

Q & A

Adam Miklósi

Adam Miklósi has just been appointed as a full professor at the Department of Ethology at Eötvös University in Budapest, Hungary. After graduation in 1986 he started research on the antipredator behaviour of a small labyrinth fish that led to a PhD dissertation on this topic under the guidance of Vilmos Csányi. He then did three years' postdoctoral work on lateralized behaviour in the zebrafish with Richard Andrew at Sussex University. In collaboration with researchers from UCL, they published the first paper showing a genetic effect on lateralized behaviour in fish. After returning to Hungary he re-joined the Family Dog Project, the first to start behavioural investigations on dogs in 1994. The research group is probably still one of the largest focusing on a wide range of aspects of dog behaviour and their interactions with humans, including attachment, communication and social learning. Recently, he became interested in social robotics, and is trying to find a connection between studying social behaviour in dogs and improving the behavioural skills of robotic agents.

What turned you on to biology? May be it did not happen that way, but I still remember when I was sitting and listening to my biology teacher as a pupil of the third class in our primary school; I must have been 9 or 10 years old, and the idea struck me like lightning. And I have not changed my mind since then. It is still so strange for me and I can never really understand how people can live with having so little interest in living beings. I became fascinated by animals in all their variety (from the earthworms to dolphins). Later I became interested in the wonders of animal minds, and perhaps naively also whether one could 'talk' with them by any means. Of course, today I know that 'talking', and exchange of thought in the literal sense is not possible, but science offers at least a way of understanding the origin, function and functioning of animal and human minds.

What is the best advice you have been given? I feel really lucky for getting advice from two professors

with very different attitudes to science. Vilmos Csányi was brave enough to take me 'on board' at his department, although he later admitted that he had not believed that I would get so far. Importantly, I have learnt from him to keep always an open mind, and never be constrained from any previous theories, ideas or even data. He advised me also to stop doing experiments when I can suspect the outcomes, and look for the possibility of new inventions and challenges. This did not seem to be so difficult at that time, but now I see often how hard it is to make some of my younger colleagues more inventive, and persuading them not to publish on topics that are quite trivial.

Working with Richard Andrew taught me to take data seriously. I still remember those hours when we discussed the possible significance of some 'strange' or 'unexpected' findings which could not be explained by our current hypothesis on the topic. Coming up with the versions of ideas, or refuting these, was always an exciting 'mental gymnastics' for me that I try also to have with my students. They should also experience the role scientific hypotheses play in guiding research.

What advice would you offer someone wondering whether to start the same career? I have often the impression that most students have little idea why they studying biology at the first place. At our university, ethology is taught in the first and second year of the Biology Bsc and they must also choose a subject by the end of the second year for their thesis. So I meet very often students who have studied already for one or two years but have actually little idea why they are learning all these subjects. When I have the chance to talk with them face to face, my first question is, do you think you are crazy enough for becoming a biologist, or especially even more crazy to work on behaviour for the rest of your life? Actually, I always wonder why Vilmos Csányi did not put this question to me — perhaps he had seen that I am crazy enough. But seriously, I really think that in today's world one really has to be a maniac for doing science. It starts with finding a place for a PhD, then looking for grants to get support and if successful one has to move from one place to the other after

three or four years. So one is living in persistent uncertainty during most of one's early career, and not able to concentrate fully on current research tasks and take advantage from the momentum of youth.

How did you come to study dog behaviour? There is a simple answer: I was told to do! At the beginning of the 90s, the department at Eötvös University was looking for novel, interesting topics in ethology, and our head at that time, Professor Csányi, argued that dogs may provide an interesting behavioural and cognitive model for early human evolution as the process of domestication may have led humans and dogs to share some aspects of their social behaviour. In any case, this would explain why dogs have integrated so successfully into human societies and are beloved members of human families in so many cultures around the world. Although the idea sounded interesting, there was a little problem: at that time nobody was doing any research such as that we envisaged.

