

# Animals in Translation

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Using the Mysteries of Autism  
to Decode Animal Behavior

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## 4. Animal Aggression

**D**og owners are usually horrified the first time they see their beloved pet kill a helpless little furry animal. I remember the day my good friend Tina saw her golden retriever Abbey kill a squirrel on the quad of the University of Illinois. Even though Tina was studying for a Ph.D. in animal behavior, she was still shocked when she saw her gentle dog finish off a squirrel like an expert assassin.

It's even more shocking when you see Lassie kill for what looks like the pure fun of it. My friend Dave, who always takes his seventy-pound half-shepherd-half-hound mix out for runs with him, was stunned when Max shot out after a groundhog one day, seized the animal by the neck, and then shook it violently until it was dead. The dog totally ignored my friend, who was racing after him shouting, "Drop it!"

Max knew perfectly well how to obey the command "Drop it" when he had a shoe in his mouth. But there was no way Max was dropping a live groundhog.

The most upsetting thing was that Max didn't have the slightest interest in actually *eating* his kill. He brought the dead groundhog over to Dave, dropped it at his feet, and beamed up at his master, obviously expecting Dave to be mightily impressed. In a way, Dave was. This was the dog he trusted to play gently with his two-year-old son, and he'd just watched Max turn into a vicious predator who couldn't be called off once the kill was underway.

After that, Dave said he started to wonder why people and dogs get along together at all. We have 60 million pet dogs in this country, all of them predators wired to kill—why aren't there *daily* newspaper reports of hideous fatal dog attacks on humans, instead of the actual number, which averages out to about fifteen a year, based on the years 1997 and 1998.<sup>1</sup> That's one dog out of every four million. It's tiny. If

there were a disease that struck only one in every four million people, only seventy people in our whole country would have it. (Dogs kill people a lot less often than people kill people, that's for sure.)

I had another friend who told me the same story. Her kids were young when she adopted what she thought was a shepherd-Lab mixed-breed dog from a shelter. By the time he was fully grown it was obvious from his markings and behavior that the dog had more Rottweiler in him than anything else; he was a *very* dominant animal. While he was still a puppy he preferred to spend evenings alone in his crate, instead of getting up on the bed with the family to watch TV. That's typical of dominant dogs; they like their "space." A dominant dog doesn't interact when *you* want him to; he interacts when *he* wants to. He'll let you know when he's interested.

Even worse, people she and her dog met on the street were saying he looked like he had some pit bull in him, too. My friend didn't think she'd accidentally adopted a pit bull descendant, but she *was* a little upset that her grown dog looked and acted so much like a Rottweiler. A study published in September 2000 found that Rottweilers and pit-bull-type dogs are responsible for the vast majority of fatal dog bites, with Rottweilers being number one.<sup>2</sup> Some of that is due to the fact that Rottweilers have gotten so popular there are a lot more of them around. But that's not all of it. In 1997 and 1998 pit bulls and Rottweilers put together were responsible for 67 percent of all fatal dog bites, and there's no way Rottweilers and pit bulls together make up 67 percent of the total dog population in this country. Not even close. (For a number of reasons, including owners' rights to equal protection under the law, the authors of the study did not recommend laws banning either pit bulls or Rottweilers.)

Seeing how dominant her dog was, my friend started to wonder about the whole dog-human relationship. She'd grown up with dogs herself, but now that she was a parent she realized just how much trust we place in these animals. People trust dogs with their lives; people trust dogs with *their children's* lives. It's pretty incredible when you think about it. I don't think my friend needed to worry as much as she did, though. Rottweiler mixes probably aren't any more dangerous than any other type of dog, except for the handful of purebreds known for low aggression, like Labs. I say "probably"

because there *is* some raw data available on the numbers of mixed-breed Rottweilers who have attacked and killed humans, but it's impossible to interpret because we don't know how many mixed-breed Rottweilers are in the dog population. Just eyeballing the numbers, it looks to me like Rottweiler mixes aren't any more dangerous than any other mutt. But I can't say for sure.

My friend figured she needed to teach the puppy to be more sociable, so she would pick him up out of his crate and put him on the bed with her and the kids. The puppy would stay put, but his way of playing was incredibly aggressive. My friend said his jaws would be snapping open and shut like a little alligator's. Even though she'd lived with dogs her entire life, she would watch this puppy snapping and snarling away and think to herself, "Why do I have this *animal* up here on the bed with my kids?"

Well, probably she shouldn't have had the puppy up on the bed, seeing as how the first thing any dog trainer will tell you is that a very dominant dog needs to be kept down *low*. A dominant dog should never be at eye level with a human! However, today the puppy is a sweet and good-natured adult dog whom neighbors and guests all like to visit. He's still dominant, and the family still has to remind him of the proper hierarchy (humans on top, dog on the bottom), but he is a cheerful and devoted member of the family.

How does this happen?

## AGGRESSION IN THE BRAIN

To understand animal behavior you have to start from the brain and work outward. For years animal behaviorists didn't have this option, and researchers struggled to come up with definitive classifications of animal behavior. Animal aggression was especially difficult to categorize, if only because there's so much of it. Naturally, different researchers would come up with different lists of core aggressive behaviors. Some lists were longer, some shorter. One behaviorist might make a distinction between *intermale aggression* (the tendency of two males to fight when one male is dropped into the cage of another) and *territorial aggression* (which often means one male fighting another male who has invaded his territory, although females

can engage in territorial aggression, too). Another researcher might decide that intermale aggression and territorial aggression were really the same thing.

Studying the brain doesn't solve all of these problems, because different behaviors can come out of the same brain circuits. But now that the brain circuits for aggression have been fully mapped out, the nature of animal and human aggression is a lot more clear.<sup>3</sup>

We know now that there are two core kinds of aggression: *predatory aggression* and *emotional or affective aggression*. Predatory aggression is chasing down and killing prey to eat; emotional aggression is everything else.

I'll start with predatory aggression.

## THE KILLING BITE

Predatory aggression isn't just something predator animals do. Prey animals also have the neural circuits for predatory aggression in their brains, though these circuits don't get activated very often.

Research with rats, who are prey animals, shows that you can elicit a biting attack in some rats by stimulating the same part of the brain you would stimulate to elicit a biting attack in a predator animal like a cat.<sup>4</sup> Even though a rat rarely hunts prey in the wild, he has the innate, built-in capacity to do it. Jaak Panksepp, the author of *Affective Neuroscience*, says researchers haven't been able to turn on a biting attack in all the rats he's studied, just in the ones who have a naturally strong inclination to "approach and vigorously investigate potential prey objects such as mice."<sup>5</sup> Still, these are perfectly normal rats, so the fact that you can produce a biting attack in especially aggressive rats means that the neural circuits are there for all rats; they just don't use them. The predatory chase drive is almost certainly present in all animals as a *potential* behavior.

The actual moment of the kill, called the *killing bite*, is a hard-wired behavioral sequence that never changes. Each individual member of a species is born knowing how to perform the killing bite, and each individual member of a species performs the killing bite the same way. A Labrador retriever killing a groundhog will look exactly like a German shepherd killing a groundhog. In the laboratory you

can turn on the killing bite by implanting electrodes into the predatory circuits in the brain and stimulating them with electricity. The animal doesn't have to be hungry, and no prey has to be in sight.

All predators have a hardwired killing bite, but the bite can differ from species to species. Dogs and cats bite down and then shake their prey to death; large cats such as lions, who kill large prey animals like antelope, often bite the animal's neck and then hold on until it dies of suffocation. They do that because an antelope is too big to shake to death. Usually when a predator kills his prey you don't see any blood. The dead animal looks perfectly intact.

Scientists call hardwired behavior sequences like the killing bite fixed action patterns because the sequence of behaviors is always the same. Fixed action patterns are turned on by *sign stimuli* or *releasers*. For *all* predators, rapid movement is a releaser that turns on predatory chasing and biting. Over the years I've read various reports where a person has been injured or killed by a tame lion or tiger. In almost all of these accidents, the cause was rapid movement. The person who was bitten fell down, suddenly bent over, or dropped a tool, and the sudden movement triggered the predatory fixed action pattern. I'm sure that's where the line "Don't make any sudden moves" comes from in police shows. Humans have the same built-in primitive reaction to movement, and in a tense situation a sudden movement can trigger a person holding a weapon to use it.

While the fixed action pattern is always the same, emotions can differ from one animal to another within the same species. If Dave had two dogs instead of just one, he might find that one of his dogs was more motivated to hunt down and kill a groundhog than the other. The briefest glimpse of a groundhog might trigger the chase and kill in one dog; the other dog might ignore the groundhog unless the animal was repeatedly shoved in his face. Both dogs would perform the actual kill exactly the same, but their motivation to get to that point could differ.

## SCHOOL FOR HUNTERS

Predatory killing raises the question of how much animal behavior is learned and how much is instinctual. The answer is that it depends

on the species. Animals with large, complex brains like a chimpanzee rely on learning much more than simple-brained animals like lizards. Dogs, cats, horses, and cows are somewhere in the middle. Their brains aren't as complex as a person's or a chimpanzee's, but are a lot more complex than a lizard's or a chicken's. So dogs and cats are more dependent on learning than chickens are, but they probably use more hardwired behavior than a chimp.

The next thing to know is that there is a difference between the fixed action pattern itself and the emotions that motivate and drive the fixed action pattern. The *emotion* of chasing down prey and the *behavior* of killing the prey are controlled by different circuits in the brain.<sup>6</sup>

Seeing the word "emotions" in this context might be surprising. Animal experts used to talk about *instincts*, which are the fixed action patterns, and *drives*, which we defined as built-in urges that made animals and humans seek the core necessities of life like food and sex. Instincts and drives described animal and human behavior well from the outside, but the concept of a drive didn't hold up well once researchers started mapping the brain. It was too broad and abstract, and when researchers looked for single, unified brain circuits underlying specific drives, they didn't find them.<sup>7</sup>

Instead of finding one unified circuit for a *hunger drive*, for example, they found two different circuits, one for the physical aspects of hunger, the other for the emotional. The physical aspects of hunger, called *bodily need states*, are things like low blood sugar, which signal that an animal needs something to eat. There's a separate circuit in the brain that handles bodily need states. But a bodily need state on its own isn't enough, which should be obvious to anyone who's ever known a person with anorexia. People and animals also need the emotion of SEEKING, which I talked about in the last chapter, to motivate them to go out and hunt or gather the food their body needs.

