



**BEHIND THE SCENES WITH PBS:  
THE EMOTIONAL ANIMAL  
FRED KAUFMAN, LYNN SHERR, VICKI CROKE,  
LINDA KOEBNER, EUGENE LINDEN**

**Moderated by Scott Stossel**

***The Atlantic Day of Ideas***

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**JOHN FOX SULLIVAN:** Good morning. Welcome. I'm John Fox Sullivan, I'm Chief Executive of Atlantic Media, publisher of *The Atlantic Monthly* and *National Journalist* and other publications. And as I think you no doubt know, we are in the midst of celebrating *The Atlantic's* one hundred and fiftieth anniversary. Started in Boston a long, long time ago. We've been doing the celebration and this is the fifth city that we've done in it. Started in Boston, Chicago, Washington, San Francisco, and now New York. It's a little bit like the theater, where you start out in Baltimore and Philly and then finally hit the Big Apple. Here we are. This is an effort of ours really to bring *The Atlantic* to life and the kinds of subjects that we write about and do and this is a perfectly great example of it. Over the months we've been doing this probably five thousand or so people have been participating in these sessions throughout the day so it's a way we can get our folks and other people out in a live venue. We're doing this session in partnership with PBS, the Public Broadcasting System. We already do a copartner program in

Washington, *Washington Week in Review* with Gwen Ifill that we've been doing at Channel 26 in D. C., is broadcast nationally, and now PBS is involved with us in this five-city tour, and we're really pleased to be doing that.

Our moderator this morning is Scott Stossel. Scott is managing editor of *The Atlantic*. He joined us straight out of college, or darn close to that, in 2002. He got *Atlantic* very active on the Web in early stages of web development of what we called *Atlantic Unbound*. He then disappeared from our life for a couple years and went to the *American Prospect*, where he served numerous editorial roles, and we were lucky to get him back to *Atlantic* in 2002, and he has been key to our operation. He is the author of a great biography of Sargent Shriver, called *Sarge*. You should be so inclined to go out to a bookstore and buy it. It's a very, very good book.

How can you not be interested in animals? I'm going home this afternoon, there will be four little dogs there, I've been away for two days. I'm going to say silly, stupid things to them. **(laughter)** Isn't it all true that none of us should ever be overheard when we're talking to our animals? **(laughter)** Truly embarrassing. And they're going to be really happy to see me, but why are they going to be happy to see me? I don't have the slightest idea. A gentleman by the name of John Burroughs in 1910 wrote in *The Atlantic* when talking about animals: "They are rational without reason, wise without understanding, they communicate without language and subsist without forethought. They weave and spin and drill and bore without tools. They traverse zones without guides or compass, and they are cunning without instruction and prudent without precept." Folks, is any of that true? Scott?

**SCOTT STOSSEL:** Thank you, John, and thank you all for coming this morning. And yeah, speaking of never—no one ever wanting to be heard with their animals, or seen behaving with them. Have you all—there was a news story just in the last couple of days that Tim Russert broke his leg in multiple places because he was playing with his dog on the stairs of his house and tumbled down the stairs, so we all know that our animals induce us to do ridiculous and sometimes dangerous things. I'm curious. How many of you are animal lovers or have pets? I figured it was—

**JOHN FOX SULLIVAN:** Gee, what a surprise. **(laughter)**

**SCOTT STOSSEL:** So we have a self-selected audience that will be very interested in the proceedings of today. The way it's going to work is I'm going to briefly introduce some of these—or all of these folks and then—one of them I'm not going to introduce, and you have to figure out who they are and what they do. **(laughter)** No, I'm going to introduce all of them and then Fred Kaufman, who is the executive producer of *Nature*, is going to introduce a short series of clips from the *Nature* program over the last few years, all of which show different aspects of animal behavior, animal intelligence. And then we'll open it up to discussion amongst the panelists here, and then I hope to leave a lot of time for all of you to ask questions, since I know that, as folks who are interested in animals, you will have lots of interesting questions you'll want answered.

The basic—it's going to be very hard to do justice to the vast range of animal behavior and questions about animal intelligence and animal emotions in the brief time we have today, especially since we're going to show a film and especially since there are five of you, but we're going to do our best, and the two basic themes that we want to address are, to put it over-simply, animal intelligence and animal emotion. And are animals—do they *have* intelligence in a way that is analogous to the way humans have intelligence? And, more interestingly to me, do they have emotions in a way that is analogous to the way that humans do?

So without further ado, let me introduce the folks that we have here. Beginning on my right here, Fred Kaufman is a three-time Emmy award winner. He's been the executive producer, as I said, of *Nature* since 1991 and has worked on the series since its premiere many years ago in 1982. Many of *Nature*'s most memorable presentations have been produced under his stewardship, including the highly acclaimed miniseries *Africa* and another one called *Deep Jungle*. Just a couple of other noteworthy programs have included “In the Wild: Orangutans with Julia Roberts,” which won the prestigious Genesis Award for outstanding PBS documentary and an Emmy award-winning production called *The Urban Elephant*, which I've seen excerpts of and is terrific. Kaufman has forged major international coproduction partnerships with the BBC and National Geographic Television and serves on the advisory board of the Humane Society in the United States Hollywood Division and is a member of the Directors Guild of America. I'm going to read really fast so we can get to the movies quickly.

Lynn Sherr is an award-winning journalist who works as a correspondent for *20/20* and has been there since 1986, where actually my uncle John Stossel is, and I won't say anything about whether they agree on things, but they've coexisted there for a few decades. She's the author of *Tall Blondes*, which is maybe not what you think it is, it's actually a book about giraffes, on which an episode of *Nature* is based. She's written many articles on wildlife and other subjects for a range of periodicals and further in her background, she was a floor reporter for ABC News at every Republican and Democratic nominating convention, and has received an Emmy, and before that she was at WNET in New York and WETA in Washington and she will host—*Nature's* holding a twenty-fifth anniversary special, which will air—coming up in just a couple of months, on January 14<sup>th</sup> at eight p.m., and I think after you see the clips here, you'll be encouraged to want to see that.

