, Margaret Mynott, Andrew Wells, Bradley Franks, Robert Farr, Christopher Badcock, Jim Good and Anne Campbell. And I am indebted to those who have created the space in which this book could be written. Special thanks on this count must go to David Howe, Gillian Schofield and Neil Cooper.

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1 DARWIN'S ARGUMENT AND THREE PROBLEMS: HERITABILITY, SEXUAL SELECTION AND ALTRUISM

Some of the questions addressed in this chapter:

- What is natural selection?
- What problems did the theory of natural selection face after Darwin's death?
- How were the problems addressed?
- What are the laws of inheritance?
- What is sexual selection?
- How can we account for altruistic behaviour according to natural selection?

SOME KEY TERMS AND CONCEPTS

Adaptation; Altruism; Chromosomes; Darwinism; Fitness; Function; Genes; Heritability; Lamarck(ism); Mendel(ian); Natural selection; Reproductive success; Sexual selection; Variation.

LEARNING OBJECTIVES

Having studied this chapter you should be better able to:

- 🔗 Outline the theory of natural selection.
- 🔗 Indicate which parts of the process Darwin did not fully understand.
- 🔗 Outline the mechanisms which underlie evolution.

INTRODUCTION

In this chapter we will look at Darwin's argument for the theory of natural selection and its logic. We will see that it is a good theory in that it offers a parsimonious account of the fact that animal and plant species are typically well designed to survive and reproduce in

the environments in which they occur. Soon after its presentation, Darwin's theory gained currency in the scientific community and was widely accepted as a plausible account of how species come about and evolve over time. However, it still faced a number of problems. It wasn't entirely clear how characteristics of parents were passed to offspring, why some characteristics seemingly detrimental to long-term survival persisted in various species, and why all organisms were not relentlessly selfish. These problems were tackled in time and we will briefly review the solutions.

DARWIN'S ARGUMENT

BOX 1.1 ARE YOU A DARWINIAN?

Before we begin, ask yourself:

Do you believe that humans have evolved?

Do you accept that that you are the product of evolution?

Do you believe that humans are adapted?

Do you accept that you are fitted to, or designed to survive in, certain specific environments?

Do you believe that what we are adapted to and for can be addressed by our natural history?

Do you believe that the physical form that you take is explicable in terms of past selection pressures?

I suggest that if you either do or are inclined to say 'yes' to these questions then you are indeed a Darwinian.

Charles Darwin's argument for the natural selection of evolved life forms is not complicated and is based on observations. As was suggested soon after the publication of his *On the Origin of Species by Means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Life* (Darwin, 1859), Darwin's interpretation of his evidence appears, on hindsight, to be obvious. The theory of natural selection can be presented as comprising three basic premises: the variation premise, the **heritability** premise and the adaptation premise. Together these premises led Darwin to the conclusion that life forms on earth evolved by a blind process he called natural selection. Let us look at the premises a little more closely.

VARIATION

The **variation** premise is based upon the observation that organisms within a species differ in their physical and behavioural characteristics. Following the conventions of common language, Darwin called identifiable differences between individuals of the same species 'variations'. Variation is demonstrated by the fact that no two instances of a species are physically (save the possibility of monozygotic siblings, more commonly called 'identical twins') or behaviourally identical.

INHERITANCE

The **inheritance** premise is based on the observation that variations between members of a species are frequently transmitted from parent to progeny. This is simply to say that identifiable characteristics of individual organisms are passed on to their offspring such that the offspring are distinct from others by virtue of the characteristics. This observation allows us to say that, *ceteris paribus* (all things being equal), offspring will resemble their progenitors more than they will any other randomly selected member of the species population.

ADAPTATION

The **adaptation** premise is based on the observation that organisms are 'fitted' to their environments. To say an organism is fitted to its environment is to say that in the wild (as opposed to in a zoo or a laboratory) it exhibits physical and behavioural characteristics which enable it to cope with and exploit features of the environment in which it lives. These features Darwin called 'adaptations'.

