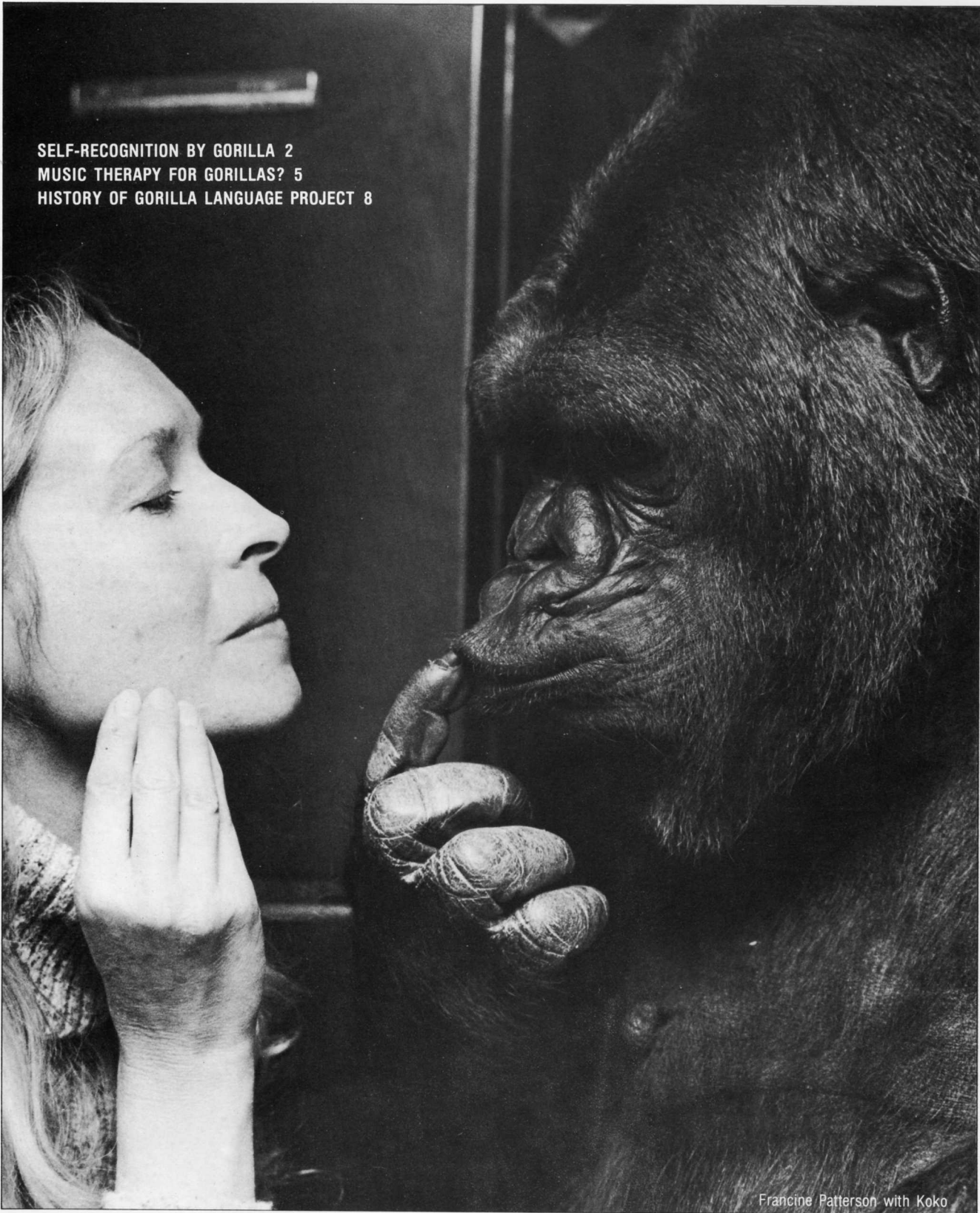


VOLUME 7 NUMBER 2

GORILLA

JUNE 1984

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Francine Patterson with Koko

JOURNAL OF THE GORILLA FOUNDATION

Self-Recognition by *Gorilla Gorilla Gorilla.*

Francine Patterson



"I think therefore I am."

In an attempt to discover if self-concept is a capacity present in other species, researchers have employed mirrors and tests of self-recognition. As recently as 1982 it was concluded that . . . "the gorilla may be the only great ape which lacks the conceptual ability necessary for self-recognition" (1, p. 307). "A definitive answer to this issue is important because of the implications self-awareness has for intellectual functioning" (2, p. 187).