Linda Koebner to her right is an advocate for animal welfare, you'll see her in the film, and she's been captivated by chimpanzees since early in childhood. In 1974 she became the first codirector, or the codirector of a project to provide a new, more naturalistic, home to nine chimpanzees who had spent years in biomedical research on hepatitis, I think, and actually this is a segment you'll see here. She has worked with a number of organizations including a consortium to pass the CHIMP Act, which is the Chimp Health Improvement Maintenance and Protection Act of 2000, and she has served as the executive director of Chimp Haven, which is a sanctuary for retired laboratory and entertainment chimpanzees, and she is the author of several books.

To her left is Vicki Croke, who has been writing on animal issues in print and broadcast media for many years, including where I've been reading her in the *Boston Globe*, a column called "Animal Beat." As a contributor to NPR's environment show *Living on Earth*, she has reported on topics ranging from gorilla conservation to a subject that I know is very important to all of us, coyote vasectomy. **(laughter)** Her book *The Lady and the Panda* received critical acclaim and is being adapted for film by Michael Cunningham for Focus Features and she just told me that in fact Nicole Kidman is probably going to play a role in it. And her other books include *The Modern Ark: Zoos Past, Present, and Future*, and *Animal ER*.

And finally, to my direct right here is Eugene Linden, who is an award-winning journalist who has in fact written in our pages for *The Atlantic* many years ago and I hope will again about animals and

animal intelligence. His books on animal intelligence include *Apes, Men, and Language*, *Silent Partners*, *The Parrot's Lament*, and *The Octopus and the Orangutan*, and in other more recent writings he has also focused on global environmental issues, so without further ado, let me turn things over to Fred to introduce the clips we're about to see.

**FRED KAUFMAN:** Great, thanks, Scott. I can't speak as fast as you but I'll be brief. I've been with *Nature* for twenty-five years, and so I've probably seen more wildlife documentaries than most people. And the one question, the one thought that *constantly* goes through my mind when I look at rough cuts of finished films is: "What are they thinking? And what are they feeling? And are they thinking and do they have emotions like we do?" And it's a very controversial subject but certainly one that always goes through my mind. What we've done, what I've done, is pull together about four clips from past episodes, most notably a series we did a few years ago called "Inside the Animal Mind," and I think this will whet your appetite for the discussion to come. So let's roll that clip.

**(narration from first film clip begins)**

Mischievous. It's very easy to tell from a chimp's facial expression the kind of emotion that he or she is feeling. When chimpanzees are happy, when they're playing, when they're tickling each other, they laugh. It's very difficult for me to do a chimp play face, because they put their—they show their lower teeth rather than their upper teeth, but if we tickle, like this, yes, we get a little laugh and we should have a little play face here, yes, we've got a beautiful play face and a laugh. When they approach and want to play, they signal that they want to play and very often they just bob their head a little bit as well. Thank you, that was a beautiful play face.

**(second film clip)**

This is Jeff, a greyhound with a problem. In the company of Leslie, his owner, he seems perfectly calm and well behaved. He's just eager to go out for a walk. But watch what happens when Leslie leaves him home alone. "You be a good boy, now." Remote cameras reveal it all. Jeff begins to have a tantrum. After trashing the curtains, he turns to tearing up the daily papers. He even vents his frustration on the pillows. When Leslie returns, it's to a familiar scene of devastations. "Jeff, what did you do that for?"

Look at all this mess. Bad dog.” Jeff’s problem is severe, but not unusual, and when you’ve got a problem this bad, you need help. Dr. Nick Dodman, a veterinary specialist at Tufts University, applies human psychotherapy to animals with emotional problems. “His eyes are kind of staring. His face is taut. This is a classic case of separation anxiety. Jeff is indeed a very needy dog and one who loves you too much.”

**(third film clip)**

Echo waited for the stragglers and then headed for an area that the family had not visited for a long time. Her route took them through a patch of palm trees and there they came across a pile of bones. Elephant bones. “One of the great mysteries about elephants is their reaction to the remains of their own kind. When they come upon the carcass of an elephant, they become tense and quiet and approach it cautiously. They do not behave this way toward the bones of other animals. They usually concentrate on the skull, possibly to try and recognize the individual. These are the bones of Emily. She was Echo’s closest companion, maybe her sister. I wonder if she and the others are remembering her.”

**(fourth film clip)**

Linda Koebner was a twenty-three-year-old graduate student when she was asked to participate in a bold new project. A hepatitis vaccine had been found and certain chimps were no longer needed. Would they be capable of a normal existence after life in the lab? On a January morning, a small group of chimpanzees caught their first glimpse of the sun in over six years. For the next four years, Linda spent every day with the chimps, watching over them, observing their journey back to wholeness. It was a grand experiment. No one knew whether it would work. But it did. Twenty-five years later, Linda’s come back for a long-awaited visit. A few of her old friends still remain. “Doll, come here.” It’s been eighteen years since Linda has had any contact with Doll and Swing face to face. “It’s been so long.” There’s no telling how they’ll react. “Oh, you look great.” Even her old friends are now wild animals. “Do you remember me? Good girl. Hey, remember me? Oh, yes, Swing. Swing. Doll, oh Doll! Such good friends.” “These chimpanzees have taught me about resilience. All of these have gone through such tremendous adversity and yet they’re forgiving and they’re whole again.”

