Chapter 1

Applying evolutionary psychology

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A new foundation

Evolutionary psychology aims to understand and describe human behaviour in the light of past and continuing selection and adaptation. For a relatively young discipline, considerable progress has been made over the past few decades. Onto the conceptual framework provided by evolutionary theory, evolutionary psychologists hang observations of human behaviour and, on the whole, there they hang very well. Whether we want to understand the nature of sex differences in psychological attributes, of dynamics within and between groups, or of variability and commonalities in how individuals choose mates, evolutionary theory imparts a rigorous, informative, and cohesive structure.

It is not surprising that many notable scholars in the field originally come from biological rather than psychological disciplines, since the approaches used in the study of animal behaviour and behavioural ecology are readily transferred to investigations of our own species. What is perhaps more remarkable is the extent to which many with a psychology background have come to recognize the explanatory power of evolution in their own research, and embrace it, even though they often lack formal exposure to evolutionary reasoning because many psychology departments have, at least until recently, failed to offer it. It is true that there remain numerous critics and sceptics, or worse, those that simply do not see how evolution is relevant to psychology. Increasingly, however, and as misconceptions about what evolutionary psychologists do and think are rebutted and clarified (for recent examples, see Dunbar 2008; Confer et al. 2010), ideas about selection and adaptation are taking root in all of the various psychological subdisciplines (Fitzgerald and Whitaker 2010). As Dunbar (2008) has argued, this is because evolutionary theory is a 'single seamless framework' capable of spanning disciplinary divides, and it is the only such framework we have. To many, then, Darwin's (1859, p. 449) prediction that 'Psychology will be built on a new foundation' appears to have been realized; at the very least, the foundation stone is laid and the builders have been booked.

Evolutionary psychologists argue that a comprehensive understanding of any aspect of human behaviour cannot be achieved without due consideration of the selective forces that have shaped that behaviour in our evolutionary past, and which may continue to do so in the present. One way to characterize their approach is to say that they are particularly interested in the *ultimate* explanations for behaviour, according to the scheme set out by the renowned ethologist Niko Tinbergen (1963). Mechanistic, or *proximate*, explanations for the problem of why we need to eat food (e.g. 'I eat because low blood sugar levels activate neurons in the lateral hypothalamus, producing the perception of hunger') provide part of the answer, but are incomplete without information about the evolutionarily functional significance of eating (e.g. 'I eat because food provides the energy I need to survive and reproduce'). To take another example, recently expounded by Nettle (2011), we can attempt to understand why women tend to vary in timing of the onset of their reproductive career depending upon the harshness of the environment in which they live. A functional

(or ultimate) reason appears to be that delaying reproduction allows them to divert nutritional resources towards somatic development, which may result in children who survive and grow better; however, this comes at the risk of dying before they reproduce—a classic trade-off between the benefits and costs of fast or slow life cycles. In contrast, the question of how individual women negotiate this trade-off, that is how they come to make decisions that characterize the population from which they belong, is answered differently—the proximate explanation. Proximate explanations include the presence or absence of events that trigger the adoption of a particular life history trajectory, such as early separation from the mother, or not being breastfed.

The distinction between the proximate and ultimate explanations of behaviour is an important one, because psychologists may often be interested in the former, while evolutionary psychologists will stress the latter. However, it should be clear that the approaches are inextricably linked; each provides insights and defines constraints on possible outcomes, and it is to the detriment of our science if we focus on one to the exclusion of the other.

Evolutionary psychology applied

Psychologists have a long tradition of applying basic research findings to develop practical ways of dealing with problematic issues. This is why many were drawn to psychology in the first place, even if they go on to do basic psychological research—it might be said that this is psychology's *raison d'être.* In contrast, evolutionary psychology is at its heart a basic science, and few proponents are initially drawn to the field with ambitions to apply their research findings.

Again, the distinction between proximate and ultimate causation of behaviour is relevant here, as proximate explanations will usually lead more directly to identification of specific interventions. For example, if we can understand the specific triggers that cause an individual to behave in a particular way, perhaps to its own cost, then we may be able to find a way to change behaviour—as health psychologists might aim to do. Or if we understand the mechanisms underlying expression of a psychopathy, clinical psychologists may be able to ameliorate its effects. It might be argued that ultimate approaches to understanding behaviour are unlikely to contribute practical solutions to such problems and that evolutionary psychologists thus have nothing to offer in this regard. Perhaps this argument is justified to an extent, but as we have seen, knowledge about any behaviour is incomplete in the absence of due regard to both proximate and ultimate reasoning. Furthermore, having a fuller understanding of the evolutionary history or likely adaptive value of particular behaviours might help to identify which of a range of possible interventions is likely to be the most successful in achieving particular outcomes.