Researchers don't know exactly how a bodily need like hunger hooks up to the emotions of hunting; that's one of the questions people are studying now. But they do believe that virtually *everything* people and animals do is driven by some kind of feeling. We know how important feeling is from ESB studies of animal brains,

and also from close study of human patients who have had brain damage. Antonio Damasio, whose book *Descartes' Error* has been extremely influential, has studied people whose emotions have become disconnected from their reasoning and decision-making processes. These patients can't even decide what restaurant to go to for dinner, even though they're hungry and need to eat. Emotion and hunger are separate circuits in the brain, and both need to be working.<sup>8</sup>

To sum up: fixed action patterns are built-in, brain-based behaviors that are always the same in every individual in a species. Emotions are built-in, brain-based *motivators* that vary in intensity and probably in frequency of expression from individual to individual. You'll still hear some animal researchers talking about drives once in a while, and that's not wrong if you're only describing an animal's behavior from the outside. It's just that the broad concept of a *hunger drive* or a *sex drive* doesn't correspond to the specific brain circuits that are turned on when people and animals seek food or love. More than one different circuit in the brain is always involved.

That gets us to what is *not* biologically fixed in the brain. Emotions are built into the brain, but everything an animal does to act on his emotions, *except* for the fixed action pattern, is learned. A dog is born knowing how to kill a groundhog, but he isn't born knowing that a groundhog is food. Strange as it may sound, a dog has to learn from other dogs that groundhogs are good to eat.

Predators have to learn from other animals *whom* to direct their hardwired predatory behavior against. If a puppy grew up in a house with a pet groundhog, the puppy would learn that a groundhog is not prey and would probably never attack it. That's why puppies need to be raised around toddlers, or at least exposed to them. Toddlers do the same kind of sudden, rapid movement prey animals do, so it's easy for them to trigger a dog's predatory killing behavior. Puppies have to be taught that toddlers are not prey.

It's not hard to teach a dog what's prey and what's not; you just have to make sure you do it. When I was little our family had a golden retriever who was a vicious cat killer. Ronnie was the sweetest dog around little children. I can remember trying to ride on Ron-

nic's back when I was about four, and he never even protested. But whenever he saw a cat he became wildly excited and would instantly chase and kill it. Ronnie had been thoroughly exposed to toddlers as a puppy, and he knew toddlers weren't for killing. But he hadn't been exposed to cats and had concluded that cats *were* for killing. He never got confused about the categories, either, because a dog is emotionally wired to learn *prey* and *not prey*.

Having to learn what to eat and what not to eat gives animals and humans the flexibility to adapt. If an animal had to rely on instinct alone to feed himself he would starve if his usual source of food suddenly disappeared or went into decline. He wouldn't be able to imitate other animals, either.

## IS IT FUN TO KILL A GROUNDHOG?

The answer is yes.

First of all, behaviorists call predatory killing the *quiet bite* because predatory killing is *not* done in a state of rage. We know from brain research that during a kill the rage circuits in the brain are not activated, and we know from observation that the killer is always quiet. Killing bites are nothing like the kind of loud, screaming fights you'll see two animals from the same species get into. During territorial fights the rage circuits can be turned on, and a rage-filled attacking animal makes a lot of noise. But when a predator is on the kill, he just bites down hard and then shakes his prey to death.

Dave's impression that Max enjoyed killing the groundhog was right. We know this from the ESB studies I mentioned in the last chapter. Animals like having their predatory killing circuits turned on, and will turn them on themselves if you show them how. When you think about what predatory killing is all about, of course it ought to feel good, because predatory killing means dinner. Killing a mouse feels good to a cat the same way finding a luscious ripe banana feels good to a primate.

According to Jaak Panksepp, ESB studies show that predatory killing comes from "essentially the same brain areas" as the SEEKING circuit, which produces the pleasurable feelings of engaged curiosity, intense interest, and eager anticipation I mentioned in the

last chapter.<sup>9</sup> When the SEEKING circuit is turned on, animals and people seek the things they need and want, like food and shelter, or a perfect pants suit at a department store or an advanced degree in physics. People and animals love the hunt.

But angry aggression feels *bad*. Animals and people do not like having their rage circuits turned on, and will avoid it if they can. Rage is a painful emotion. Inside the brain, predatory killing and angry aggression are not the same thing. Not even close.

## THE HAPPY HUNTER

Anyone who has ever watched a dog kill an animal will tell you that the dog sure looked happy afterward. But since most people aren't going to get the chance to watch a dog kill a groundhog, if you really want to get a good look at an animal enjoying the hunt, spend some time with a cat. Cats are the super-predators of domestic animals. They can get especially carried away chasing, bating at, and pouncing on a red laser "mouse." Laser mice are a variant on the battery-operated laser pointers lecturers use in large lecture halls to point to an overhead screen. If you've never seen one, a laser pointer projects a tiny red dot that the lecturer can shine onto the part of the overhead screen they're referring to. In a laser mouse the dot is shaped like a mouse. The mouse shape is just a marketing tool; any cat who will chase a laser mouse will also chase a laser dot.

Some cats get so excited chasing the dot that they've been known to break their own bones or dislocate joints. One time I was at my friend Rosalie's apartment in New York and I was amazed at the way her two cats, Lilly and Harley, chased a laser mouse. You could lead Lilly and Harley around the whole apartment at a dead run, jump them up on the counter, back down on the floor, up a bookshelf—you could shoot them wherever you wanted them to go. They were so frenzied I had to be careful not to suddenly reverse the motion, because I could throw Lilly into a back flip, she was so focused on that dot.

I've never seen a domestic cat chase any other toy that way. I've also never seen a cat behave that way outdoors, chasing live prey. Lilly and Harley had gone into what behaviorists call *hyper-activation* of

the *predatory chasing instinct*, they were so mindlessly fixated they could have injured themselves. I think that happens with laser pointers because cats can see the dot but can't catch it. Even when a cat puts his paws on the dot he can't feel it or hold it. The laser dot probably becomes a *super-stimulus* that keeps on stimulating the chase because the cat can't complete the sequence of chase and catch, so the chase instinct can't get turned off.

I was intrigued to find that even when I held the dot still, which I assumed would turn off the chase behavior, they didn't calm down at all but kept frantically batting and pawing at it on the floor. They didn't look like they were playing with the dot, the way a cat will play with its prey; they looked like they were still in chase mode. I suspect that the reason Lilly and Harley stayed so fixated over a motionless red dot was that the slight tremor of my hand was making the dot vibrate enough to keep them hooked in. I was holding my hand as still as I could, but the tiny movements of mouse-dot on the floor were enough to keep them going. That's how hyper-activated they were.

I've been told that some cats *don't* chase laser pointers, which is interesting. I wonder whether those cats may know more about hunting and catching live prey than indoor cats like Lilly and Harley do. Lilly and Harley aren't allowed outside and were never taught to hunt by their mother, whereas a cat with a normal outdoor upbringing learns what to chase and when. Outdoor cats also learn to inhibit their chasing instinct so they can stalk their prey and get close enough to catch it.

An outdoor cat who's learned all these things may not be interested in a laser mouse for a couple of different reasons. Number one, a laser dot is not food and they've made the connection between chasing and eating; and number two, the cat knows how to suppress his chasing instinct. He isn't a slave to rapid motion the way Lilly and Harley are. Whatever the explanation, the fact that some cats don't chase laser pointers, while others chase them so frantically they risk injuring themselves, shows you that what an animal chases is learned, not instinctual.

The cats' fixation on the dot reminded me of autistic fixations. It was totally mindless; nothing else in the world existed. Their whole

world was a little dot. I was like that when I was a child. I remember dribbling sand through my hands and the rest of the world disappeared. I was hypnotized by the tiny reflections coming off each little grain of sand. I couldn't stop looking. Sometimes I would stare at falling sand on purpose, just to shut out overwhelming stimuli from my environment.

I think I was probably tapping into the part of the same prey chase circuit Lilly and Harley had activated. Like the cats, I was attracted to erratic movement, because it was the constant *changing* movement of the reflections that held my attention. The autistic brain, like all brains, seems to be attracted to rapid erratic movement. The difference is, we get stuck in it. Flags are another moving object that used to fascinate me, and I wonder whether some autistic children's love of rotating fans falls into this category, too. I didn't care about fans myself, but the movement of fan blades didn't look erratic to me. The autistic kids who really love fans are usually lower-functioning, and their visual processing may be more piecemeal. Maybe to some autistic children the little light reflections off of fan blades does look erratic, so they get hooked.

## HOW ANIMALS MANAGE PREDATORY AGGRESSION

In the wild, tigers and other animals who hunt for food can't act like Lilly and Harley or they wouldn't survive. First of all, no wild animal has an unlimited food supply. A predator who chased and killed everything that moved would quickly run out of food.

Another reason why an animal living in the wild has to show some restraint is that he can't afford to waste calories on a chase that doesn't end in a meal. If he killed animals he wasn't going to eat, he'd then have to kill even more animals to replace the calories he used up chasing down and killing prey for sport.

Last but not least, mindless chasing like Lilly's and Harley's would make an animal less likely to catch prey, not more, because it short-circuits intelligent stalking behavior. Cats stalk their prey to get in the best possible position to pounce and catch it. That's the whole point. A cat wants to *catch* the mouse, not chase it in circles

forever the way Lilly and Harley were doing. So predators have to be able to inhibit the impulse to give chase until they're in the best position to catch the animal they're after.

What all of this means is that an animal has to be able to inhibit his chase sequence, and he has to learn how and when to do this from other animals.

We know this is true from the behavior of animals raised in captivity and reintroduced to the wild. The television show *Living with Tigers* had a terrific episode about two cubs who had been raised by humans and then returned to the wild. At first they chased everything they saw, whether they were hungry or not. One night they killed seven antelopes in an orgy of predatory killing. It was like Lilly and Harley chasing the laser. They just kept chasing and kill-biting every animal that moved, one animal after another. They didn't eat them; they just killed them. The humans finally began holding them back, trying to teach them just to kill what they needed to eat.

The humans also had to teach them *what* to eat. When the young cubs were presented with a dead zebra they instantly performed a killing bite to the neck. I'm not sure why the cubs did that since obviously the zebra wasn't moving, but it may have been because the zebra was down on the ground. Maybe that was the trigger.