DARWIN'S CONCLUSION

Having established that organisms vary, that the variations can be inherited, and that species were adapted to the environments in which they are naturally found, Darwin inferred that not all variations are 'equal'. What he meant by saying they are not equal is that not all individual differences fitted the carrier equally well to the environment and the problem of reproduction. Darwin argued that as a result of variations some members of a species not only survived longer than others but, crucially, some produced more offspring than others. Invoking the observable fact that variations are heritable, Darwin concluded that variations which facilitate survival and reproduction will be more numerous in the next and future generations than others. The continual and inevitable reiteration of the process wherein some members of a species reproduce and pass on the characteristics which enabled them to survive and reproduce is what we call natural selection. The iteration of this process shapes and reshapes a species over time. Such shaping and reshaping is what we call evolution.

DARWIN'S PROBLEMS

As straightforward as it appeared to those of his contemporaries such as Thomas Huxley who proselytised on Darwin's behalf, Darwin himself and critics within the scientific community identified problems with his theory of evolution by natural selection. One of the problems concerned the observable fact that many typical features of different species appeared to hinder rather than help them to survive. The male peacock's tail is, perhaps, the most salient and oft-given example. Its size and visibility makes it expensive to produce in metabolic terms and renders the bird vulnerable to predators. We will call this the

‘problem of non-fitness’. Darwin solved the problem himself in his volume *The Descent of Man and Selection in Relation to Sex* (Darwin, 1871) with his theory of **sexual selection** but his solution was not widely accepted until the 1930s. A second problem was the mechanism of inheritance. Darwin accepted that he did not know how it was that adaptive variations were transmitted from parent to offspring. He also did not know that the mechanism and rules of inheritance had, to a considerable extent, been discovered by Gregor Mendel. And a third problem, and one that Darwin said made him feel ‘sick’, was that of **altruism**. According to the theory, organisms should behave purely in their own self-interest but innumerable observations suggested that this ‘rule’ was routinely broken by any number of different species. The solution to the problem of altruism was presented in the 1960s by William Hamilton. The problem of altruism was solved by seeing the correct level at which natural selection operates – the genetic level. Let us now look at the solutions to the problems of non-fitness, heritability and altruism in turn. What we learn here will be essential to our understanding of later analyses of the evolutionary basis of human thought and behaviour.

THE PROBLEM OF NON-FITNESS AND SEXUAL SELECTION THEORY

As we have noted, many organisms, including humans, exhibit physical and behavioural characteristics that are typical of the species but appear to be detrimental to the bearer’s prospects of survival and longevity. An example that we will examine in more detail in Chapter 8 ‘Competition, aggression and violence’ is what has been called the ‘**young male syndrome**’ – the apparently unnecessarily risky, and often life-threatening, behaviour exhibited by post-pubescent human males (Wilson and Daly, 1997). Being typical of a species any such characteristics are, according to theory, evolved and therefore, naturally selected. But, if the characteristics mitigate against survival and longevity how could they be repeatedly selected for and why would they persist?

In *The Descent of Man and Selection in Relation to Sex* Darwin reinforced his argument that evolution does not favour longevity *per se*, but it favours **reproductive success**. Now, while any given organism has to survive for some period of time – a minimum enough time to reach reproductive maturity – its reproductive success determines how many of its characteristics will be represented in the next generation rather than its life span. Of course, there is a relationship between the two given that longevity is likely to aid reproductive success. However, the maxim ‘Don’t count the candles on the cake, count the kid-dies’ holds. What we now call **Darwinian fitness** – the long-term survival over evolutionary time of any given heritable characteristics – is determined by the reproductive success of an organism and not the length of its life. In the currency of natural selection it is of no use if an organism lives very much longer than other members of her or his species if he or she does not reproduce.

With this insight in mind let us now outline sexual selection theory. Sexual selection theory argues that physical and behavioural traits that mitigate against longevity – that

is, carry a cost to the bearer with regard to overall life expectancy – but facilitate reproduction – that is, aid the bearer in attracting mates and parenting viable offspring – can persist in a population over time. Let us return to the peacock's tail for an example. While the large and elaborate plumage of the male bird is costly to grow and makes the animal vulnerable to potential predators it also makes it visible and attractive to peahens. In the case of peacocks the trade-off between the cost to longevity and the gain for reproductive success have favoured the elaborate tail which characterises the birds we see today. In short, sexual selection theory argues that the existence of variable heritable traits which seem to be useless or disadvantageous to survival can be explained if it can be shown that they confer an advantage with respect to reproductive success.