In any case, we thought such investigations require a kind of field study. Instead of finding members of the species somewhere in the desert or rain forest, our subjects live in the cities in close contact with human families. But there was a simple, practical question: How to investigate these mixed social groups? It took us a while to figure it out, but today the approach, getting dogs and owners to the department or watching them in parks or at dog training centres, seems to be quite natural to most young scientists joining our research group.

Although behavioural research on dogs has a long tradition, starting in Pavlov's lab, very little information was (and still is) available on 'free living' dogs either staying with humans in a family or sharing the hard life of other wild animals. Furthermore, most ethological research efforts on studying wolves concentrated also on captive animals, apart from the interest of a few ecologists such as David Mech who collected much life history data in the field. So our group was the first, in 2001 and 2002, to socialise intensively a large number of wolves in order to investigate their behaviour from close range. As a result we were able to compare their skills to those of dogs receiving the

same social experience from humans. Only such truly comparative research may pinpoint to those aspects of behaviour that separate wolf from dog.

What are you focussing on at the moment? We are working on many issues in parallel, most relating to human–dog communication and cooperation. We are looking at the mechanisms of behavioural and cognitive skills of dogs that contribute to their excellent ability to be trained and work together with humans. Up to now a lot of our research has been descriptive: that is, with hard work we have collected data about behavioural skills that has been ‘known’ by dog owners and experts for long time. But such knowledge is indispensable for further and more detailed scientific inquiries, a lot of which has or may have practical implications, as well. For example, based on our observations on social learning in dogs, there is now a scientific basis to introduce dog training methods which utilise this skill. Recent research also aims to reveal aspects of dog personality that may be useful for choosing a future companion.

Are there big research questions to be answered next in your field? To put it simply, we want to elucidate the behavioural, neural and genetic mechanisms that were affected by domestication. Although wolves and other canids are regarded as social animals, the dogs had to undergo important, not necessarily big, changes to fit in the complex social system of humans. So we are interested in finding those genetic alterations, or neural mechanisms that supported this transmission from the ‘wild’ to human society.

Interestingly, there is also an interesting new application of all this knowledge in social robotics. We are lucky to participate in an international project (LIREC) supported by the European Union that is aimed at furnishing present day robots with better social skills. It has turned out that our research on the social behaviour of dogs is a great source for such inspirations. To my knowledge this is the first time in Europe that roboticists and ethologists are working so close together. So it may be that human–robot relationships will ‘evolve’ along the track laid down by the dogs.

Do you have a favourite conference?

I may be a bit biased in this case, but my favourite conference is the Canine Science Forum which was established to facilitate discussion between scientists working on canines. This is a rapidly emerging field in biology, and in my opinion dog will become one of the main animal models in life sciences. Of course, I do not want them to become laboratory animals. Instead I believe that dogs should be used as a natural animal model, that is, only non-invasive inquiries are possible because at the end of the day the dogs will go home with their owners. So it is the scientists’ job to find out how one can make investigations without harming the animal. This approach may provide a mirror also for those who are working with other species.

How would you compare research across Europe? I think doing science in Eastern Europe is very difficult at the moment, though in the past it was not much easier. Most states, including Hungary, spend a far smaller proportion of their GDP on science than Western European countries do, though at the universities we train a large number of students for a career in biology. The outcome is as expected: most of them either leave the field or move abroad to work and live, with actually very little chance to come back ever to the mother country. I do not think this is a good situation. I also have the feeling that we lose most often when it comes to (healthy) competition among scientists. Everything happens here at a slower pace, so even if we have no shortfall on ideas and enthusiastic (‘crazy’) people in science, at the end the efforts are often in vein.

Do you have a dog? Actually, I don’t. But scientists studying rats or mice do not have them as pets either. My daughter has two dogs, so at the end we have two nice four-legged companions in our flat, and that is enough for an ethologist, like me, for observing these creatures day by day and use some of these ideas for more serious scientific research.

Department of Ethology, Eötvös University
Budapest, 1c Pázmány P. sétány,
1117 Hungary.
E-mail: amiklosi@gmail.com