But after they performed the killing bite they made no attempt to eat the zebra. They didn't know the zebra was food; they thought food was something that came in the back of a truck. It was the same problem Dave's dog had with the groundhog. Nobody ever told him that a groundhog is meat. The humans had to teach the cubs that the animals they were chasing were also good for eating, which they did by cutting open the dead bodies and exposing the entrails.

The film footage of those tiger cubs is a good lesson on what a fixed action pattern looks like, and on exactly how far a fixed action pattern will take an animal in life. The tiger cubs were born knowing how to perform a killing bite, but that was it. The rest they had to learn. I assume that a normal animal learns from his mother and/or his peers to kill only what he intends to eat, though I don't know this for a fact. We do know, however, that almost no animal *randomly* kills prey animals on an indiscriminate basis.

The only wild animal I've seen who will sometimes violate this

rule is the coyote. Most of the time a coyote eats the animals he kills, but occasionally coyotes will go on a lamb-killing spree, killing twenty and eating only one. I believe it's possible coyotes have lost some of their economy of behavior by living in close proximity to humans and overabundant food supplies. A coyote that kills twenty lambs and eats only one isn't going to have to trek a hundred miles to find more lambs next week. Any sheep rancher will have several hundred other lambs that will be just as easy to catch later on, and the coyote knows it. Wild coyotes have probably lost the knowledge that you shouldn't waste food or energy.

## AFFECTIVE AGGRESSION

Affective aggression is completely different from predatory aggression. Affective aggression is *hot* aggression; it's aggression driven by rage. Compared to predatory aggression, in affective aggression an animal's emotions are different, his behavior is different, and his body is different.

A cat whose rage circuits have been electrically stimulated assumes an aggressive posture and hisses, and his hair stands on end (that's called *piloerection*, for erection of the hair follicles). His body is aroused. His heart beats faster, and his adrenal system kicks in. Stimulate the same cat's predatory circuits and his body stays calm. Jaak Panskepp says you see "methodical stalking and well directed pouncing,"<sup>9</sup> with no increase in stress hormones. Humans have tended to mix up these two states, because the outcome is the same: a smaller, weaker animal ends up *dead*. But predatory aggression and *rage aggression* couldn't be more different for the aggressor.

Animal behaviorists usually classify the different types of rage aggression by the stimulus that triggers the aggression, and different experts have come up with slightly different lists.

This is mine:

1. Assertive aggression. This category includes dominance aggression and territorial aggression.
2. Fear-driven aggression. This includes maternal aggression to protect young.



3. Pain-based aggression.
4. Intermale aggression. Intermale aggression is influenced by testosterone levels.
5. Irritable or stress-induced aggression. This includes *redirected aggression*, such as when a cat gets agitated by the sight of another cat outside but can't get to it and so attacks another cat or person inside the house instead.
6. Mixed aggression. For instance, fear combined with assertive aggression.
7. Pathological aggression.

### Assertive Aggression

Assertive aggression includes both dominance aggression—one animal attacking another to assert or maintain his dominance in the hierarchy—and territorial aggression, which is when an animal attacks to protect his territory from intruders. Assertive aggression is probably connected to the neurotransmitter serotonin in a fairly straightforward way; the lower the serotonin, the more aggressive the animal. Antidepressants like Prozac that increase serotonin levels can reduce dominance aggression in a pet.

Unfortunately, the connection between serotonin, assertive aggression, and actual *social dominance* or *alpha ranking* within the group still has to be sorted out. There is strong evidence from colonies of vervet monkeys that the dominant animal has the *highest* levels of serotonin and the *lowest* levels of overall aggression.<sup>10</sup> The lowest-ranking animals show the most random, impulsive aggression, while the leaders are calm and collected and get aggressive only when they have to defend the group.

We know this from Michael Raleigh's famous study of twelve vervet monkey colonies. He and his team removed the dominant monkey, always a male, from all twelve colonies, then gave a medication that raised serotonin levels to one of the two remaining males in the colony, and a medication that lowered serotonin levels to the other. That gave them twelve subordinate males in twelve different troops who now had higher levels of serotonin than they did before, and twelve subordinate males who now had lower levels.

Every single one of the subordinate monkeys whose serotonin levels had been raised became the dominant monkey of the pair. Then, when they reversed the medications, raising the serotonin levels of the monkeys who had previously had their levels artificially lowered, *those* monkeys became dominant.

The reason this whole area is so confusing is that we're talking about two completely different fields of research. We don't know whether the people who study dominance aggression in dogs are talking about the same thing Michael Raleigh was studying in vervet monkeys. So for the time being we have to make do with the standard definition of assertive aggression I'm using here.

### Fear-Driven Aggression

Fear-driven aggression causes so much violence and destruction in the animal and human worlds that I've often asked myself, What is rage for?

Why do we have rage circuits at all?

When you look at animals living in the wild, the answer is simple. Rage is about survival, at the most basic brute level. Rage is the emotion that drives the lion being gored to death by the buffalo to fight back; rage drives a zebra being caught by a lion to make one last-ditch effort to escape. I once saw a videotape of a domestic beef cow kicking the living daylights out of an attacking lion. It was some of the hardest kicking I have ever seen. Rage is the ultimate defense all animals draw upon when their lives are in mortal danger.

When it comes to human safety in the presence of animals, fear cuts two ways. Fear can inhibit an animal or a person from attacking, and very often does. Among humans, the most vicious murderers are people who have abnormally *low* fear. Fear protects you when you're under attack, and keeps *you* from becoming an attacker yourself.

But fear can also *cause* a terrified animal to attack, where a less-fearful animal wouldn't. A cornered animal can be extremely aggressive; that's where we get the saying about not getting someone's "back up against a wall." An animal with his back up against a wall is in fear for its life and will feel he has no choice but to attack.

On average, prey species animals like horses and cattle show more fear-based aggression than predatory animals such as dogs. That shouldn't be a surprise, since prey animals spend a lot more time being scared.

I categorize maternal aggression differently from some researchers; I put it in the fear department. I think maternal aggression is fear-driven at heart because over the years I've observed that the high-strung nervous animals will *always* fight more vigorously to protect her young than will a laid-back, calm animal like a Holstein dairy cow. Many a rancher has told me that the most hotheaded, nervous cow in the herd is the one who is most protective of her calf.

*Any* mother, nervous or calm, will fight to protect her baby. That's why on farms the human parents always warn their children to stay away from mama animals. But the fact that it's always the most nervous, fearful mother who shows the most maternal aggression makes me think that maternal aggression is driven by fear, even when the animal is calm by nature. When mother animals think their babies are in danger, they feel fear, and their fear leads them to attack. That's my conclusion.

This brings me to the fundamental question you have to ask yourself any time you're trying to solve a problem with aggression: is the aggression coming from fear or dominance? That's important, because punishment will make a fearful animal worse, whereas punishment may be necessary to curb assertive aggression.

### Pain-Based Aggression

This one is simple and is something all humans have experienced themselves. Pain makes you mad. A person in pain will become irritable and start snapping at the people around him, but an animal can easily become aggressive. Vets have to watch out for pain-based aggression with any animal who is suffering. A dog who has been hit by a car may lash out and bite its owner due to pain. An animal who has arthritis or some other painful condition may become aggressive when the painful limb or joint is manipulated.

### Intermale Aggression

Intermale aggression is linked to testosterone levels, which is why castrating a male dog can stop his fighting other male dogs. However, castration doesn't fix *dominance aggression* in a dog, which leads Dr. Panksepp to believe that intermale aggression may actually be a third form of primary aggression separate and distinct from either predatory aggression or affective aggression. Time will tell.

### Irritable or Stress-Induced Aggression

Animals who live in highly stressful conditions are more prone to aggression than animals living in reasonably calm conditions. I heard about an awful case of stress-induced aggression where a Border collie ate all her puppies. Borders are a nervous, high-strung breed, and this particular collie ate her puppies after she had been taken on a long car trip and brought to a new house. Her stress levels were already very high because she lived in a dysfunctional household that included a hyperactive teenager who could never sit still, and apparently the long journey and brand-new surroundings tipped her into violent aggression against her own pups.

Even a constant relatively minor irritant like a flea infestation can trigger stress-induced aggression in an animal.

### Mixed Aggression

In real life animals probably experience more than one motivator for aggression pretty often. In particular, we know that fear-based aggression and assertive aggression often co-occur in dogs. Dr. Panksepp thinks this probably happens with maternal aggression in some cases, where the mother attacks out of fear *and* out of territorial aggression. He also thinks that if intermale aggression does prove to be a distinct form of aggression, separate from the rage circuits in the brain, it probably doesn't occur in its "pure" form very often. Two males may go into a fight eagerly, like two boxers ready for the championship match, but rage probably kicks in as one or

both males start to feel frightened, frustrated, or in pain. Then you have intermale aggression mingled with potentially three different kinds of affective aggression.

### Pathological Aggression

Medical conditions like epilepsy or head injury can produce pathological aggression in an animal. This is true in people, too. For instance, we know that a lot of prisoners who have committed violent crimes have had head injuries at some point in their lives.

### GENETIC TENDENCIES TO AGGRESSION

Some animals are genetically disposed to higher levels of aggression than others no matter what the circumstances. There are bloodlines of rare horses that have killed or injured groomers, and cattle breeders have observed that certain genetic lines of bulls are more aggressive than others. I've already mentioned the behavioral problems that crop up with single-trait breeding. The rapist roosters are the most dramatic case, but many pigs have become more innately aggressive, too. A study at Purdue University showed that pigs bred to be lean got into more fights than pigs from a fatter genetic line.

The genetics of aggression is an especially thorny issue with dogs. Most people don't want to believe that there are some breeds, like pit bulls and Rottweilers, that are more aggressive by nature. (Pit bulls aren't an established AKC breed.) Usually these folks have known or owned individual Rotties or pits who were sweet and good-natured, so they conclude that when a Rottweiler or a pit bull shows aggression the problem is the owner not the dog. But the statistics don't support this interpretation, although it's true that statistics on dog bites aren't hard and fast.