**(narration from film ends)**

**SCOTT STOSSEL:** Well, this is going to be frustrating now because these segments raise so many fascinating questions and I would love to be able to answer them all, but we'd be here all day, so I will pick and choose selectively and try and leave enough time for you all to ask questions. I have to say every time, any time I've seen these Jane Goodall clips, it just makes me want to run off to Africa and hang out with her and play with chimps, because she looks like she's having so much fun. But to start with this question. Jane Goodall has a quote which she's made a few times in fact in one of your *Nature* segments where she says animals are just little furry humans in effect, or they're people in little furry bodies. So each of the four of you, I'd be curious to—and I think what she means by that is that they are—they approximate some of the same emotions and cognitive patterns and things that we do, albeit in slightly different form. So if you were to muster the best case from each of the work that you respectively have been doing, what's the best case you can make that animals do have emotion in a way that really is comparable to the way that humans experience it. Why don't we start with you?

**EUGENE LINDEN:** It's interesting. The question of emotion seems obvious to me, that it ought to be easier to prove emotion than it is to prove intelligence, for instance, because it is a physical feeling, and Oskar Heinroth, who is one of the early ethologists, described animals as “very emotional people with very little ability to reason,” and what we've learned over the years since then is that some of them are slightly less emotional and have slightly more ability to reason. Science stumbles over the question of proving awareness and intelligence in other animals, because it's a subjective thing, and it's very hard to understand intentions about what goes on in another person's mind. It's hard to prove lying in a court of law, for instance. And so the best you can do is come up with some very strong inferences. And that's actually—I wrote about the studies of animal intelligence for twenty-five years and then realized this is never going to be proved, and maybe the best thing we can do is find a story, and a series of stories, that let us, that gives us insight into an animal mind. I'll give you a couple and then you tell me whether you think there's thinking involved.

One is a couple of killer whales, Orky and Corky, in the 1980s out in California. They lived in Marine World of the Pacific, a now-defunct marine park. It wasn't the best facility, but they had great caretakers, and they had offspring a couple of times, and they never really thrived. Well, one case, they

had to bring the baby out of the tank to get it emergency feeding. It wasn't doing well. So what they do is they swung a boom over with a kind of stretcher attached to it, a little bridle on the stretcher that you could—and they put the baby on that and swung it out, they gave it emergency feeding and treated it, and the boom operator, when he was swung it back, to bring the baby back into the tank, didn't have a clear line of sight, and he halted the stretcher out of reach of the divers about four feet above the tank, and at that point the baby started throwing up, and that's a desperate situation because it could aspirate vomit and get a fatal case of pneumonia, so they had to do something. Orky was watching this, and he could see the divers trying to reach the baby and they couldn't reach the baby. He'd never been trained to have people get on his head. He swam over—this is a killer whale—swam over, let the diver get on his head, and rose up enough so they could release the bridle and let the baby back into the tank, and that to me shows one, he realized what the situation was, that the humans were trying to help the baby, that he could help the humans help the baby.

**SCOTT STOSSEL:** Problem solving and two steps.

**EUGENE LINDEN:** Yes, two other quick stories. Fu Manchu, an orangutan, again in the late sixties and seventies, at the Omaha Zoo. What happened—there was an enclosure and then there was an outdoor enclosure, and then there was a moat around this, and then the great world beyond. On an occasion, Jerry Stones, the keeper, shows up, and he sees that Fu Manchu and his family are outside of the enclosure, in the zoo, sitting in a tree in the zoo. He had a good relationship with Fu, and so he led him back into the enclosure by the hand, and the family followed, and all was well. Next nice day—and he screamed at the keepers for, you know, being sloppy. They discovered that a door was open in the dry wall of the moat, and so Fu could get out through that, and he thought a keeper had left it open. Next nice day, same thing happens. He goes out, there's the family out in the trees outside the enclosure. Leads them back, this time he's getting ready to fire somebody.

Next nice day, one of the keepers comes running up, and he says, “You gotta see what Fu Manchu is doing.” And they sneak up and they look down and there he is, and he's at the door in the dry moat fiddling with a piece of wire, **(laughter)** and he picked the lock on the door and that's how, but where did he get the wire? Because they didn't see him with the wire. Well, a day later, the keeper noticed there was a lump in his lip, so he pulled back the lip and there was the wire. **(laughter)** All right? It gets



better. How did he get the wire? Well, there was another orangutan at this same facility, called Heavy Lamar, she was pretty much a very overweight orangutan, and they—this is all forensics stuff afterwards, by the way, reconstructing it. They segregated her to lose a little weight. They put her on a diet. And she thought this was highly unjust and complained loudly. And anyway, they often saw Fu coming over to Heavy Lamar's enclosure and furthermore they found—she was off monkey biscuits, which were quite high caloric, they were sort of like Lunchables for orangutans—and they saw monkey biscuit crumbs inside her enclosure. They also saw a stripped lighting fixture with the wire—the very piece of wire. So you be the judge. Did he actually tempt her with a monkey biscuit and get the wire, then put it between his lip and gum, then pick the lock, or was it accidentally dropped, you know, or did he give her a monkey biscuit one day and she was just wrecking the wire? In any event, even at the lowest, the most reductionist view of this story, it shows a high level of planning, reverse-engineering, deception, which is a highly intelligent behavior, because it requires that you maintain two visions of reality simultaneously. I don't think that there's *any* doubt that animals think.

**SCOTT STOSSEL:** There's a segment in one of the, I think it's in "Inside the Animal Mind," the first part, and it's not a primate—in pigeons, and there's actually a guy did a study that showed that pigeons can actually tell the difference between I think it's a Monet and a Picasso, (**laughter**) and it made me feel much better, because they had a hard time telling Matisse from Picasso, who are much more, I have that trouble too, so—but let me, let's keep going down the line here, but let me push back a little bit and play devil's advocate. Isn't there a tendency—I mean, that does sound convincing—but there's a tendency, particularly among those of us who live with animals, to anthropomorphize them and to sort of impute to them human characteristics that really maybe they don't have. And this is showing problem-solving of a fairly high order, and able to manipulate logic almost, but to what extent—might this just be instinct that we're seeing, or sort of learned behavior, rather than actual intelligence or actual emotion? Why don't we go down to Vicki next.

