

## DREAMING OF GWEN STEFANI

By Evan Mandery

### — Chapter 12 —

On the first meeting of Biology 235: Introduction to Evolutionary Biology, in September 1990, Professor Fillmore Skinny posed the following questions: “What separates man from other animals? What makes humans human?”

Hands shot up.

“Ability to speak.”

“Ability to reason.”

“Guns.”

“The New Kids on the Block.” (This was a popular musical group at the time, a joke. Most people have forgotten the New Kids, but at the time their immortality seemed assured.)

Professor Skinny wrote all of the answers on a green chalkboard at the front of the lecture hall, arranging the responses into logical groupings: language, art, agriculture, self-destructive behavior, and so forth. By the time the class had exhausted itself the list had grown to an impressive size, two dozen or so items in all. He then dismissed the students without another word.

At the next meeting of the class, the chalkboard remained in its place on the stage. Skinny entered, wearing a tattered brown suit and bow tie—his customary costume—and pointed to the first word on the list: “language.”

“Vervets,” he said. “Vervets are a cat-sized breed of African monkey. They talk. When vervets see a leopard, the males give off a loud series of barks and the females give off a high-pitched chirp and all of the monkeys in the vicinity scramble up trees. When a vervet sees a martial eagle—the leading killer of vervets—it emits a short cough of two syllables. Nearby monkeys look up or run into the bush. If a vervet sees a dangerous snake, it chutters, and the vervets in the area stand on their hind legs and look down.

“Their vocabulary doesn’t end here. Vervets have words for baboons, jackals, hyenas, and unfamiliar humans. When vervets interact with other vervets, they grunt. They have different grunts for when they approach dominant monkeys and subordinate monkeys, and for when they see a rival troop. They have a vocabulary of at least a dozen different words, and these are only the ones that scientists have been able to decipher so far.

“But animals don’t have grammar, you say. Well, dolphins do. Marine biologists have trained dolphins to recognize symbols for dozens of nouns and verbs. They have also taught them linguistic instructions, like ignoring the previous word in a sentence. For example, say this to a trained dolphin: ‘Bring ring delete ball’ and the dolphin will bring the ball.

“Research in humans shows that the ability to learn language is genetically determined. People with a defect on the eleventh chromosome suffer from an affliction called Williams Syndrome. These people have rich vocabularies and something resembling an addiction to using flowery speech. Ask them to think of an animal and they will more likely pick an egret or an antelope than a cat or a dog. But they are severely retarded.

“People with a different defect on chromosome 11 suffer from something known as specific language impairment. They can memorize grammatical rules, but they cannot apply them instinctively. They know by heart that the plural of ‘dog’ is ‘dogs,’ but ask them the plural of an unfamiliar word, like chriropodist, and they’re stuck. Passive voice, suffixes, word choice rules, all give them problems too. And it’s entirely hereditary.

“So if animals other than humans have language and if the human ability to speak is genetically programmed, then this doesn’t really belong on the list, does it? If anything, the evidence

suggests that humans are more like other animals than not. It suggests instead that other animals have sophisticated linguistic capabilities, more sophisticated than we like to believe, and that it is only a matter of time before we comprehend these capacities better. The evidence certainly does not suggest that humans are unique in any way.”

With that Professor Skinny walked over to the chalkboard and unceremoniously drew a line through the word “language.” Then he walked out of the room.

So it went throughout the semester. The chalkboard never moved from its place at the front of the lecture hall. Each day Professor Skinny pointed to a different item on the list. Each day he explained how the type of behavior in question had a direct analogue in other animal behavior and the overwhelming evidence that it had been genetically programmed.

It was quite a disheartening process watching him dispose of all of the characteristics we think of as uniquely human. One especially depressing day he tackled the subject of human personality. “Perhaps this should not even have been on the list in the first place,” he said. “We all know animals with personalities: friendly dogs, impatient cats, an antisocial bird. What makes human personality different, you say, is that we can choose to be how we are. Animals are how they are, but it is up to us to shape our own temperament. Is it?”

“Monkeys that are dominant in their social group have high levels of a chemical called serotonin. They are not especially big or fierce, as you might think. They are levelheaded, less impulsive than ordinary monkeys, less likely to interpret play as aggression. Monkeys with low levels of serotonin are more likely to be aggressive and ill-tempered.

“Scientists have studied serotonin levels in CEOs and fraternity presidents. Guess what they found? People in leadership positions have higher serotonin levels than their subordinates. People with low levels of serotonin are more likely to be aggressive and ill-tempered.

“Both monkeys and people can be manipulated. Low cholesterol diets reduce serotonin levels. Monkeys fed low-cholesterol diets become forty percent more likely to take aggressive action against a fellow monkey. Humans given cholesterol-lowering drugs become more violent too. They are far more likely to die from suicide or murder. Cholesterol treatment is a two-edged sword. It cuts the risk of a heart attack by fourteen percent, but it increases the risk of violent death by seventy-eight percent.

“Chemicals control every type of human behavior you can think of. Dopamine dictates motivation. People with low dopamine levels lack initiative. People with lots of dopamine ride motorcycles and jump out of airplanes. A neurotransmitter called norepinephrine stimulates the metabolism. It also makes people shy and apathetic. Scandinavians have lots of it; it helps them to withstand the cold.