There are lots of problems with dog bite reports. For one thing, there are a few different kinds of dogs that are called pit bulls, including some purebreds like the American Staffordshire terrier and some mixed-breed dogs. Another problem: large dogs do more damage when they bite people, so they're probably overrepresented in the statistics. Also, lots of purebred owners fail to regis-

ter their dogs with the AKC, so it's impossible to know exactly how many purebred Rottweilers there are in the country and compare that figure to the number of reported dog bites committed by Rottweilers.

Because dog population data is imprecise, no one can nail down exactly what each breed's "aggression quotient" is compared to other breeds. Still, you can get an overall picture of which breeds are most dangerous by looking at medical reports of dog bites. *On average* Rottweilers and pit bulls are so much more aggressive than other breeds that it's extremely unlikely bad owners alone could account for the higher rate of biting. And if you're looking only at anecdotal evidence, there are plenty of cases of nice, competent owners with vicious Rottweilers or pit bulls. Aggression isn't always the owner's fault. Writing about pit bulls, Nick Dodman says, "Originally bred for aggression and tenacity, pit bulls, if provoked, will bite hard and hang on, making them as potentially dangerous as a handgun without a safety lock. . . . they can become quite civilized, developing into loyal and entertaining companions. But the *potential* for trouble is always lurking somewhere, as a result of their genes and breeding."<sup>11</sup>

The Monks of New Skete, the famous trainers of German shepherds in upstate New York who wrote *The Art of Raising a Puppy*, say that every breed of dog has its *freak bloodlines* that produce dogs who are much more likely to be aggressive.<sup>12</sup> Some people have always bred dogs with enhanced aggressive behavior to serve as guard or police dogs; there are also drug dealers and other unsavory types who have deliberately bred very aggressive dogs either for protection or because they're part of the illegal dog fight scene. These dogs are like a gun with a hair trigger and no safety.

As I mentioned earlier, Rottweilers and pit bulls are the worst offenders now.<sup>13</sup> But before Rottweilers and pit bulls got so popular the most dangerous breed was the German shepherd, and Chow Chows show up in dog bite studies as having a much higher *rate* of biting per dog than other breeds.

The same study also found that male dogs are 6.2 times more likely to bite people than are female dogs, and intact males are 2.6 times more likely to bite people than neutered males.

Finally, there are some animals, including some dogs, who are just

plain trouble. It's not their breed and it's not their owners. It's them. They're born that way, and they are bad, dangerous dogs.

If you're trying to buy or adopt a dog with the *absolute least* genetic proclivity to aggression, your best bet is probably a female, mixed-breed adult. However, it's really not necessary to be hyper-vigilant about the genetics of dog bites when you're choosing a pet. Serious dog bites are so rare that from 1979 to 1994 only .3 percent of the U.S. population got bitten badly enough to seek medical care. When you consider the fact that just about everyone in America who isn't living in a prison or a nursing home has fairly regular exposure to dogs, that's a very small number. You're better off thinking about how a particular breed of dog, or a mixed-breed dog, will fit into your life.

## ANIMAL VIOLENCE

People who love animals often think of animals as being aggressive but not *violent*. Only humans, they'll tell you, commit rapes, murders, or wage wars.

But that turns out not to be true. Some chimpanzees actually fight what Jaak Panksepp calls *mini-wars*. This is organized, violent behavior. Two groups of males from rival troops will meet at the border between their territories and fight. So many chimpanzees die in these mini-wars that in a lot of places the ratio of adult females to males is two to one. Jane Goodall has talked about how upset she was to find out that her beloved chimps could do something so awful. War is not unique to human animals.

I've heard many stories of violent behavior in farm animals. A woman I met told me about an expensive ram she bought from a small hobby farm (that's a farm whose owner raises farm animals as a pastime, not a full-time business). The ram was perfectly tame and gentle around people, so she thought he was fine, and she put him out with her twenty ewes. The ewes had already been bred and were in the early stages of pregnancy so they didn't come into estrus. The ram smashed their sides in and killed them all.

Many animals can be horrifically violent for no reason, it seems, other than the sheer desire to kill and maybe even to torture. It took many, many years for people to finally realize that dolphins, for

instance, aren't the benign, perpetually smiling sea creatures they look like to us. Instead, dolphins are big-brained animals who commit gang rape, brutal killings of dolphin "children," and the mass murder of porpoises. In her book *To Touch a Wild Dolphin*, Rachel Smolker writes that male dolphins stick together in gangs and will chase a female down and forcibly mate her. Female dolphins don't form groups the way male dolphins do.<sup>14</sup> Reading the book I found the similarity between dolphin gangs and human gangs creepy.

There was evidence that dolphins were killing babies and porpoises for years, but researchers just didn't see it. They kept thinking that the porpoises must have been killed by boats or fishing nets. Finally someone pulled a porpoise who had just been killed out of the sea and found tooth marks on its side that perfectly matched the teeth of a dolphin. Ben Wilson, a dolphin expert at the University of Aberdeen in Scotland, told the *New York Times* that when he realized it was the dolphins who were doing the killing, his reaction was, "Oh my God, the animals I've been studying for the last ten years are killing these porpoises."<sup>15</sup>

Animal experts always manage to make infanticide seem not so bad. The standard explanation is that adult males have evolved to kill babies in order to bring the mother into estrus so she can have *their* babies. That could be true, but when you put infanticide together with other animal violence you may start to wonder just how *evolutionary* it is for an adult male to kill a baby of his own species or even his own group. Is animal infanticide really what nature intended? Or is it, at least some of the time, an aberration of what nature intended?

A videotape about the predatory behavior of killer whales made me see animal aggression differently. The different pods had each developed a different killing specialty. Some pods killed tunas they stole from fishing lines; some killed seals; some didn't do a lot of active killing. They just swallowed the fish whole. One pod had even figured out how to kill penguins, bite a hole in one end of the bird, and then squeeze on the other end until the insides came out of the feather "wrapper" so they could eat them. It was like squeezing toothpaste out of a toothpaste tube.

But one pod had become killers for sport. The cameraman filmed the pod separating a baby whale calf of another whale species from

its mothers and killing it. They crashed their bodies on top of it over and over again, pushing it underwater repeatedly until finally it drowned. It took them six or seven hours to kill the baby. Then they ate the tongue and nothing else. It was horrible.

The report didn't say whether the adults were males, but I expect they were. We do know that most of the violence seen in killer whales is done by adolescent males, just as it is in humans. Sociologists have found that boys and young men between the ages of fifteen and twenty-four are most likely to be engaged in violence compared to other age groups. That makes me think that the kind of killing those whales were doing *isn't* evolutionary. Maybe it's a negative side effect of immature brain development.

With dolphins, researchers have pretty much reached the conclusion that much of the killing they do serves no evolutionary purpose. Dolphins will slaughter hundreds of porpoises at a time. The only imaginable evolutionary reason for this would be if porpoises compete with dolphins for the same scarce resources, like food. But they don't. Porpoises eat different food than dolphins do. Killing a porpoise doesn't increase a dolphin's chances of surviving and reproducing in any way. The only conclusion is that dolphins kill porpoises because they want to.

I don't know why animal violence happens, but when I read through the research literature I'm struck by the fact that the animals with the most complex brains are also the ones who engage in some of the nastiest behavior. I suspect people and animals probably pay a price for having a complex brain. For one thing, in a complex brain there may be more opportunities for wiring mistakes that will lead to vicious behavior. Another possibility is that since a more complex brain provides greater flexibility of behavior, animals with complex brains become free to develop new behaviors that will be good, bad, or in between. Human beings are capable of great love and sacrifice, but they are also capable of profound cruelty. Maybe animals are, too.

## WHY DOGS DON'T BITE PEOPLE

All animals have ways of managing their aggression. This is one place where evolution has to come in: it might be good for an individual

animal to murder his rival, but it wouldn't be good for the species if it was normal for animals to fight each other to the death. Few adult animals apart from humans ever attack each other so violently that one of them dies.

Dogs have an inborn guard against excessive killing called *bite inhibition*. A typical dog learns bite inhibition through puppy play. Dr. Michael Fox of the Humane Society of the United States has found that prey killing and head-shaking movements first occur in four-to-five-week-old puppies during play, and if you watch two puppies playing it's incredibly violent. They'll snap and snarl and lunge at each other's throats—I've seen one puppy grab another puppy's throat, bite down, and shake his head violently, just like he'd do in a killing bite. But the minute the other puppy gives the tiniest squeak the biting puppy lets go. That's how they train each other that it's okay to bite "this hard but no harder." There are probably mechanisms to inhibit biting in all predators, because animals who are armed with teeth need to be able to stop biting before they rip each other apart.

Dogs have another method of teaching each other what's an acceptable level of aggression. When one puppy is getting too rough, the other puppy will suddenly stop dead in its tracks and stand stock-still facing the rough one. That always stops the other puppy, too. It's like a time-out. You'll see it a lot if you watch a younger, much smaller puppy roughhousing with an older, bigger puppy. They're both puppies, and they're both young, but one puppy is getting the worst of it thanks to size and age. It's amazing how fast the two puppies will adjust to each other's relative size and age. The smaller puppy will get lots rougher, and the larger puppy will get gentler.

Owners who play rough with their dogs are relying on their dog's bite inhibition to keep from getting mauled. Trainers say that's not a smart thing to do, because happy play can escalate to angry play if they get too aroused. That's one of the problems with having a multiple-dog household; the fun can turn violent and two playing dogs can suddenly bite each other for real. Still, even though all trainers tell owners not to play rough with their dogs, owners almost never listen, and I haven't read about people getting mauled by their pets in the middle of roughhouse play.

Roughhouse play is normal between dog friends, and it's probably normal between people and their dogs, too. I *have* seen people play too roughly with their dogs, though. I saw an owner one time play so roughly with his dog that it stopped being play to the dog, and it made her yelp. He was grabbing her loose skin too hard, and she finally growled at him. That's wrong.

I want to lay to rest one standard piece of dog trainer advice. Playing tug-of-war is probably not as bad as people think. Most trainers will tell you that playing tug-of-war with your dog encourages him to think he's your equal, which is bad. Other trainers take a slightly different view, which is that if you let your dog win a game of tug-of-war he'll be less obedient, but if you win he'll be more submissive.

