Do Gorillas Create Sign Languages of Their Own?

Gorilla Friends of Barcelona

Africa Update: Inspiring Conservation Values

Koko’s Impact at ABA Conference in Hawaii

Conversations with Koko
Gorilla Friends Around the World:
Barcelona, Spain

by Susan Lutter

Not too long ago, the Gorilla Foundation received a request from the zoo in Barcelona, Spain, to contribute materials for an exposition on gorillas they were designing. The zoo’s Executive Director, Dr. Carmen Maté García, has followed the Gorilla Foundation’s work for many years and is a strong advocate for human understanding and protection of gorillas.

We sent photographs and stories and copies of artwork, and ZooBarcelona incorporated them into an exceptional permanent exposition at the zoo. The exposition is now complete and very popular with visitors. The four-foot title on the building says “Goril•les,” which is “gorillas” in Catalán, the language of Barcelona. The walls are covered with displays and descriptions in three languages: Catalan, Spanish, and English. As visitors walk through the exposition, they pass through the story of man’s first discovery of gorillas, into explorations of gorilla habitat, their characteristics and their intelligence, and the need to protect them against the man-made threats to their very existence.

A poster-sized photograph of Penny with Koko pointing to a photograph of Snowflake, Barcelona’s famous albino gorilla, helps make the point that noses are as unique to gorillas as fingerprints are to people. A whole wall is devoted to Koko’s sign language ability as evidence of gorillas’ intelligence. And gorillas’ artistic ability is addressed in a series of paintings – including ones by Michael and Koko – which are hung together and visitors are asked to guess whether each is by a human artist or another primate. Most think Michael’s painting is by a prominent Catalan modern artist.

If you find yourself in Barcelona, don’t miss the Zoo.
Africa Update:

Inspiring Conservation Values

by Penelope Fraser and Lorraine Slater

Deep in the forests of Africa, a gorilla family goes peacefully about its business. Guarded by the silverback, some females browse for food, others quietly nurse their babies. Youngsters frolic, while older gorillas bask in the sun.

But suddenly, the silverback leaps up, sensing intruders. Females and youngsters scurry for cover. He charges in the direction of the invaders to frighten them off. Others join in, creating an awesome display of gorilla power.

Tragically, they are no match for the guns of the bushmeat hunters. Several gorillas fall. The hunters transport their prizes to market, where they will be processed to satisfy a taste for exotic delicacies. Any baby gorillas now orphaned will be captured and, if they survive, sold illegally on the black market.

Heart-wrenching tragedies like this, coupled with the growing realization that habitats were vanishing at an alarming rate, intensified the Gorilla Foundation’s belief that gorillas were on the road to extinction. To address this crisis, the Foundation partnered with Dr. Anthony Rose’s Biosynergy Institute to establish the Wildlife Protectors Fund in Africa in 1999.

An added incentive for expanding the Foundation’s mission to embrace conservation on the ground in Africa was the commitment to Michael the gorilla, who came to live at the Foundation in 1976. A bushmeat orphan, he had experienced a scene very similar to the one described above – a scene he was able to recount to us in sign language several years after his capture. But he was one of the more fortunate ones – he was rescued, and eventually found refuge with the Foundation. Because he had come from Cameroon, one of several countries in west Africa that still harbors western lowland gorillas, that country became a focus.

The goals of the Wildlife Protectors Fund (WPF) are to inspire humane conservation values, to motivate leaders and communities to conserve Africa’s magnificent natural heritage, and to save and protect gorillas orphaned by logging and commercial hunting. The Gorilla Foundation, by virtue of its long history of inspiring empathy for the species, is uniquely qualified to take on this challenge.

The “secret weapon” in this effort is Koko, already proven to be an ideal ambassador for gorillas. The initial outreach of the WPF’s Conservation Values Program (CVP) focused on using Koko’s Kitten books in classrooms in Cameroon. Not only did this open youngsters’ eyes to the amazing capacities of gorillas, but it also touched many adults, some of whom were even gorilla hunters. The Foundation also supported, and continues to support today, the Mefou sanctuary for orphaned gorillas in Cameroon, underwriting the construction of a large enclosure, named “The Michael Sanctuary,” in memory of the dear friend who passed away in 2000.

Today the CVP program goes forward under the direction of Penelope Fraser, an experienced conservation advocate, who has built up a small but skilled team of conservation educators in Cameroon. Their outreach includes the stories of Koko and her family in California, and compares and contrasts the content and messages of Koko’s books and videos with local stories, myths.
and legends about wildlife.

Penelope sees the CVP mission today in these terms:

“One of the greatest threats to wild gorillas, Koko’s cousins, is the currently unbridled slaughter, carried out by professional hunters, to satisfy a growing demand for primate meat. This market is greatest amongst Africa’s urban populations: populations that are detached, both from their rural roots and traditions, and from modern scientific knowledge and thinking.

“Our goal is to engage Koko as an ambassador for her species to stem this abhorrent demand for gorilla meat. We will bring Koko into the schools, communities and church groups of urban Cameroon—to show people that gorillas are sentient, intelligent, caring creatures, to be cherished and loved, and that they are not meat.