“Every one of these different chemicals can be regulated. Doctors do it every day to treat everything from depression to schizophrenia to all sorts of compulsive behavior. Humans do it every day too. Cocaine stimulates the release of dopamine, fatty foods the release of serotonin.

“So you say, all this proves is that there are lots of chemicals that affect human personality. What news is this? Everyone knows that each person has a predisposition to act in one way or the other. But what does this prove? What matters more is the environment in which they are raised. No matter how anyone is born, they can be raised to be anyone or anything. Nurture matters more than nature, right? Well, consider this: A Harvard psychologist studied shyness in children. He found that he could identify shy types by as early as four months, and could predict how shy or confident these babies would grow up to be as adults. That’s before the babies learned to talk, before they interacted with other children. They can’t even see or hear very well at that age, and yet their personality had already been formed. Studies of twins, children of immigrants, adoptees all show the same thing: people get their personality from their genes, not their parents.

“You want to believe that your personality is your own. You think some things about yourself are distinctively your own, such as your clothes, the decorations in your dorm room, who your friends are. Genes don’t determine these tastes, you say. For each of these things, answer me this: who chose them? Do you like Coca-Cola because it is better or because advertising has made you believe it tastes better or because evolution has conditioned you to seek sweet foods that give quick energy boosts? Do those of you smoke do so because you have made the choice that nicotine addiction is good for you or can you just not stop and not even remember the reasons you started, maybe because your friends did it, or because it looked cool? Where do your conceptions of beauty come from? Do you look for people with good qualities? Or do you find yourself drawn to men and women in magazines and movies, people who don’t even look like that in real life, for reasons you can’t explain. Have you ever once in your life said to yourself ‘I should like this’ and succeeded in teaching yourself to like it? Not to tolerate it, but to genuinely like it?”

“Who is in control?”

“Who are you?”

Then he crossed personality from the board.

One by one they fell.

Art. “New Guinean bowerbirds,” he said. “They build circular huts, as big as eight feet in diameter and four feet in height, with lawns of green moss decorated with flowers and fruits and leaves, all grouped together by color—reds with reds, blues with blues. They are magnificent, manicured with a degree of care that any lawn-mowing suburban husband would envy. Why do they do it? To attract mates. Female bowerbirds choose their companions by the quality of their bowers. Different for humans, you say. It’s about the art, for us, the aesthetics. Is it? Listen to rock and roll musicians talk about why they got into music. Or artists, or sculptors. They all give the same answer: girls. Maybe later it means more to them. But that’s later.”

Agriculture. “Leaf-cutter ants. They cut off leaves and slice them into pieces, which they use to cultivate fungus in their underground nests. They manure the leaves with ant saliva and feces and seed the leaves with their favorite fungus. As if they are weeding a garden, they remove the growth of any foreign species that crops up on their farm. When a queen goes to start a new colony, she carries with her a culture of the fungus, like a farmer taking seeds to the New World.

“Some ants keep cows. They feed on the sweet secretion of a variety of bugs—aphids and mealybugs, caterpillars and spittle insects. In exchange for the honeydew, the ants protect their cattle from predators and parasites. Some aphids have evolved to exist quite comfortably in this life; they are rather like domestic cattle. They have no defense mechanisms of any kind. They excrete the honeydew through their anus with a uniquely evolved mechanism that allows them to hold the sweet drop in place while an ant drinks it up. To stimulate the syrupy flow, the ants stroke the aphids with their antennae.”

Self-destructive behavior. “Humans flaunt their smoking of cigarettes and consumption of alcohol. Surely, you say, they are alone in the glorification of this self-destructive behavior. Are they any different than a male bird of paradise, which grows a tail three feet long, or a long plume growing out of their eyebrows, to attract a mate, even though the showy features are just as likely to attract a hawk? Both flaunt what they have, both publicly damage themselves, as if to say my genes are so strong that I can do this and still function well. Is one any different from the other? Is it rational to smoke? Is it rational to maintain a three-foot tail?”

So it went, day after day, week after week. Along the way, Skinny pointed out many disturbing things. One day he brought in a photograph of a chicken. The chicken’s feathers had been cut and its thighs tied behind its ears, in the way they are often sold in stores. The picture had been taken from underneath the chicken, so its head was not visible. One could not tell what type of

animal it was. He juxtaposed this against a photograph of a human being, similarly shorn, taken from the same angle.

It was hard to tell which was the chicken.

And which was the human.

He brought in pictures of human fetuses at different stages of development. At three weeks, the embryo most closely resembles a worm. At four, it has gills and webbed hands and looks decidedly reptilian. To make the comparison more striking, he placed the human pictures against photographs of animal embryos at similar stages of development. It was virtually impossible to tell the human embryo apart from the embryo of a pig or a rabbit or an elephant. It is only in the last few weeks of development, the last ten percent of the gestation period, that the fetus looks distinctively human.

The pictures drew groans from the students. They did not enjoy looking at chicken rumps or thinking about the fact that they once looked like lizards while inside their mothers' wombs. But this seemed to please Skinny all the more. He relished their moans of protest, went to great lengths to offend their sensibilities.

But nothing pleased him quite so much as crossing another item off the board. He performed this task with a flourish and conspicuous glee, as if he were vanquishing an especially hated enemy. And vanquish the enemy he did. One after the other the items disappeared from the list, fallen soldiers in a bloodless war, Skinny systematically savaging them, with his mind and a stick of chalk. He dispensed of them all, until only a single item remained.

Love.