However, a study of fourteen golden retrievers in Great Britain a couple of years ago found that neither of these things was true; at least neither was true with the fourteen golden retrievers the experimenters tested. The researchers had people either win or lose a series of tug-of-war games with the retrievers, and then watched how the dogs behaved. The losers *were* more obedient after playing the game—but so were the winners. All the dogs were more obedient after playing tug-of-war with humans! And none of the dogs suddenly got more dominant. The winner dogs didn't display any dominance behaviors like raising their tails up high or trying to stand over the person they'd beaten.<sup>16</sup> One study doesn't prove anything, but I think it's probably both safe and fun to play tug-of-war with your dog, and it might even be good for him. Just remember one thing: the study also found that the dogs who lost every time were a lot less interested in playing any more tug-of-war. Apparently a dog doesn't like losing all the time any more than a person does.

## THE BOAR POLICE

Pigs have a mechanism for managing their own aggression that I call the *boar police*. Pigs can be really vicious. Any child raised on a farm gets warned repeatedly to stay away from the mama pigs especially. That's good advice, because pigs don't have a bite inhibition mechanism that I can see, possibly because pigs are more chewers than biters. When I visit a pen of pigs they'll start nibbling on my boots; then grad-

ually they'll work up to chewing harder and harder until I say "Ouch!" They don't take a social cue like that, either. If the chewing starts to hurt I have to really get on them to make them stop.

When pigs *do* bite, it's bad. Fortunately, the presence of a mature dominant male in the group will inhibit fighting, something that's probably true of many other species, too, although it isn't well researched. We do know it's true of elephants. Marian Garai, a zoologist in South Africa, has observed aggressive behavior in young but fully mature bull elephants being kept under control by older dominant males.<sup>17</sup>

I did an experiment at a pig farm in Colorado to determine whether placing mature boars in a group of juvenile pigs would reduce fighting. Pigs can be nasty fighters and when strange pigs are mixed in together they will often injure each other as they fight to determine the new dominance hierarchy. I already knew this from earlier research by John McGlone at Texas Tech University.<sup>18</sup> He found that just spraying the scent of a mature boar reduced fighting, so I wanted to see what would happen if you actually put a live boar in there with them.

Having the mature boar present in the pen worked even better at controlling the fights than just the scent. With the boar there, both his scent and his behavior inhibited the younger pigs. When two pigs started a fight the boar would walk over toward them. That's all he did, just walked toward them. The only intervention was his commanding presence and his attention.

When the younger pigs saw him coming they stopped fighting. It was exactly like a bunch of young hoodlums who see the police and instantly stop what they're doing. The younger pigs acted so much like young human males they would even look around to see where the boar policeman was *before* starting a fight. If he was nearby they didn't start fighting, but if he was over in the other end of the pen they were more likely to attack.

## SOCIALIZING ANIMALS TO OTHER ANIMALS

Anyone who interacts with animals has to know how to manage an animal's aggressive nature. Two actions are essential: make sure the

animal is properly socialized to other animals, and make sure the animal is properly socialized to people.

You have to make sure animals are socialized to other animals, because most of what animals do in life they learn from other animals. Adults teach their young where to eat, what to eat, whom to socialize with, and whom to have sex with. The adults teach the young ones social rules and respect for their own kind. If an animal does not learn these rules when he's young, there may be many problem behaviors when he grows up.

One of the worst things you can do to any domestic animal is to rear it in isolation. Many people mistakenly believe that stallions are aggressive nutcases you can't handle, but that's true only because we make them that way. I remember being amazed when I walked into a holding pen at a Bureau of Land Management adoption center, which contained fifty wild stallions. The stallions were completely peaceful and quiet with almost no fighting. Every year the BLM gathers surplus wild horses and puts them up for adoption so that the horses don't over-graze the ranges, and people who visit the BLM pens find it hard to believe that fifty stallions can actually get along with one another. But that's the way well-socialized animals of any species usually behave. In the wild, constant fighting is not normal.

On the plains, subordinate stallions live together in bachelor groups. There's one dominant stallion who has all the mares to himself, like a harem; the rest of the stallions all band together and live in another group. The bachelor group tracks peacefully along with the harem group until the day when the dominant stallion has grown weak due to age or illness, and is ready to be replaced by a younger, stronger stallion. Only then does the younger stallion challenge him, not before.

Stallions would have to get along with one another to stay alive. Prey animals live in groups; that's how they survive. Wild horses in herds take turns sleeping and keeping watch for predators. If they had to live on their own they'd be killed in their sleep.

I mentioned this in the last chapter, and I'll say it again here: the modern fancy stable is a super-max prison for stallions. When a stallion is raised in solitary confinement he never learns normal social behavior, and that's what makes him dangerous to other males.

While they're growing up, young colts learn that there is a give-and-take to social interactions. They also learn exactly how horses establish and maintain a dominance hierarchy. All animals who live in groups—and that includes most mammals—form dominance hierarchies. It's universal. Researchers assume that dominance hierarchies evolved to keep the peace, because when each animal knows his place and sticks to it you have less fighting over food and mates.

No one ever knows for sure why one thing evolved and another didn't, but in the wild dominance hierarchies are usually stable once they've been established. Fighting levels drop and remain low until a new animal is introduced or an old dominant animal who has become weak is dethroned by a younger, stronger animal. If the animals in a dominance hierarchy are too evenly matched you might see a situation where no clear winner is able to emerge, so the animals keep fighting. That's not uncommon, but it's not the norm. Dominance hierarchies seem to minimize fighting.

Domestic animals are the same. Growing up with other horses, a young colt learns that once a stallion has achieved a certain position in the hierarchy he no longer has to keep kicking or biting the other horses. He also learns that no one challenges the dominant stallion unless he has a good chance of winning. Dominance hierarchies among horses are not like competitive sports in humans, where individual competitors or teams go head-to-head for the life of the athlete or the team. Subordinate horses don't keep on challenging the lead stallion day in and day out until somebody gets lucky and wins. They wait until the lead stallion is ready to be deposed. That's the rule.

But a horse isn't born knowing the rules; he has to be taught the rules by other horses. A stallion locked up in solitary confinement in a fancy show barn is *not normal*. He's especially likely to show abnormal aggression. There may be another reason for this, besides the fact that isolation-reared animals haven't learned proper social etiquette. Horses are social animals, and it's possible that a super-max stallion becomes a psycho fighter from emotional damage due to too much time spent alone. He might have more easily activated rage and fear circuits in the brain.

When I was in high school the myth that no stallion can get along with another male seemed true, because when my high school

brought a fine big stallion named Rusty to the stable, all hell broke loose. Up to that point they'd had only mares and geldings, who all got along.

These horses were in a large field where there was plenty of room to move away from each other, but Rusty would charge wildly and bite and kick at the other horses. Soon it became obvious that Rusty could not get along with the others, so he was banished to solitary confinement in a pen between the horse barn and the dairy barn. Rusty had not been raised in a social group when he was a colt, and he was abnormally aggressive.

Raising young stud colts in a pasture full of older geldings will teach them some manners and create a good stallion that you can ride like a normal horse. People with fancy horses are actually abusing them with too much care. Young horses need to get out and have a chance to be horses.

It's not just stallions who can become aggressive if they're raised alone. A few years ago, I bought a piece of property on the west side of Fort Collins that has a thirty-acre horse pasture. Today my assistant, Mark, lives on the place and grazes his horses there. After the sale closed, I discovered that the big fat black gelding that was being boarded at my place had lived alone in my pasture for his entire life. Blackie was seven or eight years old, fully mature, and very gentle with people. He really liked to be petted, and I wanted to keep Blackie as a boarder.

But there was one major problem. Blackie was antisocial and he tried to kill every horse that was put in with him, male or female. On the thirty-acre pasture he would back a horse into a corner and kick it repeatedly with both back feet. I think that since Blackie had never learned any social skills he had never learned that once he had achieved dominance he no longer had to keep fighting.

After Mark moved into the farmhouse and brought his own horses with him, I learned that Blackie was now attacking Mark's horses. There was no way we could continue to board him, so Mark called the owner to come and take Blackie away.

Even cats are developing problems I think are due to isolated rearing. At the Colorado State University Veterinary Hospital there have been several "cat explosions" where the staff was severely bit-

ten. I've actually seen that written on the charts: "Assistant was carrying cat down hall when cat exploded." This may be due to the cat leading a too sheltered life so kitty is seeing her first dog there at the veterinary clinic and she goes ballistic.

Julie, the lady who does my Web page, got a severely infected hand from one of these "fear kitties." She had adopted a friendly shy cat and one day when it saw a dog it instantly turned into super-fuzz-ball Halloween cat and bit her wrist to the bone. That cat needed to see some dogs at an early age so she could get used to them. But today fewer and fewer house cats are learning about dogs. Some animal shelters even make adoptive owners promise never to let their cats out of the house. That might keep the cat from getting run over, but what happens when you take him to the vet? Pet owners need to socialize new kittens and new puppies to other animals not long after they bring them home. If they reach adulthood without being exposed to other animals, it's probably too late.

I think dogs may be starting to have aggression problems due to overly isolated rearing, too. All of the leash laws towns have passed may be having some adverse effects on dog socialization, because unless the owner makes an effort, many dogs do not get properly socialized to other dogs, or to other people. We need these laws, because stray dogs running loose can be dangerous, especially if a group of stray dogs starts thinking of itself as a pack. Several dogs together are more dangerous than one dog on its own, because *pack mentality* can set in. But leash laws have probably had a cost.

When I was a child all the dogs ran loose in the neighborhood and there were very few dog fights (and almost no dog bites to humans) as a result. Our golden retriever Lannie was subordinate to Lightning, who lived next door. Lannie knew his place, and when Lightning came near he calmly rolled over in submission. I never saw Lightning bite him. All the neighborhood dogs were socialized to one another, and they knew their place in the hierarchy.

The breeds were Labrador, golden retriever, German shepherd, and mongrel. No pit bulls or Rottweilers. The scariest dog in the neighborhood was a Weimaraner, who went stir-crazy in his owner's house. Butch did not get enough exercise and he was absolutely hyper from being locked up all day alone in the house. Anytime you



rang the doorbell Burch flung himself at the window beside the front door.

Burch turned out to be a killer of other dogs. One day Burch and the police department's German shepherd police dog were being walked in the park by their owners. Burch broke away and killed the policeman's dog. This is an unfortunate example of what can happen when a dog is not socialized to other dogs when he is young.