“Some people eat gorilla meat simply because it is put in front of them. They don’t really know what it is, or think about it, and some consume it because it seems exotic. Our experience working in these areas, over many years, has been that very few people have experience of living gorillas, or knowledge of them. We have seen that when both kids and adults read about Koko, watch her videos and learn her sign language, they fall in love with her, they immediately understand gorillas in the same way as you and I, and are shocked and horrified at the cannibalism.

“Koko workshops in the past have prompted fascinating, spontaneous discussion and debate on wildlife and conservation issues, with participants keen to know more, to join our program, to get better acquainted with Koko and Penny. Most significantly, we notice that a number of participants became gorilla conservation disciples themselves.

“Our goal is that African kids become as familiar with Koko, and what she represents, as are American kids. We believe that this will take us a huge step closer to providing a safe and secure future for those precious gorillas living in their natural environment.”

This is the power of Koko—one interaction leads to another and a gradual momentum towards real change begins. To capitalize on this phenomenon, the Koko/CVP outreach in Cameroon is extraordinarily varied, as forces on the entire continent of Africa promoting conservation values, the Gorilla Foundation has seen the need for bringing this outreach into other countries that gorillas call home. With Ambassador Koko leading the way, real changes in attitudes and behavior will lead to lasting change for the better for all gorillas. It is one very critical path to ensure that hunting will decrease, that habitat can be preserved, and that gorillas can be saved from extinction.

Our goal is to engage Koko as an ambassador for her species...
Koko’s Impact

at the 2006
American Bar Association
Conference in Hawaii

by Kristina Hancock

When the American Bar Association’s TIPS (Tort Trial and Insurance Practice Section) Animal Law Committee began to plan for its annual meeting program this year in Hawaii, my first thought was how wonderful it would be to have Koko as the program’s keynote speaker.

The mission of the Animal Law Committee is to be the instrument of a paradigm shift to raise consciousness and facilitate the evolution of thought on animal issues, both domestically and internationally. In the entire planetary animal kingdom, Koko is the only being who is able to communicate to us so clearly the inner thoughts and feelings of another species. Although certain other great apes, dolphins and parrots have achieved the capacity for more limited communication with humans, Koko’s 35 year journey with Penny Patterson has singularly equipped her to serve as our true “ambassador to the animal kingdom,” a role she fulfills with uncommon grace, insight and humor. So who better to represent her kingdom before a room full of lawyers? Koko was the obvious choice.

When we learned that the Gorilla Foundation and Koko were willing to be a part of our program, it would be fair to say that everyone at ABA TIPS was absolutely “tickled pink.” The actual creation of the video turned out to be a labor of love and there was a true meeting of the minds that exceeded even our highest expectations. As Penny, Gary Stanley and Lorraine Slater focused their energies together with the members of the Animal Law Committee, a synergy emerged from the blending of our diverse perspectives (science and law) with a common goal: the creation of an educational vehicle that would provide a window into the soul of an animal, juxtaposed against the stark social reality that animals currently share the legal status of inanimate objects.

When we finished the video, I knew that something powerful had been created. Yet I was not prepared for the full impact that the piece would have on a room full of “rational” attorneys skilled in razor-sharp critical analysis. I was stunned when I glanced around the room after the scene documenting the death of Koko’s first kitten, All Ball, and realized that there was hardly a dry eye in the room. Afterwards, a veteran ABA member described watching the video as “a life altering experience.”

Public awareness of animal-related issues has reached an all-time high, and I believe this is largely attributable to the work of individuals like Penny Patterson. We at the ABA TIPS Animal Law Committee are honored to have worked with the Gorilla Foundation on this important project, and I would like to take this opportunity to thank Penny and Koko for helping us to further our goal of improving conditions for all members of the animal kingdom.

“You-go there.” Koko signing simultaneously. Her left hand is indicating Penny while with her right she points to where she wants Penny to go.
**Introduction**

What can we learn about the origins of language by comparing the gestures of zoo gorillas to those spontaneously created by Koko, a gorilla who has learned sign language? To address this question, the authors utilized Dr. Penny Patterson’s complete data from Koko’s first ten years of signing as well as further examples from more recent years, and compared it to data collected by Dr. Joanne Tanner during 15 years of videotaped observations of the gorilla group at the San Francisco Zoo.

We assessed what the gestures represent as well as the means of representation and the space in which the gestures are produced. The broad conclusion we reached was that ordinary social action is the raw material from which earliest language may have arisen, and that apes and humans share an advanced ability to map action mentally and reproduce it physically in communication. This involves picturing motion in space, predicting its results before performing it, and translating from the larger scale of the real world to the smaller scale of the hand movements that describe it.

One of the most important shared aspects of the communicative gesturing of both zoo and signing gorillas is the element of “iconicity” that is found in many gestures. An iconic gesture in some way looks like what it represents, for example, moving the hand off the top of the head to indicate the meaning “take-off.” Particular attention is given to the development of iconic gestures because they require a type of understanding that can be linked to human representational abilities. We traced the use of iconicity and the forms it took in the development of gestures in both zoo gorillas and Koko.

**Development of Gestures in Zoo Gorillas**

Information about the gestures of zoo-living gorillas is drawn from a long-term study of the gorilla group at the San Francisco Zoo from 1988 to the present. All social interaction was videotaped continuously for later analysis, including complete cataloging of all gestures. The subjects are members of a stable social group; all have been subjects of the Tanner and Byrne studies, but the interaction between Kubie, a young male (Koko’s brother), and Zura, a young female, received the most intense analysis; by far the greatest amount of gesturing was done by these two gorillas.