To illustrate this, consider the case of evolutionary medicine, where a similar debate concerning the utility of evolutionary approaches has been ongoing over the past 20 years. Following the paper in 1991 by Williams and Nesse, which heralded 'the Dawn of Darwinian Medicine' and which kick-started the field, increasing numbers of researchers have become interested in this area and it has had some considerable success (see reviews in Stearns and Koella 2007; Trevathan et al. 2007; Nesse and Stearns 2008). One example is the case of nausea and vomiting in pregnancy. Until recently, this was considered a condition for which treatment was desirable—as epitomized by its epithets 'pregnancy sickness' or 'morning sickness'—which are now generally considered to be misnomers. In fact, symptoms of nausea and vomiting in pregnancy are now known to be indicative of a healthy embryo and are associated with a range of positive pregnancy outcomes (Weigel and Weigel 1989). According to one functional explanation, the symptoms arise as a result of a classic evolutionary struggle—parent–offspring conflict, or the non-overlapping interests of mother and embryo (Haig 1993). Rather than being an illness to be treated, the evolutionary perspective has changed the perception of this condition experienced by

up to 90% of pregnant women in modern societies (Pepper and Roberts 2006). Despite this, it remains the case that at most one or two lectures are devoted to evolutionary medicine during training of medical practitioners and that most researchers have an evolutionary background, rather than a clinical one. It appears that a body of specialists working within an evolutionary framework, time, and some convincing empirical demonstrations, are required to persuade practitioners of the merits of evolutionary thinking and to get them to incorporate this into their own work.

There are obvious parallels between the aims of evolutionary medicine and an applied evolutionary psychology. Researchers in the two fields use the same approaches and speak the same language, but often face antipathy, scepticism, or indifference from practitioners. However, evolutionary psychology perhaps lags slightly behind in the extent to which there is a core body of researchers who actively attempt to apply their research. Of course there are some notable exceptions, many of whom have contributed to this book, but concerted effort to apply principle to practice remains patchy and limited in extent. Perhaps this is appropriate to a young discipline, but one would expect that as it matures, its scope should inevitably begin to broaden towards application, and tackling contemporary issues in human society.

The idea for the book arose from discussions with graduate students about precisely this: what we felt to be an incipient focus on applied evolutionary psychology, founded upon the large body of theoretical work that has accumulated over recent years. Credit should be placed where it is due, however, and in this regard it is well worth noting that this book is not the first to highlight the potential for applications of evolutionary psychology—interested readers are encouraged to read some fascinating accounts of several applications in books by Beckstrom (1993), Crawford and Krebs (1997), and by Crawford and Salmon (2004). Furthermore, Saad (2007) and Miller (2009) have focused specifically on evolutionary insights into consumerism.

Evolutionary psychologists are often accused of (and, very occasionally, possibly guilty of) arguing that our underlying human nature dictates how things 'should' be. To do this is to commit what is known as the *naturalistic fallacy*. The danger of doing this, or at least being perceived to do it, is perhaps never higher than when we attempt to employ our understanding of human behaviour and its evolutionary origins to tackle specific issues, as this book explicitly sets out to do. In particular circumstances, it may turn out that what is natural is, in fact, good—the example of nausea and vomiting in pregnancy appears to be a case in point from evolutionary medicine—but this will by no means always be the case. Thus, in the main, evolutionary psychologists generally aim to map and describe the evolutionary forces at work while remaining detached from judgements of value and morality.

Here, in view of the theme of the book, the contributors spend more effort than is typically the case in speculating on the practical possibilities that these insights lend, but nonetheless they remain studiously aware of the pitfalls of attaching moral value to their findings. In each of the chapters, they: 1) describe theoretical and empirical research on evolutionary aspects of human behaviour in the relevant area, 2) elucidate how evolutionary thinking lends particular insight into applied issues that are missed by standard sociological or social psychological approaches, and 3) explore, highlight, and analyse ways in which these insights are already being or could potentially be used in practical and beneficial ways within applied settings.

Many of the authors are evolutionary psychologists who are interested in understanding how basic findings can be used for practical benefit. However, a little less than half are best described as specialists in other disciplines who have come to recognize the potential of evolutionary theory as it pertains to their existing research interests. In addition to providing an interesting blend of approaches, it is enormously encouraging that these contributors have, in their own areas, already initiated the process of introducing evolutionary perspectives to their research and to their colleagues. Persuading not

just other psychologists, but also practitioners, is perhaps the greatest testament of all to the explanatory power of the evolutionary framework.

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