I'm a little concerned that leash laws may encourage dog-on-dog aggression even in dogs who *have* been well socialized to other dogs. One of my friends owns a highly dominant seventy-pound male mutt, and her next-door neighbor owns an eighty-pound male golden retriever who is also highly dominant. The two dogs played together throughout puppyhood, and were close friends. But as soon as their testosterone kicked in they began to fight, and they continued to fight even after both dogs had been neutered. They've had two battles now, both resulting in injuries bad enough that a veterinarian had to stitch them back up. Even worse, the owners had to break up both fights at high risk to themselves, because neither dog yielded. These are two well-socialized, well-cared-for, normal, healthy dogs who played together as puppies living next door to each other. And now they're trying to kill each other. That never happened in my neighborhood when I was growing up.

I should probably add that the fact that the mutt is just as aggressive as the golden retriever doesn't say anything about mutts versus purebreds, because the selection pressures on mutts should make them better socialized to *humans*, not to other dogs. This particular mutt is perfectly behaved with his human family and their friends and relatives. It's other dogs he has a problem with.

The reason I think leash laws may be part of the problem is that both dogs are kept inside their respective yards at all times. I'm guessing that leash laws may be short-circuiting some core principle of animal behavior in the wild. In nature, where animals are free to come and go, animals almost never seriously injure other animals who are familiar to them. But I've found that dogs living side by side in fenced yards often *do* hurt each other if they can, even when they've known each other for years. This may be a case where proper

socialization won't help. The dogs *have* been properly socialized, but their environment—a fenced-in yard—is "improper."

## ORPHANS AND OTHERS

Animal rescue programs also have had terrible problems with aggression, because the young animals they save are usually orphans. There've been horrible problems with orphaned elephants who did not have the opportunity to grow up with their own kind and learn proper elephant social ways. The males are the worst. When they grow up without an older experienced male to guide them, their behaviors become vicious and bizarre. Turning young orphan male elephants back into the wild has been a disaster. They will sometimes seek out rhinos and either kill them or try to mate with them. Their behavior is completely off-the-wall.

An animal who hasn't been properly socialized to his peers isn't dangerous only to other animals. He can be dangerous to humans, too. In social grazing animals such as horses, deer, and cattle, the hand-raised pet bull often becomes the most dangerous. The problem there is mistaken identity. A hand-raised bull calf thinks he's a person instead of a calf.

That's fine until he becomes sexually mature at age two, and instead of going out and fighting another bull to establish his dominance, he attacks the person who raised him. Bulls establish dominance by butting each other with their heads, and no human can survive being head-butted by a thousand-pound animal. It's essential that bull calves not get confused about their identity. They are cattle, not people.

Ranchers can prevent their cattle from identifying with humans by rearing calves with their mothers inside a herd of cattle. A study done by Ed Price at the University of California indicated that Hereford bull calves raised by their mothers almost never attacked people, but calves raised alone in small pens often attacked people when they grew up.<sup>19</sup>

When I visited Australia I heard a tragic story about a person who hand-raised a deer fawn to adulthood. One day when the

owner knelt down to photograph him, the deer interpreted the man's kneeling down posture as the head-bowing behavior of another bull challenging him. He charged and gored the owner to death with his antlers. It's so important to raise calves with their mothers. When a young bull calf or buck deer fawn is raised with his own species he'll direct dominance attacks toward his own species instead of toward people.

This will probably come as a surprise, but huge social animals like cattle are actually more dangerous to handle than big solitary predators like tigers. A bull can attack a person to achieve dominance, but a tiger won't, because a tiger doesn't care about dominance; constant jostling inside a social hierarchy just isn't part of a tiger's life. You have to be extremely careful not to trigger predatory aggression in any big cat, obviously, but that's all. Every year several ranchers and dairymen are killed by cattle challengers, and it's my opinion that the best way to prevent dangerous attacks on people is to raise highly social grazing animals like cows and horses strictly with their own kind. They should look up to people as a benevolent higher power. You don't want a cow directing any cow aggression at humans.

To help prevent attacks from orphaned male grazing animals, the animal should either be fostered onto a new mother or penned together with other young males. In both cases the young bull will learn that he is a bull, not a person. It is also important that the young bull be castrated at an *early* age. By early, I mean the animal should be castrated before he has matured physically. (Dogs are usually castrated after they've reached physical maturity.) Castration will greatly reduce aggression in grazing animals. If a bull calf is castrated at a young age he can be safely raised in your backyard. That's why kids in 4-H and FFA (Future Farmers of America) show thousands of steers safely every year. They aren't raising bulls.

## SOCIALIZING ANIMALS TO PEOPLE: DOGS

Domestic animals have to be socialized to people, too. We call dogs man's best friend, but one and a half million dogs get put to sleep every year because of behavior problems the owners can't live with.

A lot of those problems are dog bites. If you are going to get a dog, you can't plan on preventing dog bites by keeping your dog safely locked up in your house or yard, either, because dogs almost always bite people they know, usually people they know well. Around four and a half million people get bitten every year, and the Centers for Disease Control report that over 75 percent of the dogs in these incidents belong either to the family of the person who got bitten, or to a friend.<sup>20</sup>

Predator animals are built to hunt and kill, and they're less fearful than prey animals. That makes them *potentially* dangerous to people for two reasons: a person can accidentally trigger a predator's killing bite instincts through sudden movement, *and* a predator animal is less afraid of expressing angry aggression. Left to their own devices, dogs can become dangerous to other dogs, to cats, and to humans, and you can easily train a dog to be hideously ferocious if that's what you want. Dogs are so aggressive by nature that the Monks of New Skete say a trained guard dog is like a loaded gun, and families should not own them. Only a professional can live safely with a trained guard or police dog.

That fact alone tells you a lot about the difference between predator animals and prey animals. You couldn't train a horse to be an "attack horse" even if you tried, although a horse who feels threatened can be very dangerous. You can create an "attack animal" only out of a predator animal like a dog. So if you're going to own a dog, you need to teach him that it is unacceptable for a dog to threaten or bite a person.

It's especially important to socialize dogs to children. Most of the fatal dog bites involve young children, because they're low to the ground and they run around a lot. The dog mistakes the small running child for prey, and attacks. *All* predatory animals have to learn which animals are prey and which are not. A dog does not know that your two-year-old is not prey unless you specifically teach him this while he's still a puppy.

You also have to be careful to teach your puppy that *other people's two-year-olds* are also not prey. That's easy; you just have to make sure your puppy gets exposed to toddlers who don't live with you. Since a lot of toddlers love to run up to strange puppies and hug

them, you can accomplish this by taking your puppy for walks in parks where parents bring their children to play, or in neighborhoods with lots of families. After your puppy has met a few little kids on outings, he'll know that small children are not prey. I want to stress that it's essential to introduce your dog to other children in other families, because to a dog, *your* two-year-old and *the neighbor's* two-year-old are two different categories; they're apples and oranges. A puppy doesn't automatically generalize don't-attack-Johnny to don't-attack-Joev.

## KEEPING THE PEACE

This brings up the question of dominance. *All* animals who live in groups—and that is most mammals—form dominance hierarchies. Animals are not democratic and there is always an alpha animal, and often a beta animal, too. Dogs have an alpha male who is dominant over the others, as well as a beta male who is second in line to the alpha.

Dog owners must establish themselves as the alpha, period. *This is the one rule you must not ignore.* A dog who thinks he's the alpha in the house is dangerous, because dogs will fight any lower-ranked pack mate who challenges them. If the family dog becomes the alpha he's going to be especially dangerous around important resources like food and his resting place. He'll bite family members who come too near his dog dish or sit down too close to him on the sofa when he's taking a nap. He's definitely not going to cooperate with any trips to the vet, either.

This happens more often than you'd think. There are plenty of households where the dog is the alpha. You can't necessarily avoid the problem by getting a female dog, either. According to the American Veterinary Medical Association, 80 percent of dogs brought in to see vets because of dominance aggression are unneutered males, but you can definitely have dominance aggression in neutered males, and in females, too, whether they're neutered or not. Actually, when it comes to females, Nick Dodman says that an aggressive female can actually get worse after she's been spayed, because she doesn't have as much progesterone in her system to calm her down.

Even though unneutered males are the biggest biters, neutering a dog once he's *started* to bite probably won't solve the problem. With animals, there's a huge difference between preventing aggression in the first place and trying to stop it once it's developed. Dr. Dodman says that in his experience neutering a male doesn't make him any less dominant, or any less likely to bite a *human*. Neutering an aggressive dog mainly keeps him from biting other dogs—but not because he suddenly becomes submissive. Neutering probably decreases dog-on-dog aggression only because the neutered dog stops smelling like a male to other males, so other males don't challenge him as much. It's not that the neutered dog is any less dominant after he's been altered; it's that other male dogs are nicer to him.<sup>21</sup>

One of the most upsetting situations with an aggressive dog I've seen over the years happened to a family I knew with two very young boys and a father who wasn't very nice to the mom. The dad was always saying mean things to her in front of the boys and the dog. Then, when the boys were still little, the family broke up. The mom took the boys and the dog and moved to another state to start graduate school.

Not long after that the dog went crazy. He began threatening to bite the mom if she tried to pull him someplace by the collar, and he constantly tried to keep her from leaving the house. One registration day as she was getting into her car to go sign up for courses, the dog jumped in the back seat and wouldn't get out. He growled and snapped viciously at her face each time she tried to take hold of his collar to pull him out. He ended up sitting inside her car the whole day, until *he* decided it was time to get out. Things got so bad that the only way the mom could manage the dog at all was to trick him by throwing a piece of steak wherever she wanted him to go, then slamming the door behind him when he ran after it. Her friends were all frightened of the dog, and so was she.

Her boys weren't doing well, either, and the child psychologist she took them to see said that the dad had treated her so disrespectfully her sons didn't trust her to take care of them. They didn't think she could do it, and they were scared.

This was probably a case of disrespectful behavior inside the family affecting the dog as well as the children. The husband was probably the

absolute alpha in the dog's eyes. The dog may even have concluded that he was the beta animal, because the wife was so downtrodden. So when the husband disappeared the dog immediately challenged the wife for alpha status. That is always a dangerous situation.

I lost track of the family not long after the registration day incident, so I don't know whether the mom was ever able to get the dog under control or not. Things had reached the point where she needed to hire a trainer, but I knew she couldn't afford it. I hope she thinks worked out for them, but it didn't look good.