Zoo gorillas used gestures to depict action or indicate location, but these appeared later in the zoo gorillas than in Koko, who began doing this at the start of the language project, at age 1–2 years. Tanner’s zoo observations began when the two principal subjects, Kubie and Zura, were young adults. The earliest information available on Kubie showed that nearly all his adult repertoire of gestures was already present at age 8, observed in the context of sexual positioning and sexual play with an older and uncooperative female. Some play gestures were present at age 2 years, but these do not appear to include gestures that indicate location or depict directional motion, tactile or otherwise.

A gesture used as a “negation” was seen in the zoo gorilla Zura from age 7; this was hide playface, used to suppress the urge to play and understood by her male play partner, who
responded by not approaching. In many instances, this happened when Zura was aware that the dominant male gorilla was likely to interfere with their interaction.

Because it was impossible to know whether gestures observed in the adult zoo subjects might have appeared earlier, the question of when different kinds of gestures develop was addressed later through observation of two male infants, Shango and Barney, born into the group during the course of the study. Their earliest discrete gestures were audible ones produced by contact with a surface (e.g., ground, rock, tree or their own bodies), actions that were also included in Kubie’s early gestures. They used reaches and arm extensions toward their mother or other gorillas or toward objects of interest that another gorilla possessed.

New gestures gradually appeared in the older brother, Shango; he began to use a few touching (tactile) gestures, but at age 6 still used neither the silent gestures in space nor self-indicating gestures that the young adults used. Barney, the younger brother, began at age 2 to frequently use the armshake gesture observed in his father, but older brother Shango almost never used it. Armshake, by iconically depicting action, may show desire for another gorilla to approach and take play action. Other gestures by adult Kubie indicated that he wanted another gorilla to approach various body locations; examples are head nod, armswing-under, slap shoulders, and extended palm. Some gestures indicated locations in the environment; such indicating gestures were only observed in zoo gorillas aged 6 years and above. Representation of objects or individuals found in the zoo gorillas’ environment seemed to be absent.

In summary, the zoo gorillas, without any human instruction, would depict on their own body, on another’s body, or in space, actions desired from another, and would manually indicate objects or locations of interest, but mostly after age 6. These kinds of gestures were produced by Koko by age 2.

Koko’s Untaught Signs

We took a close look at the signs Koko used that were not taught by humans. A categorization of Koko’s 50 earliest invented signs showed that, during the first ten years of her life, approximately half of the untaught signs she spontaneously used represented objects and another third depicted actions. Three-quarters of these untaught signs involved an iconic mode of depiction – forming the outline of an action or a shape with her hands. Of these, approximately 70% involved depiction of action even though the signs were predominantly signs for objects. Koko often used a customary action upon an object to denote an object, rather than the object’s shape. For instance, a request for modeling clay was signed by a motion of rolling the palms together, as when rolling out clay; a hand puppet by the motion of putting the puppet on the hand. Other signs did use a hand-shape that was reminiscent of an object, like a cupped hand over another wrist for bracelet; and some signs involved both shape and motion.

Another noticeable aspect of many of Koko’s untaught signs is that she locates them on her body rather than forming them in space away from the body, where many of her taught signs are performed. Of her untaught signs, 60% were placed on the body location of the object or action. For this, the concept of one’s own body as a mirror of something “out there” is necessary. Also, nearly all of her invented object signs were for items she could touch and handle. Active tactile experience appears to play a part in creating signs representing absent objects.

When we view Koko’s untaught sign formation chronologically we see this progression:

1. From age 1-2 years she was depicting actions on her own body, another’s body, or in space, of activity desired from another; and
2. from age 2 years 8 months she began, in addition, to place the hand-shape of an object on an appropriate body location, to represent an object or action;
3. from age 3 years 8 months, Koko added signs miming an action performed with or on an object in order to represent an object;
4. from age 6, she was also seen tracing on her body the outline of an object;
5. from age 7, a new technique was tracing a shape in space or using a hand-shape held in space away from the body to describe an object.

These last were the rarest of Koko’s spontaneous means of representing objects, although these methods of depiction were common among signs taught to her.

Zoo Gorillas and Koko Compared

Action and location, preferred modes of depiction in Koko’s untaught signs, were also frequently used in formation of gestures by the gorillas at the San Francisco Zoo. For both non-signing and signing gorillas, action as well as location (as the beginning or ending point of action) seem to be the basic building blocks for gestural expression. Zoo gorillas create depictions of their own actions or actions anticipated from another gorilla by using limb motion in space or by tracing motion on another’s body or one’s own body. Similar gestures have, though rarely, been observed in the wild.

Gorillas at the San Francisco Zoo have been observed to use all the untaught gestures performed by Koko in her first year of sign
instruction, except for pointing with the index finger. Knock or pound (using the fist) and slap (open hand) are used by zoo gorillas to touch objects in a pointing manner, i.e., while making eye contact with a partner and waiting for a response. Tactile gestures on another’s body, requesting directional movement of the other gorilla, were seen in zoo gorillas regularly only after age 7. No signs depicting an inanimate object or its action have been observed in zoo gorillas.

