

# Training an unrestrained orang-utan mother

*Pongo pygmaeus*

## to permit supplemental feeding of her infant

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A primate reared in a captive environment which provides social inputs approximating natural conditions has a greater chance of successful socialisation and subsequent breeding than a conspecific raised in a more impoverished situation. Since maternal deprivation during infancy leads to behavioural abnormalities which substantially lower breeding success in a wide variety of non-human primates (Jolly, 1972), Monkey Jungle adheres to a policy of encouraging primate mothers to rear their own offspring. In a very few cases, an uncorrected, diagnosed maternal shortcoming has necessitated mother-infant separation. However, such separations have been strenuously avoided.

This report describes a successful training programme designed to teach 'Suzie', an otherwise competent adult ♀ orang-utan with a past history of inadequate milk production and active resistance to attempted supplemental infant feeding, to permit attendants to deliver necessary food supplements to her infant.

### EARLY HISTORY

Suzie, a wild-born specimen of the Sumatran race *Pongo pygmaeus abelii* with an estimated birth date in 1961, was acquired by Monkey Jungle in September 1962. After several years of hand-rearing she was introduced into a cage with an older ♀ as companion. Following a period of socialisation lasting several years Suzie was released into the Asiatic Primate Grotto (DuMond, 1970a) where she continues to live in good health. DuMond (1970b) described the early history of Suzie's adaptation to this environment and his papers (DuMond, 1970a, 1970b) offer detailed descriptions of the Grotto, feeding schedules and general husbandry policies for orang-utans at Monkey Jungle. Suzie has always shared the compound with 'Sabang', a sexually competent ♂ of the Bornean race *P. pygmaeus pygmaeus*, who has fathered all her offspring.

After producing two stillborn offspring whose miscarriage was attributed to physical immaturity, Suzie gave birth to 'Valentino', a viable ♂, on 14 February 1973. She suckled this baby and consistently displayed adequate maternal behaviour. Unfortunately, Valentino died on 10 August of pneumonia. Necropsy revealed severe fatty degeneration of the liver, indicating that a nutritional deficiency had contributed to his death. Since orang-utans normally nurse their infants for several years, it was assumed that Valentino's high observed rate of nipple contact was of the nutritive variety. Although he had begun to sample adult fare available at five daily feeds, he ingested but a minimal amount. However, as young orang-utans probably accommodate to solid food over a period of several years, Valentino's development in this regard was assessed as normal. The diagnosis of malnutrition was totally unexpected.

On 10 July 1974 Suzie gave birth to a ♀, 'Pandjii', who died on 1 January 1975. Her pathology report attributed death to lipid pneumonia – a terminal pathology reflecting the generalised malnutrition simultaneously diagnosed. In this instance, in order to avert another case of malnutrition, a feeding programme had been started as soon as Pandjii was observed to grasp, mouth and otherwise orient to her mother's solid food. But although Suzie allowed some food theft, her general response of passive resistance proved sufficient to prevent her daughter from gaining effective nutrition. The simple strategy of increasing the amount of food laid out for Suzie failed because upon satiation she would move away from the feeding station. Since Suzie regularly showed an interest in the activities of familiar humans and usually responded to calling with approach, an attempt was then made to hand-feed the infant. As they were offered after the regular adult orang-utan feeds had taken place, Suzie did not normally

display interest in the supplemental foods. Instead, she resisted the attendant's attempts to deliver the items by 'protecting' her infant, crouching, turning, or holding the baby just beyond the attendant's reach. On the other hand, as the hand-feeding did not as a rule cause Suzie to move away from a familiar attendant but merely led her to block access to her infant, it was hoped that persistent efforts would eventually overcome her resistance. Unfortunately, Pandjii died before real progress could be made.

#### TRAINING PROGRAMME

Suzie gave birth to 'Batu', a healthy ♂, on 2 February 1976. A programme to train Suzie to tolerate interactions with her new infant and to permit supplemental feeding commenced two weeks later. A pair of trainers, the author and an assistant, began the programme by feeding Suzie in her night cage and by interacting with her there in daily 30-minute sessions beginning at 1730 hours. Once the trainers had become familiar to the animal and their presence had become reinforcing, they began to increase the amount of physical contact occurring in these sessions. Thus, by gradual accommodation over a one-month period, Suzie allowed hand holding; arm holding; and, eventually, stroking of her midlateral torso in proximity to the infant. The next major step in the training sequence, Suzie's tolerance of trainer-infant contact, took longer to accomplish than the previous phase. However, after another three weeks of sessions Suzie showed considerable tolerance of trainer-infant contact.