**VICKI CROKE:** Well, Frans de Waal, who's a great primate researcher, says, we know the word anthropomorphism, in which we see things in animals that are human qualities, but he thinks we're—he suspects we're guilty of *anthropodenial*, and I absolutely agree with him. And I think particularly, whether you're talking intelligence or emotion, imagine that your closest relationships—well, no, because, you know what, recent studies show your closest relationships are with your dog, but your

closest human relationships, your significant other or your children, imagine every time you talk about loving them, someone says to you, “Oh, of course they ‘love’ you. You feed them, don’t you?” And people just chuckle over your relationships. I thought we could have the shortest panel of the whole day. Do animals have emotions? Yes. Everyone here knows it. Are they intelligent? Yes, we see it all the time in the things that we do. We love stories where animals have outsmarted of us. There are a million examples of it.

Mark Bekoff, another researcher, has a great line, because what happens is if you want to dismiss the stories, you say it’s anecdotal, we don’t have the research to show it, but Beckoff says, the plural of “anecdote” is “data.” **(laughter)** So you collect these stories and what do you come up with? I mean, there are a million stories. I did a book on zoos, and there were two polar bears in the zoo in Portland, Oregon, and again there was a fat female. They wanted her to lose weight, but they come up with ways for the animals to exercise, and they came up with this wacky—there was this time in which they were coming up with this series of kind of crazy mechanical ways to get animals exercised and interested in the world. What they came up with for the polar bears was the polar bears were supposed to go over to a receiver and growl in it, which is kind of crazy, because polar bears really don’t vocalize very much anyway. And then a mackerel would be shot into the pool. So they were supposed to growl into the receiver and then dive into the pool in order to lose weight, get the mackerel. Well, what happened is the females got the picture right away. The male would go over. She would just sit in front of the delivery system. **(laughter)** The male would growl into the receiver, and she would have her mouth over it, and a mackerel would be catapulted right into her mouth. **(laughter)**

You can’t talk to a zookeeper without them telling you a million stories like that of animals. And for emotion, all of us have experience—you know, Linda’s going to tell us great stories, I know, with the chimps, but when I was doing my zoo book, I went back into the—at the L.A. Zoo—the night quarters where they kept the orangutans. By the way they’re known as the Houdinis of the zoo world, they’re just masters at getting out. But there was a big male named Lewis, and he was sitting in his cage. And the keeper was making warm cider for them, it had been a cool evening. The first thing she did was, she used to set up string puzzles on the bars of their inside cages, and when they undid the string—they couldn’t break the string, they had to undo the knots of the string one by one and when they finished, they would get their snack for the evening. And she told me this story that Lewis, who’s got these hands

like catcher's mitts, how he was so nimble, I don't know. But he undid his string puzzle one evening and she was busy doing something else. He held his string up to show her because he wanted his food. And she said, "Just a minute, Lewis, I'll be with you," and he banged on the bars and he held his string up, and she said, "I know, Lewis, I'll be with you in a minute," and then he banged on the bars again and she turned back, frustrated, and he had tied the string for her to undo. **(laughter)**

Now, I held Lewis's hand while I was there. Lewis put his big hand out when I was standing there, and the females were off in a separate section close by, and the zookeeper said, "He wants you to hold his hand," and she said, "It's okay, Lewis is a gentleman." So I held his hand, and I started massaging his palm, and she had given him his warm cider and I have never seen an animal do this. You know, we all have dogs or cats at home and they eat their food and get on with their lives. He was sipping his hot cider, **(laughter)** and then I was massaging his hand, so he'd take a sip and go, "uuuh, uuuh," **(laughter)** and I had *tears* in my eyes, I felt like I was really holding the hand of nature, and the zookeeper said, "Oh, Lewis, another female for your harem," and right then, one of the females, I felt a whack on my thigh and one of the females had taken her apple and thrown it at me. **(laughter)**

**SCOTT STOSSEL:** Lynn, how about from any of your experience—you've done a lot of work with giraffes—do you have any?

**LYNN SHERR:** I think the answer to your question—I totally agree with Vicki, it's a short answer. But I think the answer to the question also has to do with the animal. For instance, a lobster is not a furry human, and I've done the story several times now for *20/20* on do lobsters have feelings? Is it okay to put them in the pot of boiling water and what I come down to having interviewed a lot of people is, there may be a more humane way to kill them, but I'm pretty convinced from what I've learned, that they actually don't scream, that you do not hear a lobster scream when you put it in the pot and that it's really unlikely that they're feeling pain. Okay, that's a lobster. Now let's go—you mentioned orcas—let's go to Keiko the gorgeous orca whale. I had the great privilege of actually meeting Keiko when he was in Norway, and Keiko, you'll remember, had been kidnapped as a child from the wild and made into a movie star and made into an Aquarama star.

**SCOTT STOSSEL:** He's Free Willy, isn't he?

**LYNN SHERR:** This is *Free Willy*. Yes, Keiko was the star of *Free Willy*. And at one point they decided maybe smartly, maybe not, to reintroduce Keiko to the wild, this creature that had essentially been brought up as a tame pet, and they had him in a facility in Iceland and he swam across the open sea to Norway and when he got there, only wanted to hang out and play with children. Only wanted to swim and have kids play with him, did not want to be alone, did not want to be in the wild, did not want to meet with other orcas, wanted *human* children. Which to me was—perhaps it is just what he'd been sensitized, but this was *choice*, he made a choice, okay, that's those two examples.