Several gestures were used as “negatives” by the zoo gorilla Zura; the best studied is her hide playface, described earlier. Koko at age 4 used a facial alteration, frown, to show sadness, annoyance, disgust or negativity toward activities or objects. Later she used a sign we called unattention, hands covering the face, to avoid things she did not want to see or participate in, or to refer to expected events that did not happen or to absent objects.

Zoo-living gorillas and Koko share many of the same gestures, and functions of many are similar for both the zoo gorillas and Koko (the full length article contains a table of all these gestures). These gestures are social, and are used in interaction with other individuals to regulate kinds of actions and locations of activity. For the zoo gorillas, gestures often did not stand alone but were incorporated into strings of other gestures. For Koko, too, such gestures were incorporated into her signed conversations along with taught signs.

The gestures Koko creates are more numerous and elaborate than those of zoo dwellers, probably because of her intensive exposure to symbolic modes of communication and interaction with humans. Depicting action desired from another appears at a later age (6-7) in zoo gorillas than in Koko’s inventions (age 2). Koko moves beyond depicting intentional social action (as seen in zoo gorillas), to depicting objects, earliest by using depictions of action upon an object, later with hand-shapes, and finally to tracing outlines to refer to objects. Additionally, when she adds a new mode of depiction, it does not mean she no longer uses the earlier types—they are cumulative.

**Action as a Preferred Mode of Description**

Gorillas’ preference for using action to describe their world may be related to the way the brain processes information. The brain has specialized cells, termed “mirror neurons,” for visual reception of hand and limb movement, that respond strongly to hand-object interactions. Mirror neurons have been found to react to actions performed on objects, but not to an object alone, or to the same action performed without an object involved. Recent research has implied that actions are understood through their context, and that objects are understood through the actions performed on or with them.

This aligns well with the fact that the majority of Koko’s untaught signs for objects involved portraying a customary action associated with the object. It is through shared action that social communication often takes place between gorilla and gorilla; with gorilla and human companions, interaction often involves objects. For Koko, the introduction of a new and unfamiliar object like a stethoscope or modeling clay would be meaningless without a demonstration of the use of that object, and it is such action with an object that makes it come alive as the center of a shared focus.

We propose that “action mapping” in three-dimensional space is an important capability of all great apes that evolved in response to demands of locomotion in an arboreal or tree-living environment. “Action mapping” can be defined as the mental ability to picture motion in space, predict its results before performing it, and translate from the large-scale of real-world motions of bodies into the smaller scale of hand movements that describe them. Gorillas thus can express desired large-scale body movements of others by using the smaller compass of their own hand gestures. As we have seen, the “action mapping” concept is supported by the existence of mirror neurons and their functions.

“Action mapping” as a cognitive ability shared by all apes explains the mutual understanding of iconic gestures between different partners without any need for a lengthy shaping or learning process. At the San Francisco Zoo, individual gorillas’ repertoires of gestures were varied, yet the gorillas seemed to have developed a mutually understood system of communication. Koko’s untaught signs for objects can also be understood as formed by an ability to map and mirror visual input with the hands.

The visual and tactile gestures observed in zoo gorillas occurred most often during play and quasi-sexual situations. These situations necessitated cooperation by coordination or co-regulation of movement in the environment in order to maintain close contact with another. Koko had fewer contact social interactions with her own species but her environment was more enriched with objects than that of the zoo gorillas. She needed signs in order to maintain shared attention with her human companions, and so generated ones of her own invention for things and activities in her environment she was interested in, but for which no sign had been taught.

**Conclusion**

The present study implies that it is likely that in the history of our hominoid ancestors, the earliest depictions were of action rather than objects, just as we find in apes. Because this capacity to depict action and shape is present in gorillas, and surely in chimpanzees, bonobos and orangutans, given their similar ability to imitate actions and to use human sign language, it was most likely present as long as 10 million years ago in the common ancestor of all existing hominoids (humans and great apes). New means of communication, when they occurred in our ape ancestors, would certainly have been beneficial for individuals in social and, ultimately, sexual relationships. Over generations this would result in gestures becoming more common and increasingly complex.
There seems to be a progression, both in individual development, and possibly through the course of prehistory, from pure action to "action mapping" and iconic representation. Thus, the creation and usage of gestures by gorillas gives us a window into the developmental processes and environmental pressures that might have led an ancestor ape to further refinement of iconic communication, and its eventual expansion to human gestures of the mouth. In gesture, then, we can find the thread of evolutionary continuity between non-human animal action and the language of the human animal.

For a more in-depth discussion please see the full-length article published in the first issue of The Journal of Developmental Processes (Fall 2006, Vol. 1, pp. 69-102). This article may be found on the Gorilla Foundation’s website at www.koko.org/bibliography. To view zoo gestures in motion, visit Dr. Joanne Tanner’s website, www.gorillagestures.info.

References

Dr. Joanne Tanner began to work as a volunteer companion to Koko in 1980. She became fascinated by one of the unanswered “big questions” about the origins of language: What innate ability allows great apes to so easily learn human sign languages? Her curiosity was further piqued upon visiting the San Francisco Zoo where, as a casual observer, she noticed frequent gestural communication by the untaught zoo gorillas. She and her husband Charles Ernest immediately began regular visits to the zoo to videotape their behavior. Originally schooled at Oberlin College as a musician, in 1989 Joanne re-entered university to study anthropology at the University of California at Santa Cruz. She went on to earn a Ph.D. in Evolutionary Psychology in 1998 from the University of St. Andrews in Scotland.