Sexual selection and natural selection are not necessarily mutually exclusive. A trait that enables an organism to enjoy reproductive success may also enable it to live longer. For example, better than average eye sight may enable an organism to spot predators, prey *and* this ability might make that organism more appealing to members of the opposite sex. However, to be confident that a given trait has evolved by sexual selection an analysis of its function should show that the trait is neutral or detrimental with regard to longevity and that it clearly facilitates reproductive success.

This is the reasoning behind the solution to the apparent problem of non-fitness. When we see that success over evolutionary time is determined by reproduction rather than survival we can also see that physical and behavioural characteristics which appear non-fit in survival terms may be fitness enhancing in reproductive terms.

As has been suggested, Darwin's proposal was not readily accepted when first introduced and it was further undermined by its rejection by the co-founder of evolutionary theory, Alfred Wallace (1823–1913). We might suppose that the emphasis on sex in the natural history of humans, and Darwin's emphasis on how the choices and preferences of females shape the evolution of most mammalian species including humans, was not well received in the late nineteenth century due to the sensitivities of the time. Sir Ronald Fisher (1890–1962) is, perhaps, most responsible for putting sexual selection at the centre of the theory of evolution and giving it nuance. His *The Genetical Theory of Natural Selection* (Fisher, 1930) proposed what has come to be known as '**runaway selection**' (also occasionally referred to as 'Fisherian selection'). Based on sexual selection theory, runaway selection theory further explicates how a non-fit characteristic can come about, evolve and become species typical. It explains how sexual selection can accelerate the evolution of characteristics beyond that which would be possible via natural selection by supposing that once a preference for a trait (often a female preference for a trait in males) becomes established only those males showing extreme forms of the trait get to reproduce. The only limiting factor on the evolution of the trait is its metabolic cost and/or negative impact on longevity.

We will be revisiting, expanding upon, and elaborating the theory of, and examining research inspired by, sexual selection theory in a number of subsequent chapters, especially Chapter 7 'Mate selection', Chapter 8 'Competition, aggression and violence' and Chapter 11 'Evolution and culture'.

THE PROBLEM OF HERITABILITY

BOX 1.2 THE DIFFERENCE BETWEEN PROCESSES AND MECHANISMS

TRY IT THIS WAY ...

Darwin and Mendel:

As has been pointed out (Plotkin, 2002) Darwin explained the *process* by which change came about over time but he was unable to explain the *mechanisms* which embodied the process. To understand the distinction between process and mechanism consider the difference between the set of rules which govern how your essays or research reports are assessed and the actual work that is done – reading, appraising, commenting – in order to assess them. The rules provide an abstract description of the process that has to be gone through. The appraisal is the observable mechanism that instantiates the rules. Contemporary evolutionary theory is a synthesis – a marrying together – of the process that Darwin described and the mechanisms that Mendel and his successors have described.

Darwin was not the first to suggest that variations exhibited by individuals of a species are heritable and he was not the first to propose a theory of evolution. Probably the most influential of his predecessors was the French thinker and scientist Jean-Baptiste Lamarck (1744–1829). Lamarck's theory of evolution was presented in a book whose English translation is *Zoological Philosophy: Exposition with Regard to the Natural History of Animals* published in 1809 (Richards, 1987). Lamarck proposed that evolution comes about via a process of **inheritance of acquired characteristics** – an idea also known as **Lamarckism**. The idea is that parents (of whatever species) pass on changes that have occurred in their physical make-up during the course of their existence to their offspring. Here we can appeal to another well-worn but illustrative example – that of the blacksmith who acquires larger than ordinary arm muscles and then passes on these acquired characteristics to his sons. Despite Lamarck's failure to offer evidence in its favour it persisted through the nineteenth century and retains a certain appeal to this day. Why was this so?

There are at least three reasons. First, it was the first forcefully articulated theory of evolution by a respected naturalist in an age wherein the developing scientific community was amenable to the general idea that life had come about and evolved courtesy of forces other than the divine intervention of a god-like being. Second, when applied to humans the idea of acquired characteristics suggested that evolution, when thought of as 'improvement', was possible in response to human striving. And, third, when seen as the accumulation of useful knowledge and functional traditions, social and cultural evolution appears to fit the term 'acquisition of characteristics'. In the rapidly changing Europe of the late eighteenth and early nineteenth centuries it seemed to make sense to say that the hard-won characteristics that defined certain persons and social classes were bequeathed to their children, i.e. that the diligence, thrift, educational and moral outlook acquired by the expanding middle classes in newly industrialised European cities would be handed down to and exhibited by