

Letter From the Desk of David Challinor
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The National Zoo acquired its Conservation Research Center (CRC) at Front Royal, VA in 1974, when the site was no longer needed by the State Department which had reserved it as a retreat for key personnel were Washington ever threatened as a nuclear target. How all these officials would get to Front Royal was problematical at the time because access from Washington was either by a single track railroad, whose terminal was about five miles north of the facility, or by a two-lane, twisting road. Nonetheless, when I first visited the future CRC, I found wooden government desks arranged throughout some of the buildings, each desk duly marked with taped stickers listing the title of those assigned to them. Near a corner window with a beautiful view of the adjacent mountains the sticker read "The Secretary," who was then Henry Kissinger. It is hard to imagine him directing our foreign policy from there, but fortunately for the Smithsonian, bureaucratic Washington was never evacuated and the Institution has since enjoyed uninterrupted occupancy of Front Royal.

When the Zoo concluded negotiations with the government's surplus property authorities, we were told that the Customs Service, a branch of the Treasury Department, would remain on a portion of the 3,400 acres we had just gained to continue training dogs at their kennels on the edge of the property. Their presence has had minimal impact on the Zoo's operation, although I recall an embarrassing incident for the Service. Some Smithsonian workers discovered a clearing in the woods on which an enterprising local was raising Cannibis sativa (pot), almost within sniffing range of where the dogs were being trained to find this plant. A few years later when the Smithsonian constructed a perimeter fence around the entire facility, both poaching and pot-growing declined rapidly.

The dog training facility continues at Front Royal, and those who have passed through Customs lately may have seen these dogs sniffing luggage. Most of this canine activity is done out of public sight, before the baggage is disgorged on the carousel to be claimed. Using dogs to find objects by their odor has a long history and undoubtedly began when early Homo sapiens exploited semi-domesticated wolves (from which all dogs descend) to help track game. (This was the subject of my April 1999 letter.) Relatively quickly from an evolutionary perspective, individual animals were selected for breeding according to their scenting abilities and willingness to obey their master. If dogs could track game, they could also find lost people; eventually breeds such as St. Bernards and Bloodhounds were developed as specialty trackers.

In the last few decades the Customs Service has used dogs to help find drugs being smuggled into the country. They currently acquire about 1,000 dogs a year, mostly from dog pounds. The ideal drug sniffer is generally one of the retriever breeds, such as Golden, Labrador

or Chesapeake, that has been bred to find and retrieve downed game birds. Watching such a dog work, you cannot help but realize how much they enjoy what they are doing. They are big enough to jump into airplane cargo bays or onto moving luggage carousels, yet are still considered familiar and non-threatening to most of the public. As far as scenting ability goes, individual breeds are irrelevant because all dogs are of the same genus and species. Scenting proficiency varies with individuals rather than with breeds, and friendly, playful dogs are the ones best suited for the needs of the Customs Service.

At Front Royal dogs are trained for 12 weeks, with the first fortnight spent adapting to their handlers. The dogs practice searching for a rolled towel, which is later impregnated with the scent of a narcotic and hidden by the trainer in cars or suitcases that are piled on a mockup of an airport conveyer belt. When the trainee finds the "bait," the handler rewards it with lavish praise and affectionate pats. The handlers know that dogs cannot be forced to smell out the "bait," but rather perform best when enjoying their task as part of a game.

A dog's nose has about twenty times more olfactory receptor cells than a human's, but scientists cannot quantify how much better a canine's sniffing ability is than a human's. A dog's great advantage is its ability to distinguish and keep separate different smells, and it is this quality that trainers concentrate on developing. For example, if a building burns under suspicious circumstances, trained dogs can sniff through the smoldering ruins to detect evidence of arson, such as gasoline or other combustible fluids. Considering the number and strength of contaminating scents to be sorted and rejected, isolating a combustible fluid is a remarkable ability.

At Front Royal the dogs are taught to distinguish between heroin, cocaine, marijuana and methamphetamines. Other obscure scents these dogs have isolated are that of concealed explosives and even the paper and printing ink of high denomination currency bills. In my lifetime, the training for selective scenting has improved markedly. I recall the many hours my father (the Master) and his huntsman spent training beagle puppies to ignore the scent of raccoons, fox or deer and to follow only that of rabbits and hares. The Master had to know from experience that when novice puppies broke from the pack to chase a fox, for example, it was indeed a fox by the nature of the course it took to avoid the hounds. Foxes run much straighter than zig-zagging rabbits.

Returning the errant puppies to the pack required following them, calling them by name and sounding the "pack up" call on the horn. Each puppy knew its own name; they were taught early not to leave their kennel stall (one for bitches, the other for dogs) until called by name by the huntsman to go eat from the long trough in the kennel yard. Small hounds and puppies were always allowed to eat first.

Today, training for selective scenting is simpler thanks to handheld radio transmitters and tiny receivers imbedded in a dog collar. When I visited Warner Glen last year in southeast Arizona to learn about his finding the first jaguar in the United States for at least a century, he explained how he trained his lion hounds only to track felids (bobcats and mountain lions). When an inexperienced puppy took off after a coyote, he would transmit a mild electric shock to the dog collar; he found that it only took only two or three experiences for the pups to learn. This training was rewarded when his hounds found the jaguar. Although there have been reports of other jaguars south of the Mexican border (about 10 miles from the U.S. sighting), no others have been seen in Arizona or New Mexico.

There appears to be no limit to what can be found by using the selective scenting of well-trained dogs. They routinely thwart the efforts of smugglers to mask the scent of cocaine by wrapping it in coffee grounds. In one extreme example, a Custom's dog became agitated when it sniffed a shipment of concrete figurines. The handler was puzzled, but handlers have been instructed always to trust the dogs' signals. When the figurines were x-rayed, they were found to be packed with heroin. Whether the dog smelled the heroin through the concrete or detected it on the surface of the figurines where traces of heroin chemical constituents had rubbed off the hands of the packers, we will probably never know. We do know that when the accuracy of a dog's scent-distinguishing ability was tested against an electronic drug detector, the dog's brain processed the chemical odors generated by the drugs faster than did the machine. The latter was also prone to making false positive identifications.

Clearly dogs alone will not help us to win the War on Drugs, but they will continue to be an indispensable ally. Their long association with humans has enabled them to bond with us so successfully that we continue to reap new benefits. In addition to guiding the blind, providing entertainment through dog racing, assisting in hunting game, and other activities too numerous to mention, their most important contribution to our welfare may be as a loyal companion.

David Challinor
Phone: 202-673-4705
Fax: 202-673-4607
E-mail: ChallinorD@aol.com