With the San Francisco Zoo gorillas as her focus, Dr. Tanner notes that “the purpose of my research has been to describe the variation as well as the similarities in gesturing of different gorillas, to explore the physical and functional properties of these gestures, and to learn why and how they have developed in this particular captive group of gorillas in San Francisco. Beyond this I am interested in the cognitive abilities of all gorillas that make such gestures possible, and in the evolutionary significance of the way gorillas create communication with each other.”

Dr. Richard W. Byrne, Professor at the University of St. Andrews, Scotland, studies the evolution of cognitive and social behavior. He has spent several seasons in Rwanda observing mountain gorillas. His work has included analysis of deception in primates, and the relation between brain size and intelligence. Recent projects have focused on the acquisition of manual skills in great ape feeding and the intelligence of the domestic pig. Dr. Byrne was awarded the British Psychology Society Book Award in 1997 for The Thinking Ape, published by Oxford University Press. Dr. Byrne was supervisor of Dr. Joanne Tanner’s doctoral work and has co-authored several publications with her.
Conversations with Koko

9/3/06 with Dr. Penny Patterson, Ph.D.
A stack of plastic cottage cheese container lids were headed for recycling and Susan Lutter, lead produce volunteer, asked if I might have a use for them. I did. That morning, I printed a variety of requests on the lids and gave them to Koko:

At 1:20 P.M., Koko hands me the lid on which is printed GET DRINK. I give her a drink. Then I get more lids and write GET plus the names of various caregivers and other friends on them. After I give them to Koko, she hands me back the lid, GET CHRISTA, signing “Apple there.” (In the system for representing the manual alphabet that Koko and Joanne Tanner created, the sign apple stands for the letter A.) I give Koko a nut, and Koko returns all of the lids to me. I read each one as I give them back to her. Koko kisses for my attention and hands me back GET CHRISTA. Christa has been on vacation and is due back tomorrow so I tell Koko, “She’ll be back tomorrow.” As I fill out some data forms, Koko hands me the lid, VISIT FRIEND NOW!

At 3:15 P.M. I write on more lids and give them to Koko. She hands me MUSIC OFF, so I turn off the classical music.

At 3:40 P.M. Koko signs, “Nice frustrated Koko-love there” to the pocket where I have a nut. When I ask what Koko wants, she signs “Faketooth” at her porch window that looks up to the research office. (Koko often uses Faketooth to request her caregivers.)

9/5/06
Although Koko has not seen her yet, Christa is here today—a day late owing to a flight cancellation. Koko is feeling a bit under the weather and as I clean her front room first thing in the morning, I find the GET CHRISTA lid near the mesh that separates this room from the kitchen. Under her table is QUIET PLEASE. I place these two lids back in the pile with the other lids. Fifteen or 20 minutes later, after cleaning Koko’s back room (something Christa normally does, but I am doing it so I can get an idea of the extent of Koko’s symptoms), I return to Koko’s kitchen to give her access to that room again. Koko has moved the GET CHRISTA lid back to its earlier position by the kitchen and has added, a foot or so away from it, another lid, STAY HERE.

Christa, you were missed!!

9/28/06 with Jill Firstenberg
Koko was in an exceptionally good mood. She was happy and playful and being silly all day. In the morning when I cleaned her rooms, I gathered up all of the flashcard lids (about 30), placed them in a big red bowl, and placed the bowl on a table in the far corner of her room. That’s where they stayed all day until...

At the end of the day, around 5:15 P.M., I left Koko for a short time to go and get her bedtime meal. I returned around 5:30 P.M. to feed Koko and put her to bed. I entered her kitchen and did our usual routine. She got her bedtime supplements and drink and then she moved to her smaller room where I closed her in and gave her dinner. While she ate I tidied up her larger room. In her nest where she had been sitting were two of the flashcards—that were not there before I left to get her dinner. While I was gone, she had gone over to the bowl of lids, looked through them and pulled the two she wanted. One read, “TIME SLEEP” and the other read, “I’M HAPPY.”

10/7/06
The following week, Koko was a bit cranky in the afternoon and acting out a bit by banging on her mesh and chute that leads to the outdoor play yard. We try very hard to discourage Koko from banging so she doesn’t hurt herself. Sometimes we give her a “time-out” to discourage her banging. This particular afternoon, she banged a couple of times and I explained to her that I didn’t want her to hurt herself and if she banged again I’d have to leave her for a little while. It was the end of the day, and she banged again.

So I left. I took my time getting her bedtime meal and then returned to her kitchen. I knocked on the door and entered:

JF: Hi sweetie, can we try this again?
K: Good.* Purr.#

I prepared Koko’s drink and then I saw that she had one of the flashcards in her hands:

JF: What’s that, sweetie?
Koko holds up the lid that reads, “I’M SORRY.”
JF: What does that say, Koko?
Koko: Sorry.
JF: You are so smart. I’m sorry, too, sweetie.
K: Purr.* #

Koko passed me the lid, letting me know she was sorry for banging.

* = vocalization
# = repeated a number of times
As I approached Ndume’s indoor enclosure I could feel a percussive thump. Another thump, and then another, shattered the stillness of a sunny Woodside afternoon. At first I braced myself for an unhappy silverback acting out. Ndume has good and bad days just like us, except he sometimes has a harder time conveying to us exactly what is bothering him. As I walked up the stairs extending my hand to his doorway I realized that these thumps were occurring at regular 30-second intervals. I took a deep breath and entered.