Koko has been exposed to mirrors in her environment since she was about one year old. Her early experience with them was similar to that of a human child. During the first year of the project she had limited access to a 16" by 20" wood-framed glass mirror held up at an angle by a triangular base. Initially, she reacted by reaching and peering behind the mirror in an apparent attempt to locate the imaged being. Although the human infant begins to recognize its mirror image at about age two, not until Koko was about four years old did convincing evidence appear that she recognized that reflected being as herself. At this time, she was observed to use mirrors as tools for self-inspection and manipulation. Her uses were many and varied: she would watch herself eating, manipulating gum in and out of her mouth and looking for it when it had been swallowed; she used it in grooming her face, navel, and underarms, in picking at blemishes on otherwise unviewable body parts, examining her teeth, tongue and under her tongue; she would observe herself curling her tongue, combing and brushing her hair, brushing and flossing her teeth, making faces (3), signing to herself, adorning herself with hats, wigs, barretts, and scarves, and applying makeup as a game. Also, when told that she had something on her face, Koko would go over to the mirror to have a look, and use it to locate and remove the particle or mark.

To give a specific documented example of mirror use, in 1977, when Koko was six, we obtained a series of photographs with a motor-driven camera of Koko in front of a mirror donning a Groucho-type set of eyeglasses with nose, mustache and cigar, and commenting about what she saw: "Think look sad."

Since the age of four she has also responded to questions about who she sees in the mirror, identifying her image as "me," "Koko," "gorilla Koko" and so on. During a videotaped session on March 6, 1983, when asked "Who's that?" of her reflected image she signed "Think that me animal gorilla animal Koko-love." Responses to such questions, while providing supporting evidence, do not constitute proof of self-recognition. It could be argued that she learned to identify her reflection from her teachers.*

A convincing experimental test of Koko's capacity for self-recognition might involve a procedure of mirror exposure with subsequent anesthetization and marking, followed by re-exposure to a mirror, such as Gordon Gallup, Jr. and others have performed on chimpanzees, gorillas and orang-

*An interesting sidelight: Koko has identified photographs of other gorillas as "me" or "Koko"; when she was small, she would pick the infant versus the adult(s) but now, she identifies with the full-grown representations. She appears to have had for some time a well-developed sense of herself as a gorilla, a sense which includes a concept of relative size.

utans (2, 4, 5). Although we would not risk Koko's health and safety by tranquilizing her (some danger of respiratory arrest or asphyxiation by choking is always involved), an experiment in nature has taken place, and fortunately was captured on videotape on September 6, 1982. The following is a description of part of the 5-minute videotaped sequence:

Koko has been sitting in front of a 21" by 48" plexiglass mirror with a toothbrush. After briefly brushing her teeth, she examines her tongue and teeth, using the toothbrush as a grooming aid. After a few minutes, she signs "toothbrush," pulls down her lower lip, picks something from under her tongue, brushes her lower teeth, signs "teeth," and picks her lower then upper teeth with the toothbrush. At this point she raises her upper lip with her finger and notices some black pigment on her otherwise-pink upper right gum. She picks at it with her finger and with the end of the toothbrush, looking at the end of the toothbrush after she does so. She drops her lip to reposition, then lifts it again and while holding it up with her right index finger, picks the dark area with her left little finger, looking at her fingernail and licking it after she does so, and then uses the toothbrush on the area. Lifting her lip again, she looks at and tongues the pigmented spot. She drops her lip, and moves to the lower molar area on the same side, and after working on it with the toothbrush and her finger, signs



Koko notices and tries to remove black pigment on her gum using mirror and toothbrush.

"tooth." She picks at her tongue with the toothbrush, curls her tongue, and touches the tip of her curled and extended tongue with the toothbrush. Following this she signs "come" to me, sticking out her tongue as if to get me to do the same. I open my mouth and Koko picks my upper teeth and the gum area on the same side as she found the pigment on her mirror image, possibly checking to see if I have a similar marking.

