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Innovative Behavior at Mahale: New Data on Nasal Probe and Nipple Press.

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For more than three decades, observers of wild chimpanzee unit groups (communities) have noted behavioral patterns that lend support to the idea of inter-population differences in behavior that cannot be explained by ecological variables. McGrew & Tutin (1) suggested that the grooming hand clasp, as practiced by the chimpanzees of the Mahale Mountains, Tanzania, can be recognized as a custom. Nishida (2) documented the leaf-clipping display and discussed mechanisms of transmission (3).

The 1990s have yielded important syntheses of these differences as reflected in material culture, e.g., tool use (4). Boesch and Tomasello (5) reviewed population-specific behavioral patterns for six long-term research sites and addressed the cognitive and learning mechanisms that may underlie the acquisition of

such behavioral patterns. Whiten *et al.* (6) summarized 65 categories of tool use and social acts from the seven most long-term sites. Thirty-nine of these patterns were found to be *cultural* patterns of behavior that are transmitted repeatedly through social acts to become a population-level characteristic (3).

McGrew & Marchant (7) assessed the robustness of phenomena that are *potentially* cultural. They suggested four degrees of data: *anecdotal* - unique or rare events; *idiosyncratic* events exhibited by only one individual, however often; *habitual* - events repeated by several individuals; and *customary* regular events by all appropriate individuals.

Nishida (8) reviewed new findings on Mahale chimpanzees. In a section entitled "Innovative behaviors and culture" (pp. 382-84) he reported some idiosyncratic behavioral patterns. Here we present further observations on nasal probe and nipple press.

Nasal probe entails using a "toothpick-like tool" to induce sneezing that clears the nasal passage (9). It was shown four times by an adult male, Kalunde, during a flu-like illness in fall 1992. "He inserted the tool deeply into one of his nostrils, which often immediately stimulated him to sneeze. When he sneezed, a large amount of nasal mucus was discharged onto his upper lip. The mucus was then picked off and quickly ingested." (p. 219)

In Sept.-Dec. 1996, we studied laterality of function (hand preference) of M group, using an ethogram with 38 behavioral patterns and focal animal sampling. On 8 Oct., LFM saw Maggy, a 9-year-old adolescent, hold a small twig in her left hand to probe her left nostril. She also used her left index finger to probe her left nostril. This bout of nasal probing produced mucus that she ate; she then put the twig cross-wise in her mouth. Soon after, she repeated the procedure and succeeded in inducing a sneeze that yielded more mucus. She ate this second discharge of mucus with some leaves. No further observations of nasal probe by Maggie or any other M group chimpanzee were made by us in that field season.

Nipple press, was described by Nishida as: "The adolescent male Alofu began habitually pressing his fingers on his nipples when pant-grunting to adult males, apparently



Alofu nipple presses with his left hand.

showing them his extreme respect" (p. 382) (8). In a later publication (10) Nishida noted that Alofu "regularly stimulates his nipples when scared by mature males" (p. 383) and that three prime adult females, (Fatuma, Wakilufya, and Wakusi) occasionally touched or stimulated their nipples. In their 1999 ethogram of the Mahale chimpanzees, Nishida et al. (11) catalogued this pattern as "fumble with nipple" (p. 155) and suggested a self-reassurance or self-stimulation function for the pattern.

During fall 1996, four individuals engaged in nipple press, but the pattern continued to be displayed most often by Alofu, who by then, was a 14-year-old adult male (see Table 1). Typically, the pattern was one-handed (91 bouts were recorded) but three instances were bimanual. The other 3 individuals who nipple pressed were: Abi, a 14-year-old female; Gwekulo, a 34-year-old adult female; and Ikocha, a 31-year-old adult female. Of the adult females who were reported on earlier (10), Fatuma and Wakusi were still members of M group but were not seen to nipple press; Wakilufya had died.

This pattern has been maintained by Alofu, who also has elaborated and generalized

the pattern. Now, Alofu rarely pant-grunted while nipple pressing, even when in the presence of senior males, but he remains careful to acknowledge them. When five adult males in a row passed Alofu, including the beta male, Kalunde, Alofu nipple-pressed 18 times, including once with both hands simultaneously while bipedal. One could speculate that Alofu was visually signaling his pant-grunt by showing this pattern to the males. The use of a bipedal posture

Table 1.

Frequency and Distribution of Nipple Press

Subject	Left	Right	Both
Alofu	43	38	3
Abi	3	2	-
Gwekulo	3	1	-
Ikocha	1	-	-
Total	50	41	3

and both hands may have added amplitude to the message?

During another session of 12 bouts of nipple press, Alofu accompanied them with "funny faces"; he moved his lips and squeezed his eyes. Several times he placed his thumb on the ipsilateral nipple while stretching his hand across his chest to use his index finger to press the contralateral nipple!

These two sessions account for 37% of Alofu's nipple presses. He showed the pattern in both terrestrial and arboreal situations; once he nipple pressed both before and after a brief bout of arboreal ant fishing. The remaining bouts occurred in a much less concentrated manner and it was not clear what context had provoked the pattern.

The three females showed a much lower frequency for nipple press. Ikocha was seen to nipple press only once; Gwekulo's four bouts occurred during two sessions separated by 29 days. Once, she held her nipple in a precision grip using her thumb and forefinger. Abi's five bouts occurred during two focal observations that were five days apart.

How might these further observations be interpreted using the classification scheme proposed above? For nasal probe, Maggy's tool use is only an *anecdote*, since the two bouts occurred a few minutes apart during the same session.

Nipple press has been maintained over several years, and elaborated by its innovator. It also appears to have "escaped" its original context of pant-grunting when acknowledging dominant males. Given its frequency, it is also more available for other chimpanzees to see, compared with nasal probe. That leads to the *potential* for other individuals to incorporate the pattern into their own behavioral repertoire through various mechanisms of social learning. However, the other three individuals who were seen to nipple press (N=10 bouts) remain *anecdotal*.

These additional observations suggest that observers of this unit group should continue to watch for these patterns, especially nipple press, and pay particular attention to the individuals named above. With four subjects showing nipple press, it may develop to being

habitual, but for now it remains *idiosyncratic* to Alofu.

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