What I saw next rooted me to the spot. Ndume seemed to glide at me at full speed. Then his accelerated 400 lbs came crashing into the reinforced steel mesh that separated us, THUMP! I stood perfectly still waiting for what was next. Ndume stood up to his full height of approximately 6 feet, and then he did the unexpected; he fell down. Or I should say he flopped down on his back and started rolling in the inch of water that flooded the floor. Two thoughts raced through my mind as Ndume rolled about on the floor: a. what is with all this water? and b. what is with this gorilla? Ndume lapsed into a furious fit of purring, chuckling to himself, splashing like a child in a kiddy pool. He sprang to his feet, moved to the back corner and launched himself at the wall once again. With his arms outspread acting like skis, his mouth wide open like a windsock, Ndume braced for impact, THUMP!

As I stood riveted watching perhaps the most bizarre thing I would ever see, the gorilla ice-capades, Ndume continued rolling and purring in the water. Crushed and torn water bottles lay strewn about Ndume’s room and that’s when it all became crystal clear. Ndume had created the world’s first gorilla slip-and-slide. With nothing else to do besides laugh out loud, I poured out a bottle on the floor and joined in the fun myself.

Behind the scenes of silverback care
by Duke Cutter, Gorilla Caregiver

The Michael Chronicles

3/2/81 with Barbara Weller
BW: Do you ever feel mad?
M: Do good.
BW: When do you feel mad?
M: When thief visit.
BW: When thief visit?
M: Cereal eat.
(This morning, Mike barked at Al, the carpenter when he came too close to Mike’s cereal.)
*(Illustrates capacity to remember past emotional states and their causes.)

9/18/99 with Marilyn Matevia
Marilyn and Michael play tug. He wins.
Marilyn: You are a strong...
Michael: Gorilla. (Michael completes the sentence.)
MM: Yes! You smart, too! (Sign only.)
M: Gorilla.
MM: What am I?
M: Trouble.
MM: Trouble! (Voice only.)
M: Sorry.
MM: You don’t have to be sorry. You’re funny!
M: Good.
MM: You didn’t eat your tomatoes or potatoes, Mike. Why not? (Voice only.)
M: Bad.
MM: Bad? (Voice only)
M: Sorry.
MM: That’s okay, Mike. But what’s wrong with them? (Voice only.)
M: Good pull-out-hair.

“Hat”

“Fruit”

“Nut”

“Sandwich”
Greg Walters, the Exhibits Director of the Sternberg Museum of Natural History in Hays, Kansas, phoned our business office out of the blue one day. He wanted to know if we would be interested in being involved in an exhibit he had in mind. An exhibit to be called “Gorilla Art: Creative Works by Koko and Friends.” We, of course, were delighted. We had done several gallery shows of the gorillas’ art as a form of public outreach but never at a museum.

One concern we had was that Greg wanted there to be new art by Koko in the show and art by Ndume. Koko had not done any paintings for a while, preferring instead to draw with pens and markers, and Ndume had never painted at all. But we had to give it the old college try. Ndume made a few patterns on his canvas with his paint and brush but quickly lost interest. Oh well, not everyone wants to be an artist. Koko, however, tackled the assignment with gusto and produced a beautiful painting she titled “Polite Lip, Koko Love, Gorilla Love” of two bright yellow banana slugs that had been enticed to her window box with slices of tomato and a strawberry. And for good measure Koko drew with colored markers the wooly mammoth she had been looking at in one of her picture books and entitled it “Elephant That.” As a nice coincidence the Sternberg gave Koko a gallery right next to their elephant exhibit.

“Creative Works by Koko and Friends” was well received by the press and the public alike. Notebooks were left around the hall so that visitors could send their messages to Koko. Every note written expressed love and admiration for her and for her paintings.

The show ran through November 2006 and arrangements are under way to turn it into a traveling show for natural history museums across the country.

Since contributing to the Sternberg Museum of Natural History show, Koko has rediscovered the joy of painting.
gorillas in the news

News 24 (6/22/05) “Four Gorillas Killed.” Nairobi—Three government soldiers have been jailed for allegedly killing four endangered Eastern lowland gorillas in the troubled eastern Democratic Republic of Congo (DRC).

Time Magazine (7/14/05) “Honor Among Beasts.” Think altruism, empathy and a sense of fair play are traits only humans possess? Think again. Frans De Waal has also observed ape behavior that can be seen only as empathetic. When a male loses a fight and sits on the floor screaming, the other chimps will comfort him. “They come over to these distressed individuals and embrace them and kiss them and groom them, and try to calm them down,” De Waal says. True, there’s an implied benefit for the comforters—the hope that others will do the same for them if they end up in that situation—but that’s a level of emotional abstraction that would once have been presumed impossible.

Discovery News (9/26/05) “Zoo Visitors Stress Out Gorillas.” “We noticed more behaviors suggestive of relaxation, such as increased resting, during low visitor density, and more behaviors suggestive of agitation, such as repetitive rocking, group-directed aggression and self-grooming during high visitor density,” said the study’s author, Deborah L. Wells.

Grist Magazine (10/10/05) “Need for Speede.” Veterinarian Sheri Speede of the Sanaga-Yong Chimpanzee Rescue Center in the Mbangue forest of central Cameroon speaks out against the bush meat trade.