Establishing dominance over a dog is easy. Many people think that exerting dominance means beating an animal into submission, but that's not true at all. I am totally against rough *alpha rolling of dogs*, which is still used by some police departments to train police dogs. In alpha rolling a person throws a dog over on his back and holds him down. Rolling over and exposing the belly is a hardwired instinctual behavior in dogs, and a well-socialized adult dog usually rolls over on his back to be petted. That's why you want your puppy to spend some time on his back looking up at you; just being in that position reinforces the fact that he is subordinate to you.

But you shouldn't *force* him onto his back. When two dogs from the same pack meet, the subordinate dog will voluntarily roll over; the other dog doesn't shove him over. When a dog is forced into this position by a human the hardwired submission behavior does get turned on, but when the dog stands back up he does not forget having been forced down. Someday, when your back is turned, he will bite you in the butt.

A much better way to train the dog is to make rolling over a fun game for him through tickling or stroking his chest or belly and offering food treats when he rolls over. This makes the dog get into the position of submission without anything aversive being done.

I also want to say something about the overall issue of punishment in animal training. I am totally against using punishment to teach an animal new skills. In almost all cases animals can be trained to do tricks or develop skills using positive methods.

The one exception is stopping dangerous prey-drive-motivated chasing of joggers, bicyclists, and cars. In this situation a shock collar may be needed. If you do have to use a shock collar to stop your

dog from chasing people and cars, it is important that the dog never figures out that it's the collar that gave him the shock, so you should leave the collar on for a few days before using it. When your dog receives a correction for chasing a jogger, you want him to think that the dog god did it.

The best ways to establish dominance are obedience training and making the dog sit quietly before he is fed. The dog should learn that he eats on his owner's terms. You can also do things like going inside the door first before letting your puppy enter, putting your hand in his food dish while he's eating, and playfully coaxing and rolling him over on his back (*not* throwing him over). Some trainers even recommend growling at your puppy like a mama dog and nipping him on the muzzle when you're giving him a correction. I know that sounds dangerous, but with a puppy it's not.

You also have to do at least some obedience training. Obedience training just means teaching your dog to obey a few commands. The commands can be anything you like. You could get fancy and train your dog to herd sheep, bring your slippers, or wear a tutu and spin around in circles; it doesn't matter. The important thing is that the dog learns to obey commands from his master.

You have to do obedience training no matter what your life is like. Even if you live on a great big ranch where your dogs can run free they still have to be obedience-trained, because your dog has to know you're the boss or you are creating a potentially dangerous situation. That's the whole point of obedience training—*obedience*. Not teaching your dog how to do tricks. Obedience training establishes the owner as the alpha.

It's amazing how easy it is to dominate a dog. When I was in college I went to visit a friend's house and they had a hound who had become totally dominant. If Bernie wanted the softest chair, that was the chair he was given. He was number one. He also had the disgusting habit of lifting his leg and urinating on every guest. Bernie was the king.

But there was one guest he never peed on and that was me. He also never growled at me, or asked for my chair. Maybe it was my posture and attitude, because I never did anything bad to that dog. It shows how tuned in to people dogs are. That dog just *knew*, prob-

ably from watching me, that I would not tolerate being peed on, growled at, or any other obnoxious behavior.

## PACK MENTALITY

Even when you establish yourself as the alpha, you can still have problems with other dogs, either with dogs in the neighborhood or other dogs in the household. Dogs need friends, and if you're going to be away at work all day I recommend owning two dogs, preferably a male and a female. But I'd stop at two, because more than two dogs in one house can be a big problem if the dogs are too evenly matched in size, age, and strength. With closely matched animals the dominance hierarchy may not stabilize, because no leader is able to emerge and the dogs continue to challenge each other. If you're going to have more than one dog the best plan is to stop at two, and to have one dog of each sex.

Another reason to stop at two is that dogs in a pack are much bolder and more aggressive than one dog on its own. *Pack mentality* is real. I mentioned the collie who pretends she doesn't notice the two barking German shepherds whenever her owner takes her for a walk. One day my friend took the collie and her other dog, the golden retriever, out for a walk along with the neighbor and *her* two dogs. The four dogs knew each other well, and probably felt like a pack.

This time the collie was a completely different dog. When they got to the German shepherds' yard and the two shepherds rushed the fence, the collie went nuts. She was slamming herself into the fence, barking, and racing back and forth from one end of the fence to the other chasing those dogs. She was really cussing them out, and it was all because *she was in her pack*.

She refused to leave, too. Her three friends got totally bored tanning those poor fenced-in dogs, and kept trying to get the collie's attention so they could go on with their walk, but the collie wouldn't budge. It was like she was making up for lost time. Her owner finally had to drag her away.

A dog pack can be incredibly dangerous to humans. A couple of years ago a ten-year-old girl in Wisconsin was killed by a pack of six Rottweilers while she was playing at her friend's house down the

street. There were two adult dogs and four puppies in the house (which was a violation of a city ordinance limiting the number of dogs per household to three) and apparently the little girl began to pet one of the puppies, and one of the adult dogs got jealous and bit the girl. That set off the pack and they attacked.

Opinion varies on how to keep the peace if you do have more than two dogs. Most people, though not all, say you should always handle and pet the dominant dog first. The king must be treated like the king, although the ultimate leader is you. If you don't respect the dogs' natural hierarchy you can put the underdog in danger. Dr. Dodman has a horrible story about a pack of Chesapeake Bay retrievers living with a lady who indulged them totally and never gave them any obedience training. She lived alone, and the dogs were her surrogate family. Of course, in a real family children don't just naturally sit around behaving themselves nicely and saying "please" and "thank you." Children have to be obedience-trained, too.

The pack in this lady's house had formed a natural hierarchy, with two dominant dogs on top, two or three middle-ranking dogs, and two underdogs. But the lady refused to respect the ranking, and always lavished lots of time and attention on the two underdogs whenever she came home.

All that attention was provoking the top dogs into launching vicious attacks on the bottom dogs. Dr. Dodman told the lady she needed to greet and feed the dominant dogs first when she came home, but she wouldn't listen, and kept on showing favoritism. The whole thing ended in disaster. First one of the underdogs was badly injured and the lady decided the only way to deal with the situation was to have the little underdog put down. Then the one remaining underdog was horribly injured by the two top dogs and the lady had the two *top dogs* put down. All three dogs died just because this lady wouldn't listen to good advice.<sup>22</sup>

## WORKING WITH THE ANIMAL'S NATURE: FARM ANIMALS

A human owner has the responsibility to understand and respect his pet's nature. *Dogs and cats are predator animals.* Dogs are hyper-

social predators who live in dominance hierarchies. If you interfere with the hierarchy you can get the low-ranking dog or dogs killed by their own pack mates. You have to work with an animal's emotional makeup, not against it.

Domestic animals such as pigs, cattle, and horses are less controlled by purely social stimuli than dogs, so with these animals it's especially important to exert dominance the way another animal would do it. I learned this lesson when I was raising piglets as part of my Ph.D. work in animal behavior. My piglets lived in a Disneyland of straw with lots of different objects to root and tear up. I would sit with my piglets for hours and watch their behavior.

The one I named Mellow Pig would instantly roll over when her belly was scratched and would actively solicit people to rub her belly. But the largest pig in the pen did not like being petted at all, and she was the dominant boss hog. She thought she owned the place. Her coloration was what an Illinois farmer calls a blue butt; she had white fore-quarters and a grayish blue-gray rear. I named her Big Gilt.

When Big Gilt reached a hundred pounds, she started biting me whenever I entered the pen. The other pigs sought petting and stroking but Big Gilt disdained it. She just wanted to be boss. The bigger she got the worse the biting got and I had to stop it.

I tried waving my arms at her and shouting, but it didn't help. In desperation once I even tried slapping her big blue butt. That did no good, either. Finally I figured out that I had to act like a pig. I needed to assert my superior dominance by biting and pushing against the side of her neck the same way another, bigger pig would.

So, to simulate another pig biting and showing against Big Gilt's neck I used a short piece of a one-by-four-inch board, about eight-*een* inches long, to poke and shove her against the fence. That's what the winner pig does: the winner pushes the loser away, or up against a wall. I shoved the end of the board repeatedly against her thick neck and I made it very clear that I was stronger, which I was. A full-grown human can still push around a hundred-pound hog. I didn't hurt her, but I did dominate her.

It worked like magic. Big Gilt stopped biting me and I was now Boss Hog. Using the hardwired instinctual behavior pattern was much more effective than slapping her. The only problem with this

method is that it has to be done when the animal is young enough so you can still easily push the pig away. Again, I want to emphasize that I did not beat her up. She was overpowered by a stronger being who applied pressure to the right spot. Pushing the board against her neck turned on a hardwired instinctual submissive behavior.

After that Big Gilt was now polite when I entered the pen and she never bit me again, but she still did not like petting. One day while I was stroking Mellow Pig on the belly I started to rub Big Gilt on the belly, too. Since I was now the boss she didn't run away, but she clearly didn't like it. The strangest thing happened. Hardwired instinct collided with clear conscious will. Rubbing her belly triggered the instinctual rolling over behavior, but only the rear end of Big Gilt rolled over. Her front end remained standing when her hind end collapsed. The whole time I was stroking her a horrid growling sound came out of her throat. I had turned on the pleasure response to a belly rub, but the other end of Big Gilt did not want to give in. She did not dare bite me and she did not try to run away, but she surely did not like it.

### PREVENT AGGRESSION IN THE FIRST PLACE

If I'd known more about animals I would have started establishing myself as Boss Hog a lot sooner, since as I mentioned earlier it's better to prevent aggressive behavior in the first place than to try to change it once it's developed.

Once an animal *has* developed aggressive behavior, in most cases it's going to be easier to deal with in prey animals than in predators. A good example is my friend Mark's horse, Sarah, who's nasty around the feed trough. Sarah was not reared alone, so she doesn't have the kinds of problems Blackie did. She's just got a bad attitude when it comes to food, and she'll chase away all the other horses so she can have the food to herself. I've seen a lot of horses do that.

All Mark has to do to deal with Sarah's nippiness is feed her last. Then, after she gets her food, if she still tries to run the other horses off he chases *her* off instead. It works like a charm for about two weeks. Sarah has perfect manners at the feed trough. Then she starts getting nasty again, and Mark repeats the procedure.