Okay, now we go to the animal which I actually *do* know a lot more about, which is giraffes. And there is a—these are probably *not* on the higher end of the intelligence scale with animals. I of course don't believe it's necessary for them to be intelligent, because they are so *beautiful* all they have to do is *be*. But there is a place—and they have the longest eyelashes, I refer to giraffes as the most politically correct of all animals. They're pacifists, they don't ever attack unless they're attacked, and they do not discriminate against other giraffes based on their skin pattern, **(laughter)** they're quite fabulous animals. There's a place in Nairobi called Giraffe Manor, that we showed a lot in "Tall Blondes," in the film, and this is a place where there are giraffes living on the property, and they're pretty much used to humans but every night they go off into the jungle, and they do what they do, they browse—browse meaning eat—and then they come back during the day. A number of years ago when I was there, Jock, the lone male, was not well, he was sick, and they actually didn't know what was wrong with him, and for days, weeks on end, Jock was not moving. He was sitting, he was just sitting in one place, it is very dangerous for a giraffe to sit for too long, they need to keep getting up, and Jock would *not* get up. And it was very frightening to the human caregivers, and you could tell that the giraffe family was pretty well distraught. Some were related, not all were.

One of the nights when I was there, as the rest of the giraffe family went to walk off back into the jungle, Jock was just sitting there, his youngest son *would not* leave him. He just stayed—everybody else went off to eat, to sleep, which is brief, anyway, to go away, that young one just hung around, kept nuzzling him, tried to push him up a little bit, it never worked. Stayed there for many hours before he was supposed to be gone, finally left, the next day came back and did the same thing. Long story short, Jock is fine, they got some medication for him, he did well, but nobody had ever seen this happen

before. One giraffe hanging back, *clearly*, to me, concerned, trying to get him up to go with them, and that to me was very strong evidence that—yeah, I'd call that emotion. I don't think that's instinct. I think that's emotion.

**SCOTT STOSSEL:** It would be hard for anyone to watch the clip that we saw, the last one, with you in it, and not see that that was emotion—clearly you were emotional, and it looked like the chimps were reciprocating. One thing to note, I think it was Fred pointing out to me, it was I forget the name—that the chimp on the right, as you were facing, turned around and just presented rear, which was showing—You hadn't seen him for eighteen years.

**LINDA KOEBNER:** I'd seen him, I'd been going ever year, but I was never allowed on the island, so this was the first time.

**SCOTT STOSSEL:** But that was a show of submission, sort of saying, I'm showing this is a submissive posture and welcoming. Can you talk a little bit about that or whatever other example you want to cite.

**LINDA KOEBNER:** For chimps, there are just so many examples, I'm trying in my mind to go through all this and what would be the most—

**FRED KAUFMAN:** When we had filmed this, and I've seen the clip literally a hundred times, and every time I watch it to me it's like watching it for the first time, I get that caught up and involved in it. But during it, Linda talked about what happened the next day, which I found particularly absolutely fascinating, which we were not able to put in the film, but I'd love for you to tell that story.

**LINDA KOEBNER:** Okay, well, I'll back up a little bit. First of all, I do want to say also that *obviously* there is a *huge* spectrum of animals and some have one form of intelligence, others have more sophisticated and more reasoning powers, I think that a snail and a chimpanzee are going to be very different. In fact, a gorilla and a chimpanzee are very different, I think, in their capabilities, and the same goes for emotions, but I'll back up a little bit.

I was with the chimps for, I guess about six years, almost, altogether. Started in the laboratory, when they were all single-caged and they'd all been probably taken from Africa when they were a year old or less and then put in a sort of solitary confinement and subjected to hepatitis vaccine and liver punches every week—they didn't have a very good relationship with people. So my challenge was to get them into a social group and also get them to be comfortable with *me*, and there was one moment with Doll and she was always—I called her the liberated female. She was just—didn't take any crap from anybody. But she was always getting picked on, and when I gave them produce, which they had never had before, she never got her fair share. So one day I just took her and I locked her in a cage by herself and she just went into a complete panic, you know, just screaming and defecating and “Oh my God, what's going to happen now?” And I just gave her a pile a food, and it was like she looked at me and you could just see the little flash go, “This is a *good* person, not a bad person,” and our relationship just became very tight after that.

Well, then, we fast forward, and luckily Allison Argo and Fred invited me to be part of this great film, and I really hesitated about doing it, but finally decided I would and if I got killed well so be it, and we had this incredible two days of filming, and then I knew the end was coming and of course I was starting to get pretty choked up thinking I would never get to smell Swing again, which is very important to me, and the whole time we were filming, Swing kept taking me by the hand and wanted to lead me somewhere, and I didn't really want to go with her, because it was going to be back into an area that was kind of off-camera, and there was a little cave there that they could sleep in, and she just persisted and persisted, but I put her off, and then on the last day, when I knew it was almost time to leave the island, I thought, “Oh, you know, what the hell, my son's grown up, Ron won't mind,” (**laughter**) and decided I would go with her, and that's also part of female chimps, I mean they will, I mean I guess all intelligent beings do this, but they will wait, you know, they'll plan something, like we've just heard, and the reputation of a female chimp is she'll just wait and take you somewhere and then beat the crap out of you, but I thought I'd go ahead anyway (**laughter**) and Swing just took me by the hand and we walked across the island, and into this little cave, and sat down, and she put her big arm around me and she pulled me close and then she took my face in her hands and just held it in such a magical way and our eyes met and I really, I think Jane says this too, that just this energy goes between the species that is unbelievable, and our whole lives, our whole twenty years we hadn't been together, just kind of passed back and forth, and I don't know, that sort of said it all to me, it was just remarkable.

But a few years before—I'll just say this really fast, because I'm taking more time than I should, but I had a three-year-old son, and Doll had just had her first baby, and I was also allowed to go back to the island and go out there, and I went and sat very quietly, again everybody thought I'd get killed, but Doll came over and sat down next to me for a little while and then took her six-week-old infant and handed him to me, and to me that was way over the top.