WWF (10/11/05) “Cameroon decrees two new national parks.” Following the historic Brazzaville Summit last February that saw Cameroon, Gabon, and the Republic of the Congo commit to protecting millions of hectares of forests, the government of Cameroon has decreed the creation of two new national parks.

ANSA (10/11/05) “Activists protest against illegal logging in Africa.” Greenpeace activists dressed up as gorillas boarded a timber transport ship on Tuesday to protest a trade in illegally harvested wood which they say is wiping out the ape population in West Africa. The 15 activists tried to prevent the merchant ship Guan He Kou from unloading its cargo of Congo Basin wood at the west Tuscan port of Livorno.

The Associated Press (11/1/05) “Zoo Atlanta Gorilla gives birth to twins.” Zoo Atlanta announces the rare birth of two western lowland gorillas. Zoo Atlanta, a leader in the study of gorillas, announces that Kuchi, a 21-year-old female western lowland gorilla, gave birth to fraternal twins on Monday, October 31 in the evening at Zoo Atlanta. The proud father is silverback Kaz. The birth of twins is extremely rare. Six incidences of twin gorilla births in North American Zoos have been recorded since 1966.

In January 2006 the twins’ names were determined through a contest. The male twin is Kali (“strong” in Swahili) and the female is Kazi (“treasure” in Swahili). In November, 2006, just after the twins’ first birthday, a milestone was reached – Kuchi became the first gorilla mom to successfully rear twins for that length of time in captivity. Kali and Kazi continue to thrive and delight zoo visitors with their playful antics.

NY Daily News (5/5/06) “Bronx Zoo Goes Ape. New arrivals greet world.” Fans went bananas at the Bronx Zoo’s Congo Gorilla Forest exhibit yesterday as the four latest young additions made their official debuts.

Brussels Journal (6/22/06) “Gorillas Chasing Bubbles: Spain Enters New Age of Enlightenment.” In a groundbreaking move that would mark it as a champion of animal rights, Spain is considering granting legal rights to great apes.

The Onion (Satire; political news from the future, 2056, of a dolphin being elected President of the U.S.A.) Edwin Gaines, Syndicat, said, “Well, former president Koko has already signed off on her, saying, “Dolphin yes woman good give banana now dolphin yes.”

Scientific America SCIENCE NEWS (12/07/06) “Ebola Epidemic Wiping Out Gorilla Populations.” Thousands of gorillas in the Republic of Congo fall victim to the nastiest strain of the hemorrhagic virus.

To estimate how many gorillas in the region perished, the researchers compared the difference in the number of gorilla nests found in an affected area with one that was unaffected. East of the Losei Sanctuary, few gorillas had become ill. In the western part of the region, which included most of the sanctuary, researchers found just 4 percent as many gorilla nests than in the unaffected east. In their calculations, the researchers assumed, based on populations in the sanctuary, that the 2,700-square-kilometer western zone had a pre-Ebola gorilla density of 2.2 animals per square kilometer, or nearly 6,000 individuals, leading them to conclude in this week’s Science that about 5,500 gorillas died of Ebola in Zaire.

“Probably a lot more than 5,000 died,” Walsh says, adding that they made a conservative estimate. Based on the number of nests, about 83 percent of chimpanzees died of Ebola, too, the researchers say.
Hello,

I was reading with my first grade daughter yesterday. She brought home Koko’s Kitten for us to read. I have never seen ANY of my children affected by a book like the reaction she had. (Well honestly we both had.)

I was reading the story to her, when we got to the part of the story that the kitten was killed we were both in tears. She was so upset because Koko was sad that she did not want me to continue with the story. I insisted that we continue because I knew that the story would have a good outcome. By the end of the story, she was giggling.

Thank you for telling Koko’s story. I have three other children and as I said before, none of my other children were ever affected by a book this much. You have helped her love to read! Thank you.

— Phyllis Schumacher

and Nicole (age 6)

Hello,

First of all to present me, my name is Andre Santino. I’m 27 years old and I’m from Belgium!

I was watching the French television (France2) today and I saw the program about the Gorilla Foundation!

I was crying to see how many loves you give to them! But I understand when I see all the affection that the gorillas gives back ... I have no words to explain my feelings but it touch me in the found of my heart! Because I saw the pictures with Koko and the kitten ... I’m a great admirer from cats!

I admired all the energy that you put in your research and time that you take for them! And I believe too that there is not so many grade class were writing reports on animals, she picked gorillas. I hadn’t thought of Koko in many years, but when she mentioned gorillas it all came back to me. She is so excited to learn all about Koko. She thinks it’s very cool that she can talk, and loves kitties, as Elissa loves them too! Thank you so much for your wonderful web-site, packed with information. I understand if you are unable to reply. I just wanted you to know how Koko touched my life and is now touching my daughter! We love you Koko!!!!! — Beth + Elissa

To Whom It May Concern,

I have seen Koko for a number of years on television, and even had a few questions about her on my SATs. I wish I could say this in terms she could appreciate... She is one Awesome Interpreter between Human and Gorilla! All My Prayers!

— Pete

Thank you so much for your hard work and care for Gorillas. I am utterly fascinated and moved by your project and especially Koko. I always check your site to see what she is up to. I consider your work to be one of the most important and exciting things happening on the planet. It is nothing short of extraordinary, to be able to communicate with another species is to me as historic as if aliens from another planet landed and we were communicating with them.