I talked to a vet student who has the same problem with a horse she owns, and she uses a slightly different version of the same technique. She doesn't feed *any* of the horses until they're all standing nicely at the trough, with their ears forward. Then she feeds them all at the same time. If anyone has their ears pinned back—any of the horses, not just the problem horse—no food. It's not hard to get the group of horses to turn their ears forward, because that's what horses do naturally when they're paying attention to you. She just waits them out, until all of them are focused on her instead of on each other. She uses Mark's approach only if her horse tries to chase the others away after the feed has been put out. Then that horse does get fed last. She said her system works really well.

The point is, you have to do a lot of emotional damage to a prey animal to turn it into a killer. As we've seen, if you lock a stallion up alone in a stall for his whole life, with no socialization at all, he could become aggressive. He might rear up and strike at people. That's dangerous, but only because the stallion is so big. He isn't actively trying to kill the person he's kicking. There are always exceptions, of course. Just recently I read a report about a stallion in Poland who became aroused by a nearby mare and then attacked and killed his owner, who was trying to calm him down. The report said that the horse bit his owner's jugular vein and also damaged his spine, so this was obviously a vicious attack. Still, a horse attacking and killing his owner is so unheard of that even though it happened in Poland we read about it here.

Bulls do kill people with some frequency, but when they do they're almost never trying to kill; they're challenging the person for dominance. Bulls don't kill each other when they're fighting for dominance, but because a bull is so big, and because bulls use head butting to win dominance contests, the human gets crushed against a fence. The bull doesn't understand how much bigger and stronger he is.

Even though you can handle aggressive behavior in most, *though not all*, prey animals, it's always better to keep aggressive behavior from developing in the first place. With prey animals that means good training and socialization, but not dominance training per se. I think in the old days a lot of animal handlers didn't understand the

difference. They thought any kind of training was also dominance training because the trainer was in charge. That's probably where the idea of breaking a horse's spirit came from. You shouldn't break any animal's spirit, horse or dog, but a nervous prey animal like a horse or a cow doesn't need to learn obedience as a separate concept the way a dog does. A cow or a horse who's being trained just needs training, not dominating; a dog needs training, but he also needs dominating. A dog needs an alpha, or else he'll be the alpha himself. With prey animals even an aggressive, nippy kind of horse *usually* isn't much of a problem to manage.

It's *never* easy to manage an aggressive dog. The only person equipped to deal with an adult dog who bites is a professional who specializes in aggression, and even then your chances of turning the dog around are not good. Dr. Bonnie Beaver, a veterinary animal behavior specialist at Texas A&M, says that a typical case of dominance over humans gets worse, and Dr. Dodman, who treats dominance aggression, reports that only two out of three of dogs with dominance aggression end up getting a lot better, even with a formal retraining program. The other third still have problems, although most of them are safer to be around than they were. But many dogs do not improve at all. These are dangerous animals.

It's also easy for most dogs to become biters if they're allowed to hold alpha status over their owner. We don't know exactly why it's so easy to teach a dog not to bite in the first place, but so hard to teach a dog to stop biting once he's started. Why can't you turn back the developmental clock and retrain an aggressive dog the way you train a puppy?

Dr. Dodman has done research showing that in some cases the problem is the owner.<sup>23</sup> "Emotional" owners aren't as successful at retraining a dominant aggressive dog as "rational" owners who can stick to a retraining program. Maybe people who were too "kind-hearted" to be firm trainers and disciplinarians in the first place can't suddenly turn themselves into good trainers just because an animal behaviorist has told them that they have to do it. If they had established themselves as the alpha early in their dog's life, they would not have a biting dog. This is true for all *normal* dogs. There are some dogs who are genetically bad, dangerous dogs, the same way

the rapist roosters were genetically bad, dangerous birds. Such dogs have to be euthanized. But if you own a normal dog, you can prevent aggression by doing enough obedience training to establish yourself as the alpha.

I think the main reason you can't train a dog back out of aggression as easily as you can train a dog into aggression is that the genetic has been let out of the bottle. All dogs have a natural drive to be the alpha. Owners have to teach their dogs to think that it's impossible for a dog to dominate a human. It's not just a bad thing, it's an *impossible* thing. Once a dog has discovered that he can dominate people there's no turning back. You can't un-teach this knowledge; you can only try to teach a biting dog to inhibit his impulse to compete with his owner for dominance.

This is what happens with the big cats. In *Out of Africa* Isak Dinesen tells a story about a young pet lion named Paddy. Paddy was tame, and was nice to everyone at the ranch where they lived, although he'd never been socialized to children. Then one day someone brought a little girl to visit, and Paddy accidentally knocked her down. He didn't hurt the little girl, and he didn't do it on purpose.

But that very night Paddy went out into the pasture and killed a bunch of livestock, and from then on he had to live in a cage. He had learned that he was a lion, not a big house cat. That one moment of experiencing his power over another creature, when he knocked down the little girl, was enough to wake up his real nature.

Triggering a predator animal's aggressive nature is so dangerous that big cat handlers can use a trained lion or tiger only a few times in TV shows and movies if the scenes involve knocking down a human being. Even when a trained lion or tiger gently bumps against a human being *on command* it will soon become too dangerous to work with.

The moral for lion tamers is, Don't let this kitty ever find out that he weighs seven hundred pounds. You can arrest an animal's emotional development by not giving it a chance to figure out its strength and power, but you can't make him *un-learn* his strength and aggression once he knows it.

## HANDLING FEAR AGGRESSION

Not all dogs who bite are dominant. *Shy biters* bite people because they're afraid, not because they are dominant. German shepherds who bite are usually shy biters. They are nervous animals.

Shy biters are somewhat less dangerous than dominant biters. They are dangerous mainly when the owner is around to give them courage. If a shy biter sees a stranger or a neighbor he's afraid of when he's alone, he'll usually just try to get away. If he can't get away, he will bite the stranger from behind because that's less frightening than having to meet the person's eyes. Shy dogs will avoid eye contact with everyone but their owners at all costs. That's just as well, since if you're going to get bitten by a dog it's better to get bitten on the ankle or the thigh than in the face. All in all, shy dogs are probably not as dangerous as they seem.

A *dominant* scared dog is different. Dogs who are both dominant and fearful can bite any time and place. They will bite with their owners present, or with their owners long gone. And when they bite, they can go straight for the face. Because they are dominant by nature, running away isn't an option. They have to attack. I don't think anyone knows exactly why a shy dominant dog is as potentially dangerous as he is. Is it just because he has two different reasons, fear and dominance, to bite people, which raises the odds that he will? Is it because when you mix fear and dominance together the dog's emotions are heightened and his ability to control himself is impaired?

I do know one neutered male dog who's highly dominant and fearful. He's not a shy biter, because his owners realized how dominant he was early on and did everything right, so he knows he's not the alpha.

But he's a big problem with other dogs. He'll try to attack any dog he sees on walks with his owners, and he can never be let off a leash in public or taken to a dog park. This is a dog who was well socialized to other dogs as a puppy, and yet was so dominant by nature that he still managed to get into two fights with the neighbor's dog. He won the first fight but lost the second one, and has been acting more and more terrified of other dogs ever since.



If he were a submissive dog by nature, that might not matter, because he would just avoid looking at the dog who was scaring him. But since he's dominant by nature, the instant he feels threatened by another dog he attacks—and he feels threatened all the time. Just the sight of another dog minding its own business seems to threaten him. This dog's behavior reminds me of a well-known study of anxious children versus oppositional children. (Children with *oppositional defiant disorder*, or ODD, are kids who are so angry and disobedient that their behavior disrupts their school or home life.) Both groups of children interpret ambiguous situations as being more threatening than typical kids do, but where an anxious child copes by avoiding the threat the oppositional child will become aggressive.<sup>24</sup> I don't think a dominant dog is the same thing as an oppositional child, but the fearful dominant dog I know seems both to exaggerate threats *and* to react aggressively to threats once he's blown them up out of all proportion in his mind.

Regardless of what makes a shy dominant biter tick, once *any* dog has begun to bite out of fear, you have an animal who is never going to be completely safe again, because no animal can be completely trained out of fear.

If you've never lived with a dog, by now you may be thinking the best idea for anyone who's especially safety-minded is to just stay away from any animal larger than a small cat.

But that would be the wrong conclusion. The human relationship with domestic animals goes back a long way, and people need animals in their lives. Until recently most experts believed that humans and dogs paired up together 14,000 years ago, but more recent research on dog DNA shows that humans and dogs may have been keeping company for over 100,000 years. Dogs really are man's best friend.

The reason dogs don't kill humans more often than they do isn't that owners are brilliant trainers. A lot of owners don't know the first thing about obedience training. The reason dogs don't kill humans is that in 100,000 years of evolution dogs have developed a lot of ability to inhibit aggression against humans, and humans have

developed a lot of ability to *manage* dog aggression, whether they've ever read a book on obedience training or not. I think humans have probably evolved some innate ability to read dog language, or at least to learn to read it quickly.

A friend of mine told me an interesting story about this. She adopted a puppy from an animal shelter who quickly began showing signs that he was destined to be a highly dominant dog. When the puppy was only a few months old it started to growl at her seven-year-old son. A couple of weeks later the puppy bared his teeth and growled at a six-foot-four plumber who came to the house to fix the toilet.

The first time the puppy growled at her son my friend was sitting in another room and she called out to her son, "Why did Buddy growl at you?"

Her son, who had never lived with a dog in his life, said matter-of-factly, "Because I was on his chair."

He was right. Buddy had growled because he was lying comfortably on his favorite chair, which naturally was the biggest, softest chair in the house, seeing as how he was such an alpha kind of guy—and then the boy came in and sat down on it with him! Buddy didn't like that, and he told the boy he didn't like it in no uncertain terms.

And the boy understood. He knew exactly why his family's new dog had growled at him without having to be taught—without even having to think about it. He got the message.

Through all the years dogs have been living with humans they've developed a lot of ability to read people, to know what people are thinking and what they're likely to do. We know this from research comparing dogs to wolves. Even a wolf who has been hand-reared by human beings never acquires the ability to read people's faces the way any normal dog does. A human-reared wolf mostly doesn't look at his master's face, even when he's in a situation where he could use his master's help. Dogs *always* look at their owner's faces for information, especially if they need help.<sup>25</sup>

I think that as dogs were learning how to read us, we were learning how to read them. The reason dogs don't hurt people more often is that dogs and people belong together.