

# Dog Behaviour, Evolution, and Cognition



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To my mother and father who have always believed that  
I can do it, and to Zsuzsanka, Betty, and Gergö  
who made doing it possible.

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## Prologue: *comparare necesse est*\*

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In 1994, after some discussion, we decided to clear our laboratories of the aquaria that had been in use for many years in a research programme on the ethology of learning in the paradise fish (Csányi 1993). To be honest, the exact reason for this move at that time was not exactly clear to me, but I had no great regret for the research topic because we were the only laboratory studying learning processes associated with antipredator behaviour in this little East Asian labyrinth fish.

However, the idea of approaching dog–human social interactions from an ethological perspective did not seem to be much of an improvement in that respect, because literature on the subject was simply non-existent. Thus József Topál, my colleague and friend, and I were a bit uncertain about the future when Professor Vilmos Csányi, the head of the department at that time, began to argue enthusiastically that the study of dog behaviour in the human social context could be very important in understanding cognitive evolution, with many parallels to human behaviour (Csányi 2000). We were told hundreds of causal observations of dog–human interaction (many people would call these anecdotes), and it seemed that the task would be to provide an observational and experimental background to these ideas. Csányi pointed out that in order to be successful in the human social world dogs had to achieve some sort of social understanding, and very likely this came about in course of their evolution. Accordingly, the social skills of dogs can be set in parallel with corresponding social skills in early humans. I do not know what exactly József thought about all this, but at least he owned a dog.

After some thinking about what to do and how to do it, we saw some light at the end of the tunnel

when Karin Grossman, a famous German child psychologist, introduced us to Ainsworth’s Strange Situation Test, which is used to describe the pattern of attachment in children. Watching the videos on how the children behaved when a stranger entered the observation room or when their mother left, made us each realize independently that dogs would behave in just the same way!

It took us another two years to publish our first study on the behavioural analysis of dog–human relationships based on the Strange Situation Test in the *Journal of Comparative Psychology*, but from that time on we had a quite clear idea of our research programme, which was focused on looking for behavioural parallels between dogs and humans.

Actually, the idea of behavioural similarity between humans and dogs was not novel at all. Scott and Fuller (1965) devoted a considerable part of their work to human and dog parallels. For example, in the first paragraph of their last chapter they write: ‘These facts suggest a hypothesis: the genetic consequences of civilized living should be intensified in the dog, and therefore the dog should give us some idea of the genetic future of mankind...’ In retrospect it is interesting that although the achievements of this research group have always been recognized at the highest level, these conclusions were neither debated nor praised (or, more importantly, followed up in research). However, one point is important: although Scott and Fuller realized the special social status of dogs in human groups in their behavioural work, they emphasized parallels between the dog puppy and the human child. In contrast, our aim was to provide an evolutionary framework that hypothesizes behavioural convergence between the two species.

\*Comparison is essential; analogous to the Latin motto *navigare necesse est*, which can be translated as ‘trade is essential’.

Accordingly, we argued that evolutionary selective pressures for dogs might have moulded their behaviour in such a way that it became compatible with human behaviour.

Since then, 12 years have passed and during that time many research groups have started to study dog behaviour. Although we have continued to work according to our research programme, we have realized that the field begs for integration. In recent years many books on dogs have been published by researchers working in various fields, as well as by experts with different backgrounds. The goal of most of these books was to explain dog behaviour from an author's particular point of view, often based on an assorted array of arguments where scientific facts were often treated at the same level as anecdotes, stories, or second-hand information. In this book I want to break this mould by presenting only what we know about dog behaviour and suggesting possible directions for future research. The main aim is to provide a common platform for scientific thinking for researchers coming from the diverse fields of archeozoology, anthrozoology, genetics, ethology, psychology, and zoology.