I have often wondered if you have asked KoKo what she dreams about? Also what is her conception of dreams, are they real to her or “fake”? Again thank you for your work and say hello to Koko!

— Keith Merritt

Yes, Koko considers dreams at night to be “fake.” — Penny

Dear Ladies and Sirs,

2 ½ weeks ago the Gorilla poster signed by Koko arrived.

When I had returned from paying taxes at the customs’ office, six officers were gathering round Koko’s signed poster (in that bureau where there had been only one officer before) and they were eager to learn a little bit about Koko.

It was so nice and human. And what a surprise: Koko had signed twice!

Yesterday I went to the customs office again for getting the T-shirts and the DVD about Koko’s life.

I couldn’t wait to have a Koko T-shirt on. So I said that I had to try it on (what nobody has done in the customs’ office as yet, so I’ve been told. But the officer did say “go ahead”). For the CD the officer asked if it was a feature film (higher tax). I told him that it was rather a documentation like “filming your wife during vacation.” The officer agreed verbally and non-verbally. Again, it
was agreeable and human.

Yes, we have a more humane and sympathetic society here than it had used to be.

At home I was, in spite of the excellent information at www.koko.org, so surprised by Koko’s human behaviour, especially because I have in addition a long year’s comparison to the intellectual skills and behaviour of mentally handicapped children, women and men here as a medical doctor (for a comparison).

And of course, the T-shirts that I gave as presents were well received, very well received.

Thank you very much!

If possible, give my kindest regards and my best wishes to Dr. Penny Patterson and to Ron.

— Dr. Eugen Kriener
Germany

Hello Penny,

I have been carrying around the October 1978 National Geographic issue about you and Koko for all these years. It is falling apart but I love it and look at it often. I am Koko’s age and when I read it when I was seven, I was mystified. It really changed the way I looked at people and animals. My favorite quote from Koko is, when asked if she was human or animal, her reply was “Fine animal Gorilla.”

I think you are an amazing person and Koko still facinates me. Your life’s work is very special.

Anyway–I just wanted to share with you the way your lives have affected mine.

Peace and happiness to you and Koko.

— Erica Harris
Las Vegas

Hello my name is Javier Acosta. And today in my college Psych. course I saw the video that PBS dedicated to Koko. And that is a great thing that you guys are doing with the gorillas and I wish you guys a lot of luck with the project in Maui. I really hope that it pulls through so that other gorillas can be in a peaceful habitat and don’t have to worry about what happened to Michael’s parents. When I found out that Michael has passed away I started to tear. I just started to learn about him and Koko today and it felt I had a connection with him. ... I just wanted to send you guys an email to tell you guys that I hope Koko feels better about Mike’s death. Also that Koko, Mike, Ndume have touched my heart and will touch the hearts of millions.

— Javier

Hi, beautiful, incredible Koko (and Dr. Patterson). I’d like my English was good enough to express how I admire Koko, it’s so incredible and so admirable what you’re doing that I think I couldn’t even say a word in my own language.

I’m absolutely fascinated with Koko, I think she’s so sweet, so nice; I’m her #1 fan.

I’m a girl (should say a woman) only two years older than Koko, I love animals, and since I first heard about Koko on a TV program, talking about she and her kitty, and what she told to the journalist, and in the way she expresses and learns... I became Koko’s forever admirer.

You help me think that some-times human are more animals than those we call animals, and that animals are much more intelligent and incredibly human than some people can believe.

I bet Koko speaks a much better English than me, so sorry if I don’t express myself very well. Just want to say how I admire your job and how interesting I think it is. Go on!

Dr. Patterson, you’re a lucky, lucky woman. Koko, you’re lovely. Kisses sweetie.

— Conchi
Spain

Send your Emails to:
editor@koko.org
and your posts to:
The Gorilla Foundation
PO Box 620530
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Over the years, many individuals have chosen to make a bequest or other form of planned gift to the Gorilla Foundation. By leaving a legacy, these thoughtful donors help to ensure that something they have cared about most deeply during their lifetime will endure.

To honor these individuals for their generosity, the Gorilla Foundation has established its Legacy Society.

The Foundation lists members of the Legacy Society in its newsletter and other publications where donors are acknowledged (unless the donor prefers to remain anonymous). All members receive a commemorative certificate and are invited to special events.

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To advise us of your intention, or if you have questions, please call Lorraine Slater, Development Director, at (650) 216-6450 x15. Legacy Society kits are available. Thank you for caring!

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The Gorilla Foundation (TGF) recently sent out its official membership renewal notices. We hope you will respond—the gorillas are counting on you!

The mainstay of TGF has always been its loyal members, who today number 45,000 strong. Since the Foundation does not receive federal, state or city funding, and foundation grants have been shrinking as the economy contracts, that support is more precious than ever.

The loyalty of our members through the official card-carrying membership program gives us the strength to fight for the cause we all believe in.

And membership does have its rewards! Members are entitled to receive the journal Gorilla and Gorilla Talk newsletter and special merchandise discounts at KokoMart at Koko.org on the Internet. But most importantly, you will receive the satisfaction of knowing your dues benefit Koko and Ndume and help support gorilla studies, care, conservation and education.

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