**SCOTT STOSSEL:** One thing that's striking is just how long the chimps have retained in their memory a sense of not only the fact of you, but their emotional connection to you, and so transitioning from that to, there was a clip about the elephants, who have a similar longevity in terms of how long they live, and there was this sense of when they go and find Emily, the elephant that is passed away, and they clearly remembered her, it seems like they do, and part of being human and having human intelligence, human emotion is once you're a sentient adult, you have a sense of not just consciousness as in being awake, but self-consciousness as being aware of your existence in the universe and being aware that you have a beginning and an end. And is that what we're—I mean, do elephants have that? I mean, watching that clip they seem to have an understanding of mortality almost, and is that a function of their living so long, or is it intellect, or what does that mean?

**EUGENE LINDEN:** Well, there's one test for consciousness called the mirror test, where it's been done with chimps and it's been done with dolphins. If you put a smudge or a mark somewhere, and if an animal looks at itself in the mirror and then starts looking for the smudge on itself, it's recognizing itself in the mirror, and they've done that with elephants now, just two elephants, Max and Patty, at the Bronx Zoo, and they pass the mirror test. You'd think all animals would pass it, but they don't. A lot of monkeys don't pass it. There is actually a neuron in the brain called a mirror neuron, that people think has to do with intentions and recognizing intentions. It's much more widely spread in the animal kingdom than you might know.

I just wanted to say a very brief word on anthropomorphizing. It's unavoidable. The only reference point we have for human intelligence is human intelligence. We don't have aliens that we can have as a mutual third party to which we can compare both of ourselves. At least, maybe some of you know some, but I don't. And then the second part of that is this reductionist argument cuts both ways. Christopher

Hitchens famously wrote an article in which he accused Mother Teresa, the very embodiment of empathy, as being a self-serving publicity hound. And so we really have a reductionist, you know, behaviorist look at most human behaviors as a sort of self-rewards system of one sort or another. Empathy, I think, is the thing that is used to be the dividing line, and that requires an awareness of others. And also, Marc Hauser uses the definition, an emotional fusion of the self with the other, and I think you can find examples of empathy, and I'll just give you one.

At the Dallas Zoo, there is a chimp that escaped. I'll give you *two* examples. Val Beardsley, at the Dallas Zoo, lost her daughter and she was visibly upset, and one of the female chimps, noticing that she was upset, came over and comforted her, and took twenty minutes, you know, to come over and comfort her, it actually made her feel better. Another time, a chimp escaped and got electrocuted. And Toby, the dominant male, the alpha male at the zoo, noticed that the keepers were all in tears for several days. And this is a very dignified male, sort of dominant, became a clown for forty-five minutes, and just tried to cheer them up. He did funny walks, he did rolls, he did all sorts of things and by the end of it they were laughing through their tears. And he took it upon himself in that forty-five minutes, and after they were all finally back as a group, he went back and rejoined his normal chimp behaviors. And I think there are examples of *awareness* of others in animals that come close to empathy, and I could cite a dozen more, but I don't want to take up any more time.

**LYNN SHERR:** I just wanted to say that so much of what you're all talking about and this idea of breaking the rules and saying the things we think are not so are mostly because the research hasn't been done. I have stumbled across more examples of ironclad situations where people say "*this* doesn't happen," and then you find one researcher out in the wild who says "nonsense!" A tiny example—giraffes are supposedly not capable of walking up and down stairs; well in fact at Giraffe Manor they walk up and down. There are two little, a couple of flights, tiny, two or three steps, on the outdoor patio, and they do just fine, and somewhere it's written they can't walk up stairs and why is that? Because nobody ever bothered to ask them or see if they could do it. I don't mean to be facetious about it, but I think when you have dedicated researchers who are spending the time with these creatures and really finding out and trying to go beyond what the initial rules were supposed to be and what humans were supposed to do with animals. The fields are just wide open, which is why it's so exciting to me that so many young people *are* going into this kind of work.



**SCOTT STOSSEL:** Well, I want to make sure we have time for audience questions, but let me ask one final question, which is what is the dividing line? We talked about lobsters and snails. On the other hand, you've got higher primates and dolphins and giraffes and elephants, and then somewhere in the middle there, you've got probably the animal that we can most relate to, which is dogs and cats. But where is the point at which, you know, consciousness as we understand it ceases to be a viable category for things? For instance, can a fish, can a goldfish—in some of the *Nature* films you'll see chimpanzees who have been traumatized, and they clearly are suffering and are depressed in a sense or have post-traumatic stress syndrome in the way that we would understand that humans suffer from it. But can for instance a goldfish in a bowl, is it depressed? I'm thinking also of the—there's the same doctor who treated the greyhound for his separation anxiety, there's another scene of him prescribing Prozac to a cockatoo. At what point—where is the dividing line?

**VICKI CROKE:** You know, what's interesting, for people who inexplicably think that animals don't have moods. Well, why would mood-altering drugs work on dogs if they don't have moods to begin with?

**SCOTT STOSSEL:** Well, it might just be altering behavior, though, not mood.

**VICKI CROKE:** Yeah, but you know something? This is—it's impossible, I don't even know if what you consider sad is what I think is sad. I don't know, when you're happy, is that the same happy I have? We can only use what we *have* to perceive that, and what's been interesting to me, is we constantly set a line, maybe not between goldfish and chimps, but between us and the animal kingdom. What separates us from the beasts, you know? It used to be tools. Well, Jane Goodall showed us that they can use tools. And I think that at this point I think the only animal that we haven't seen using tools is paramecium, because crows, everyone uses tools, we know now. Culture. Chimpanzees have culture. Language. That's still a hot item about whether chimpanzees and other apes are capable of language. I have a friend who's a copyeditor and she says commas are what separate us from the beasts. **(laughter)** And my comma use is terrible so I know which line that I'm on. I mean, I think we're already on our—are animals different from us? We share this emotional heritage with animals, with other mammals. Our livers look alike, our kidneys look alike, our brains actually look alike.

