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The use of trained dogs to discriminate human scent

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The ability of dogs to distinguish people by their odours is well established (Kalmus 1955; Hepper 1988; Sommerville et al. 1990). Brisbin & Austad (1991) also contributed to the evidence but expressed doubts about the ability of dogs to match odours from one part of the person's body to another and questioned the practice in law enforcement of using dogs to identify individuals from scented objects unless the dogs used could be shown to be capable of performing discriminations of the type used in their study. Their caution is laudable but in their key experiment they asked their dog an ambiguous question. This fact together with evidence from some old studies, which they did not quote, and some new studies, suggest that the discriminatory abilities of dogs are greater than their paper might lead readers to believe.

The general question that Brisbin & Austad addressed was whether dogs can recognize that odours from different parts of the body of a person come from the same person and then use this information to distinguish that person from others. In order to do this they trained dogs to respond to their handler's hand odour by matching it with an object scented with this odour in the presence of objects scented with other people's hands. Having established that this could be done, the dogs were then given the choice of an object scented with odour from the crook of the elbow of the handler and the handler's hand odour. Although the dogs initially showed a preference for the hand odour, when they were retested with the handler's elbow odour and a stranger's hand odour, no preference was shown. This led the authors to question whether dogs were able to generalize a person's odour signature and cross match samples collected from different parts of the body. The dogs took longer than usual to make a decision, as if the task was a difficult one. In early training, they worked with hand scent only and, as the authors concede, the dogs may have been confused by the conflicting signals from identity and anatomy. The dogs were probably unsure whether they should regard the smell of a hand or the smell of their handler as the positive selection factor. The authors' further studies showed that the dogs could distinguish between a person's hand and elbow odours and a single dog used in the final experiment could distinguish the handler's elbow odour from a stranger's elbow odour. Neither of these studies controls for the confusion of hand-training/elbow-testing mentioned above. As the authors suggest, the solution to the dog's dilemma may be appropriate training and there are records of the careful and time consuming training that police dogs are subjected to before they are used for law enforcement activities (Szinak 1985; de Bruin 1989).

The ability of tracking dogs is relevant to the questions raised by Brisbin & Austad (1991). Budgett (1933) and Clifford (1958) both report experiments and observations based on many years of experience of training and working with dogs that confirm the ability of dogs to identify the person whose scent trail they follow. The bloodhound is the supreme example of a dog bred to excel in the task and its ability is rigorously tested each year, for example, in the British Association of Bloodhound Breeders' tracking trials. Although odours coming directly from the armpit or pocket, etc., where the marker cloth has been kept, must be present in the trail, it seems highly likely that the dog uses the marker as a clue to a general odour signature. In an early volume of this journal, Hans Kalmus (1955), who was later to become President of A.S.A.B.,

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investigated the ability of dogs to distinguish people on the basis of odour. He used handkerchiefs impregnated for half an hour in the armpit of a human subject as the retrieval object and hand odour as the indicator (marker) scent given to the dog for matching. He reported that of the nine dogs used to distinguish 31 people, most dogs had no problem, except in the case of identical twins. Working with the two best dogs, he showed that using a handkerchief containing underarm scent as a marker, the dogs could successfully track one twin of a pair when the same area had been walked by both twins, and three other members of their immediate family. Sommerville et al. (1990) confirmed that a dog can discriminate between identical twins, using whole or fractionated underarm scent only, provided the dog has access to the scents of both twins for comparison.

Although dogs are used extensively to match scents collected from the scene of a crime with suspects in Hungary, Holland, Germany and Japan, the methods of training employed and hard evidence of success rates have not been published in the scientific literature. We agree that these should be exposed to scientific scrutiny and we are involved in a research project to test some of the protocols used, on behalf of the British Home Office. We hope to publish our findings in due course.

The ability of dogs to accurately identify a person from various samples of their body odour is convincing and the results of Brisbin & Austad's experiments do not invalidate the use of dogs in law enforcement.

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