By the time Batu was two-and-a-half months old, the trainers were attempting to feed him small amounts of crushed banana by hand. Once again, Suzie would not permit feeding even though she had allowed the trainers to put their fingers into Batu's mouth in previous contact sessions. At times she ate the morsels intended for Batu; but, normally, she showed her intolerance of supplemental feeding by obstructive behaviour – crouching, pulling Batu out of reach, turning her back to the trainers, etc. For a few days attempts to bridge the gap between trainers and infant by such devices as delivering milk in straws and squirting milk into Batu's mouth with a water pistol failed, and even caused Suzie to withdraw, a level of protest interpreted as a

serious setback to the programme. So, for the next week, in order to regain her confidence, the previous training steps that had so far never given her annoyance were repeated. Once confidence had been re-established, the trainers gradually shifted the focus of their interactions to Batu, but no feeding was attempted for another week.

Feeding was resumed when Batu was three months old. A new technique was used. Sur-reptitiously dabbing a small quantity of honey on the underside of his index finger, the trainer then inserted this into the infant's mouth. Honey was used because its transparency and adhesiveness was particularly conducive to furtive feeding. After several such successful feeding sessions, it appeared that Batu was co-operating by actively orientating toward fingers moving in his direction, and over the next week the amount of honey fed gradually increased. Suzie soon detected the ruse but, for reasons incompletely understood, she did not show her expected withdrawal responses to these honey feeds. Instead, she stole honey. At this juncture, it was decided to spoon-feed Suzie and Batu simultaneously in order to reinforce Suzie's newly acquired tolerance. Over the next week the trainers gradually substituted various commercially prepared baby foods for honey. A particular favourite of Batu's appeared to be Gerber's Vanilla Custard Pudding. Within a week of feeding this substance, Batu – now three-and-a-half months old – was taking in 110 g daily for a nutritional supplement of 110 kcal and 2 g protein. At this time, three daytime feeds during the periods 0930–1130, 1230–1430 and 1545–1700 replaced the single evening session. Suzie's willingness to appear on call at a cage window where these feeds took place determined the exact time of feeding within the above limits.

In order to increase the nutritional content of the supplement, a homemade custard of eggs, whole milk, corn starch, honey, salt and multi-vitamins was introduced. At first the replacement was not as eagerly eaten as the original; but within a week Batu was consuming the new preparation in quantities equivalent to the old. By the time he was four months old he was receiving 120 g of the new custard daily for a nutritional supplement of 130 kcal and 5 g protein. At this point the two orang-utans were introduced to new attendant-feeders. They

readily adapted to them, and by the time Batu was five months old the staff included five individuals who could give food supplements to Batu. Over the next year the amount of food consumed by him gradually increased to 480 g of custard, yielding a daily supplement of 520 kcal and 20 g protein. Brief periods of decreased food intake occurred in conjunction with the eruption of deciduous dentition, particularly the canines and pre-molars. The marked swelling of the gums and the copious mucus production which accompanied this development probably made oral stimulation uncomfortable, thus causing a temporary withdrawal from feeding.

On 15 July 1977, when Batu was 17½ months old, the custard was replaced by a richer, vitamin-fortified egg and milk blend which provided a daily supplement of up to 545 kcal and 25.5 g protein.

Batu continued to suckle over the entire period discussed in this report. No estimate of the amount of nutrition obtained in this fashion was made. It has been noted that captive orang-utans may suckle as long as six years (MacKinnon, 1974). In addition to liquid nourishment, Batu was fed from mid-July 1976 to mid-July 1977 increasing quantities of apple, banana, celery, grape, green beans, mango, melon, orange, raisins, and Wayne Monkey Diet. At the end of this period such hand-fed items were phased out as he was judged fully able to obtain them on his own initiative at regular adult feeds.

#### CONCLUSION

A notable feature of this training programme was the rapidity with which the mother accommodated to the supplemental feeds once the trainers had achieved surreptitious success in feeding the infant. This suggests subtle signalling between the two, perhaps *via* tactile cues. It also suggests that past feeding attempts may have failed primarily because they disturbed the infant, who signalled his upset to Suzie, thus stimulating her obstructive behaviour.

A fortuitous but favourable result of the programme was the fact that the animals' acceptance of supplemental feeding was not

restricted to specific members of staff. This increased the value of the exercise by freeing it from dependence on particular individuals, a problem that has regularly handicapped other specialised husbandry programmes involving anthropoids.

At the time of writing (January 1978) Batu appears healthy and active. Although quantitative assessments of his activity level and motor skills were not made in conjunction with this project, Batu appeared more active and better co-ordinated than Suzie's previous infants, particularly in the crucial period beyond the fourth month.

The most important result of the project described here is the ensured continuity of Batu's contact with his own species. The establishment of a self-perpetuating captive orang-utan population depends in large degree on the routine production and socialisation of young by conspecifics, an objective best achieved when captive-born infants receive continuous conspecific care.

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#### PRODUCTS MENTIONED IN THE TEXT

**Gerber's Vanilla Custard Pudding:** manufactured by Gerber Products Co., Fremont, Michigan 49412, USA.

**Wayne Monkey Diet:** manufactured by Allied Mills Inc., 110 N Wacker Drive, Chicago, Illinois 60606, USA.

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