**SCOTT STOSSEL:** But what is the line? Is it the size of the brain? I think I saw that even lobsters have a dopamine response. Or that they produce endorphins.

**VICKI CROKE:** You do enrichment for fish in aquariums, I mean, they do get depressed, to answer the fish question.

**EUGENE LINDEN:** Donald Griffin, who is like the father of rigorous study of animal consciousness and a great advocate for animal intelligence made the point that it's very difficult to hardwire a creature for every eventuality and it may be an evolutionarily efficient thing to create some smidgen of consciousness, whether it is a pictorial thing, it doesn't have to be symbolic, in creatures, to give them a little bit of flexibility. The stunner for me, of course, was octopus, which is related to the clam, not the most intelligent animal on earth. But you see extraordinary examples of octopus intelligence in every aquarium. They're like the orangutans of the ocean. They're incredible escape artists and they do all these things. And this is an animal that has been around for hundreds of millions of years, and they violate every rule of intelligence, which is that most intelligent animals are long-lived, because theoretically if you're going to invest in intelligence, you want to get some return on the investment. They have long childhoods. These things have almost no childhood. They have long times with their parents, you know, for cultural learning. The mother dies as soon as they are born. They are highly social. These things will kill each other except during mating. They violate every rule, and yet you see examples that suggest intelligence and even their brain is distributed—forty percent of their brain is in their tentacles.

And what I get out of that is there is a kind of convergent evolution for intelligence. In other words—if they do—they can change color in a thirtieth of a second. They have to decide which strategy they're going to deploy when they're hunting or when hiding. And they have to make these decisions. And they have a very sophisticated eye. And there's an idea of what's called an ecologically surplus ability. You know, you put a bunch of neurons in there to help process visual information, maybe you get a little something else that might be intelligence. And so you can use this idea of convergent evolution to see where intelligence might emerge in a whole host of creatures in different circumstances where the circumstances are the pressure for intelligence rather than the evolutionary history of the animal.

**SCOTT STOSSEL:** Interesting. I had no idea that forty percent of their brain was in their tentacles. It puts me in mind of the cliché about a certain percent of the male brain being in one of their extremities. Anyway, with that— **(laughter)**

**Q:** For me the issue of whether it exists or not is really about a Rosetta Stone—who’s going to write a Rosetta Stone that helps us crack the code of what it is we’re looking at and when. My question is, how does religion play a role in stopping the scientists from *seeing* what they’re actually looking at. I was raised to believe that we have souls and they don’t, and that differentiates us. It’s not a belief I’ve grown up with as I’ve matured, but I’ve got to think that plays a role in the scientific investigation.

**EUGENE LINDEN:** There’s a phrase called “divine trauma,” and it’s what we feel when we realize we’re not the center of the universe. I think you’re absolutely right. If intelligence and empathy are what make us special, we really don’t want to share them, so the burden of proof is very—the hurdle’s very high to overcome that.

**LYNN SHERR:** I wrote a column once, by the way, about this issue, about do animals have souls. Of course if you have pets, you say, I don’t want to go to heaven if they’re not there and I interviewed a bunch of religious leaders. A rabbi said, you know, that animals have a divine spark. The Catholic priest was the only one who said to me, “No. They don’t have souls.” **(laughter)** But there’s a wonderful old story from about a hundred years ago called “Penguin Island,” I just have to tell it quickly, I love this little piece of fiction. A missionary is shipwrecked. He lands on an island and his eyes are swollen shut from the salt. He hears the murmurings of the inhabitants of the island, and so he christens all of them, and when his eyes heal he realizes that he’s just christened penguins, a bunch of penguins, so up in Heaven there’s a big debate about what to do about this situation. And God decides that he’s going to have to make the penguins into human beings, because they’re christened now, but he laments. He knows that they will commit sins as men that they never would have as penguins. **(laughter)**

**Q:** I’m a research scientist, and I do animal research, and I guess I was very moved by that scene and I am very interested in chimpanzees. And this is a question that I always grapple with, is what’s the solution, because there is a demand in the world for technology and therapeutics, so the question is, is it

a question of doing research on creatures with souls versus not souls, or is it doing research on creatures with certain genes, but not other genes, in that case would it be okay to do research on human beings who suffer certain types of brain damage over a totally healthy chimp? So what's the solution?

**SCOTT STOSSEL:** I mean that's a fascinating question. How does our understanding—if animals have intelligence, if they have emotions, how does that change the ethics of animal research?

**VICKI CROKE:** Jane Goodall addresses this issue and she's not opposed to chimpanzees being used in some medical research. What she wants is for people to be humane about it and understand what their needs are. And I think that if you're a smart scientist you know that if a social animal is kept from others of its kind, it affects their health.

**LINDA KOEBNER:** All the cortisone levels, everything shifts, so you don't really know what you're studying. There's such a wide spectrum of debate about this, everything from we need more chimps, we need more, more, more, to let's just ban this and kind of see what the consequences are and focus a lot of that research into finding alternatives. But things have changed. When I started, the director of the laboratory I was working in called chimpanzees just "blood containers," and that's how he saw them and that's how they were treated, just as vehicles, and now, at least, I mean it's taken *forever*, but there are enrichment requirements, and there are different requirements for different species, in terms of size of cages and all of that. So hopefully your generation will figure out the answer, because it's one of the most complicated questions we have to deal with.