The increased amount of contemporary research has made it impossible to refer extensively to older work, much of which is, however, available in other textbooks. For similar reasons I have omitted to mention research that is not published in refereed journals, or the many folk beliefs about dogs. In addition, there is no attempt to 'bridge' gaps in our knowledge by 'facts that everyone knows', in the absence of published evidence. Some readers may see this as a serious fault which makes the presentation of the topic uneven, but I have preferred to use these opportunities to indicate directions in which research should be pursued.

Perhaps this is not the first book on dog ethology, but it has been written with the intent to place this species (once again) in the front line of ethology, which is the science of studying animal (and human) behaviour in nature. From the start we believed that the whole project makes sense only if dogs are studied in their natural environment where they share their life with humans in small or large groups. But we soon felt that such an endeavour can only be insightful if it is put in a

comparative perspective. This gave us the idea of socializing some wolves (and also some dog pups) in order to obtain comparative data. This research not only opened our eyes to the very different world of 'wild' canids but also taught us to be very cautious about coming to hasty conclusions about behavioural differences between dog and wolf. Naturally, observations on these two species suggested many differences; however, the real trick was to find the ways in which these differences could come to light under the conditions of a scientific experiment. Later this comparative work was broadened to include cats and horses, but first of all human children. We believe strongly that dog behaviour can be understood only if it is studied in a comparative framework that takes into account evolutionary and ecological factors and rests on a solid methodological basis.

Today, research inspired by ethology or behavioural ecology is characterized by a functional perspective. Researchers focus their interest on those aspects of behaviour that contribute to the survival of the species. In the present case the focus is on a species, dogs, and on how collaboration among different scientific disciplines can lead to a more complete understanding of their evolution and present state. For many years scientists have looked with suspicion at dogs and denied them the status of 'real' animals. Thus the main goal of this book is to provide evidence that dogs can be studied just as well as other animals (including humans) and even that they have the potential to become one of the most well-researched species in the near future. In this regard dog ethology could play a role in providing raw material for disciplines that are studying genetic and physiological aspects of behaviour, and also for those who are interested in applied aspects such as dog training, problem behaviour, dog-human interaction, or the use of dogs in therapeutic intervention.

I am very lucky to be a member of a wonderful research team with colleagues who have always been supportive. I am grateful to Vilmos Csányi who gave us all the opportunity to embark on this research programme. Over the years József Topál became the best colleague and friend that one could wish for in collaborative work, without whom I would never have had the chance to get

this project started. I owe a lot to Márta Gácsi who has gently helped me in coming to understand the ‘world of dogs’ over the years. I will never forget our first (and only) visit to Crufts. Antal Dóka, who has been an indispensable colleague without whom the research group could not have functioned so smoothly. Over the years we were lucky to have Enikő Kubinyi, Zsófia Virányi, and Péter Pongrácz join our group, all of whom have made important contributions in particular fields of dog social behaviour and cognition.

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Our research group owes much to those enthusiastic dog owners and their dogs, who contributed by offering their time for our research. In addition we would like to express our thanks to Zoltán Horkai and to the keen students (Bea Belényi, Enikő Kubinyi, Anita Kurys, Dorottya Ujfalussy, Dorottya Újvári, Zsófia Virányi) who participated in the Family Wolf Project and persisted in doing this job under difficult conditions.

I am very grateful to Antal Dóka for drawing and redrawing many figures and graphics for the book. Being untalented at producing pictures, I am thankful for the photos that were shot by Márta

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I am also grateful to Oxford University Press and in particular to Ian Sherman for taking on this project without much hesitation, and also helping to polish my raw Hungarian version of English.

Finally, a note to the critical reader. Please do not hesitate to point out the weaknesses of this book. Not only to make the next version even better, but also to urge others to provide facts in the form of well-designed experiments that will separate scientific knowledge from beliefs and stories. If researchers and many others interested in dogs are provoked to do better research than the book and I have achieved our goal.

Budapest, 2 February 2007  
Ádám Miklósi

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