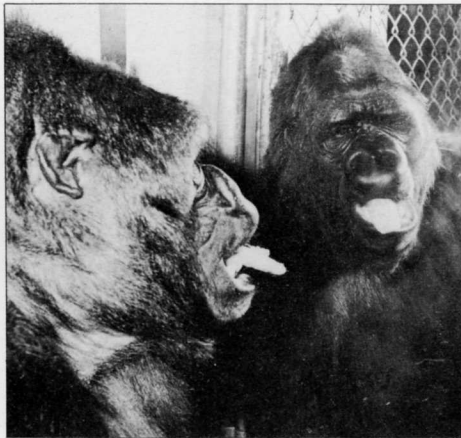
Nature provided a marking on Koko's body of which she could only become aware, and try to remove, through the use of a mirror. This is the kind of evidence of self-recognition researchers have, in the past, found for chimpanzees and orangutans but not gorillas (6). Why have others failed to find self-recognition in gorillas? There are a number of possible reasons. An extremely small number of gorilla subjects have been employed in the studies. Their age, rearing history and social situation could have had major impacts on the results. Gallup et al (7) have found that chimpanzees reared in social isolation fail to recognize their reflection in mirrors.

Physical and psychological aspects of the experimental situation could play a major role: Duration of the study could be a factor for two possibly related reasons—first because gorillas may be much slower to exhibit this behavior and second because they may need a great deal more time to adapt to the observer's presence. The work of Robert Yerkes early in this century revealed that "... except in their childhood, (gorillas) are undemonstrative creatures compared to chimpanzees and may possess capacities and potentialities that they decline to exhibit" (8, p. 149). It has been our experience that the presence of unfamiliar persons has an enormous impact on gorilla behavior. In each of the published self-recognition studies, such observers were present in the room with the gorilla, often in very close proximity to the mirror. Behaviors scored as "social responses" to the mirror could have been caused by the observer and self-directed behaviors could have been inhibited by his or her presence. Gorillas are shy (self-conscious!) in the presence of observers. Like humans, they are highly aware of, and sensitive to, being an object of observation to others. Indeed, this is an expression of the first dictionary definition of the word *self-conscious*. The "Candid Camera" phenomenon is possibly not unique to our species: we will do things in private that we would never do if we thought someone was watching. If I may be considered a representative human, although I will readily wash ink off my hands in a public restroom, I feel uncomfortable and reluctant to look into a mirror to groom my face when someone unfamiliar is present, and if I am being stared at, I will not initiate the activity at all.

Some limited support for this idea comes from our 11-year-old gorilla, Michael. He has had very little experience with mirrors



Koko makes faces in mirror.



—none at all until he was 3½ and only a total of perhaps 30 hours or less since then. On two occasions, he has gotten paint or foodstuffs on his face and, because he did not attempt to remove it for several minutes, appeared to be unaware of it. I subsequently showed him his face in a hand-held mirror. Both times, after looking for a few moments, Mike turned away from the mirror, and as he did so wiped the spot with his hand or wrist, in a way that seemed inadvertent. On his most recent experience with a mirror (20" by 23"), he showed no social behaviors, but quietly watched himself eating and then turned down his lower lip and laughed, looked at his teeth and stuck out his tongue.

If something similar was operating to alter the tested gorillas' responses to the mirror, certain puzzling observations seem to fall into more logical perspective. Ledbetter and Basen state that the zoo keepers for their two subjects thought that both animals "recognized themselves" in mirrors. They also report that "each of the two animals quickly appeared to recognize their partner's mirror image, and began using the

mirror to watch the movements of the other" (1, p. 309). And, in a study by Suarez and Gallup (2), gorillas were observed to groom spots on their wrists, but not on their faces.

Whatever the explanation for the negative results of other researchers, we believe that we have definitive proof that self-recognition is not beyond the mental capacity of the gorilla. Evidence of self-awareness, a broader concept which encompasses but is not isomorphic with self-recognition, has been forthcoming from our work with the gorillas for many years through Koko and Michael's ability to use language to express feelings, empathy, humor, gratitude, grudging, sympathy, and even lies (9).

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The important thing is not so much that every child should be taught, as that every child should be given the wish to learn.

—John Lubbock

GORILLAS

Gorillas are funny things;
They eat bananas and love to swing.

The males think they're really great;
They pound their chest to attract a mate.

It's sad what hunters have done;
They've killed them off one by one.

Let them be;
Leave them alone;
And men stay out of their home.

—Alicia S. Varinaitis
Age 12
Van Nuys, CA

God made all the creatures and gave
them our love and fear to give sign, we
and they are his children, one family
here.

—Robert Browning