**EUGENE LINDEN:** Barely figured it out for people.

**Q:** As a neuroscientist, I would argue that this kind of environment, like their natural environment, you gain, you win as a scientist too, because in the field of brain regeneration, neuron regeneration, for a long time they were doing studies of mice in dark rooms in boxes, they concluded that the brain doesn't regenerate, and then it was from studying songbirds in the wild, that adult neuron regeneration was discovered for the first time, and then when they went back and they enriched the lives of the mice that they'd been studying—

**SCOTT STOSSEL:** Theirs regenerated too?

**Q:** Then they regenerated too, and they found out regeneration has to do with learning and experience and so we may be actually—

**LINDA KOEBNER:** And I think just like we're coming more to understanding that wellness has to do with the whole body and the mind and the spirit, it's the same also for nonhuman animals, and certainly in the Chimp Haven situation, where some of the animals have come in in *horrible* condition, merely by being in a social group and being in a happy environment, their health has improved tremendously.

**LYNN SHERR:** The problem of course is that you're never going to get any animal volunteers.

**Q:** Sort of a similar question, but what ethical convictions do you think this imposes on us in the area of food choices, I mean, I would argue there's a necessity to eat animal products as there is to use animals for testing. What sorts of for us implications are there for us in the choices we make?

**SCOTT STOSSEL:** Are any of you vegetarians?

**EUGENE LINDEN:** I wouldn't want to eat an animal that could recognize itself in the mirror, just for starters. You know, I feel like I ought to be a vegetarian, and if I was a better person I would be.

**SCOTT STOSSEL:** Cows, can they recognize themselves in a mirror?

**EUGENE LINDEN:** No, thank God. **(laughter)**

**LYNN SHERR:** Well, but you can set limits. For example, there's a place outside Nairobi that serves all sorts of animal meat, and they serve giraffe meat and other things and there are those of us who of course won't do that, but there also are people who exist on it. Not necessarily at that restaurant, but when a giraffe is killed in the wild, when a giraffe goes down, or they could be poached, that's food for an entire village. And I find it very hard to impose my feelings on what they should be eating or doing given the difference in circumstances. If you're talking about Westerners or people in the developed

world with a lot more choices, yeah, I mean, I agree with Eugene, I think it's probably more ethical to be a vegetarian, even though our bodies were not designed that way.

**SCOTT STOSSEL:** And certain animals were designed to be eaten by something.

**LYNN SHERR:** Indeed. Yeah.

**VICKI CROKE:** And I would just add that even if it's not for ethical reasons, just if you really spend ten minutes reading about factory farming, you will never eat chicken or pork again unless it's organic, it's just impossible.

**SCOTT STOSSEL:** One more question. Last question up here.

**Q:** A few years ago, Rupert Sheldrake did a series of experiments with African Gray parrots and the results of the experiments appeared to demonstrate the possibility of telepathy or other inexplicable communications ability between humans and parrots. And I know there's pet owners in the audience here who might also claim that this might be going on. Do you have any comments on this, or might we be likely to discover kind of unknown things about the way our brains work by reaching beyond the human realm?

**LYNN SHERR:** Well, I think part of is, I'll just speak again to the idea that the research hasn't been done. We showed in the giraffe film for *Nature*, in "Tall Blondes," someone's doing, has done, experiments, and there is indication that giraffes are indeed talking to each other, it's at an infrasonic level, we can't hear it, she's measuring it and translating it into a computer image. And I mean, perfectly good tests, with one giraffe in an enclosure, the other one outside, can't see each other, and they both had similar head movements, and clearly they were communicating with one another at a level we can't understand. So I think a lot of it comes back to the fact that to say, "Wow, we'll to discover these great new things," yes, the point is they've been doing it *forever*, and we're only just figuring out ways to measure it.

**EUGENE LINDEN:** I have heard too many stories, have gotten too many stories, of people who have gotten messages from their cats, and I would throw myself into that group, by the way, to dismiss it. That being said, on the parrots, I'll give you a story. There was a parrot in California, who just before—like, two minutes before its owner would drive up the driveway would say, “Daddy’s home.” And so everybody thought, “oh, it’s telepathy,” and it turns out that parrots have very good hearing, and they also have something called Herbst’s corpuscles that are in their knees, and that are extraordinarily sensitive to vibration, which is great if you’re a predator, I mean, if you’re prey, and something is going to sneak up on you, you feel the vibration and you know what’s going on. Anyway, it turns out on further investigation, “Daddy” was downshifting two blocks away when he started to go up the hill and the parrot was hearing that, and that’s why he was saying “Daddy’s home,” so what looks like telepathy, you really have to rule out some of the alternative explanations.

**VICKI CROKE:** Also, they read us, I mean, what may or may not be telepathy is that they read us, they are very good at nonverbal cues that we’re horrible at, and they read our hormones, I mean, they are able to track your cycles, and even with your dog or cat, what I think is funny is that I can gaze at my dog and she’ll look back lovingly, but if I get what I call “medical eyes,” sometimes I’m looking at her and I think “is that a tick or . . .” the minute I have that thought, she runs out of the room because tweezers are going to come out so, I think they read us like books.

**SCOTT STOSSEL:** In some ways I think they’re smarter than we are. I’m sorry we don’t have time for any more questions. But before we close, I do want to just mention a few upcoming *Nature* broadcasts that people should tune in for. Tomorrow night, Sunday, is the premiere of “Christmas in Yellowstone,” which is a look at the serene landscapes and wildlife of Yellowstone National Park during winter and that will be rebroadcast on Christmas Eve, as well, appropriately enough. And then more germane to what we’ve been talking about today, on January fourteenth, *Nature*’s anniversary special premieres, it will be called the “Best of Nature: Twenty-five Years,” and it will be hosted by our very own panelist here, Lynn Sherr, so if you liked that brief highlight reel that you saw earlier today, you’ll love that, because it’s jam-packed full of scenes that show what it takes to survive in the animal kingdom. So, again, thank you to all the panelists, and thank you to all of you for joining us.

**(applause)**

