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Breast-Feeding of Animals by Women: Its Socio-Cultural Context and Geographic Occurrence

Abstract. — *In this paper, the practice of women breast-feeding animals is viewed from a geographic and historical perspective. The principal aims are to establish where the practice has been commonplace, to determine its economic and socio-cultural context, to consider its possible role in animal domestication, and to weigh its significance in human ecology. — In many cases, the practice is an expression of affection for pets (among Polynesians, among forest peoples of tropical South America, and especially among aboriginal hunters and gatherers in Southeast Asia, Australia, and Tasmania). In other cases, affection is supplemented or supplanted by economic concerns, as among various Melanesian "pig complex" peoples. In some cases, breast-feeding of animals is linked to cult and ritual, an outstanding example being the nursing of cubs in connection with the Ainu bear cult. In a few cases, animals are breast-fed with the welfare of the human mother or child being of greatest concern. The conclusion is drawn that animal nursing may indeed have contributed to the domestication of such animals as the pig and dog, and that in some places, particularly lowland New Guinea, the practice can play an important role in human ecology.* [Breast-Feeding of Animals, Ecology, Animal Domestication, Animal Cult]

Carl Sauer (1952: 30-32), in his controversial view that the pig and dog were first domesticated in Southeast Asia, called particular attention to the pet-keeping penchant of native peoples both there and in tropical America. He noted that in both regions women breast-feed young mammals and raise them as members of the family. He hypothesized that prehistoric hunters in

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Southeast Asia brought home infant dogs and pigs as pets; that to keep them alive, they were breast-fed by women; and that this practice greatly facilitated their domestication. Such a procedure would seem to provide an ideal antecedent to domestication, especially since it is fairly easy for newly-born animals to imprint on and hence establish permanent social bonds with humans (Hess 1959; Schein 1963).

Even though a quarter century has passed since Sauer advanced his hypothesis, no one has attempted to collect the widely-scattered information on such animal nursing around the world.¹ This is a first effort in that direction. We seek to establish the geographic occurrence of breast-feeding of animals by women especially where it is a regular practice; to identify its forms; to sketch the economic and socio-cultural contexts in which it is found; and to cast light on its relevance not only in the domestication question, but in other aspects of human ecology as well. Hereafter, "nursing," "animal-nursing," and "breast-feeding" are used as synonyms for "breast-feeding of animals by women."

1. Southeast Asia and India

We consider first the aboriginal hunting and gathering groups (Negrito, Senoi, and Aboriginal Malay) of the Malay Peninsula whose life and situation seem closely to approximate that of the ancient peoples about whom Sauer wrote. Judging from the general account by Williams-Hunt (1952: 50-51, 94), among aboriginals it is rare for a household not to have pets: dogs, pigs, cats, squirrels, monkeys, otters, bamboo rats, and other creatures. Negritos (Semang) and Senoi (Sakai) often capture and bring home a young animal after a hunter kills its mother or separates it from her (Schebesta 1929: 69-70, 1954: 97, Plate 27; Evans 1937: 64). Aboriginal groups differ in their care of such pets, but usually they give them names and display great fondness for them (Dentan 1968: 33-34; Williams-Hunt 1952: 50-51, 94). Young pigs, dogs, and monkeys are commonly breast-fed by women of the household. When such animals grow older they may be permitted to return to the wild, or, though aborigines may suspect what an animal's fate will be, they are sometimes given or traded to Malays or Chinese. The hunter and his family themselves, however, are unable ever to kill such animals.

The Onge of Little Andaman Island in the Bay of Bengal are, like the Semang, Negrito hunters and gatherers. They are reported by Cipriani (1966: 21, 80-83) as displaying "passionate love" for their domestic dogs, stroking them, sleeping with them, and suckling puppies as if they were children. Their affection for dogs, which are valuable aides in hunting, contrasts sharply with the great cruelty they show for the animals they hunt. There is, moreover, nothing in Cipriani's account to suggest that the Onge suckle animals

¹ The most complete assemblage of data on animal nursing we have uncovered is in a nineteenth-century account in which Langkavel (1898: 654) identified several cases from various parts of the world.

captured from the wild. Their animal-nursing thus contrasts sharply with that of the Semang, and seems to be a recent phenomenon, since the dog was first introduced to the Andaman Islands only in the mid-nineteenth century.

Turning westward from the Andaman Islands, we have uncovered only a single reference to the human breast-feeding of animals on the Indian sub-continent. This is in "The Loyal Mongoose," a tale in the *Panchatantra*, a collection of animal fables written in Sanskrit between 100 B.C. and A.D. 500. The tale (Ryder 1925: 432-433) is of a mongoose raised by a Brahmin's wife along with her own son. The woman loved, anointed, and even breast-fed the creature; but ultimately, in a grievous error, she killed him. If there are other instances, in fable or real life, of Indian women breast-feeding animals, we have no knowledge of them.

There are scattered reports of animal-nursing among the more advanced, agricultural peoples of Southeast Asia: for non-Moslems of Indonesia who love pork and value pigs so greatly that women will nurse piglets whose mothers have died (Kennedy 1942: 57); for people of Engano, an island west of Sumatra, where pigs are consumed at feasts and women breast-feed both piglets and puppies (Loeb 1935: 210-211); for upper Burma, where Joest (1886: 360) observed a young woman in a marketplace nursing a puppy and where he was told that young mothers consider it an honor to nurse small white elephants; and for Indochina, where a nineteenth-century newspaper story tells of an Annamese woman selling a three-month-old pig to a Frenchman to obtain money for gambling; then, in an attempt to buy back the piglet, she cried and pleaded and showed great affection for the animal which she claimed to have breast-fed since birth (Temple 1868: 130). These reports indicate that the practice of women breast-feeding animals in Southeast Asia is not restricted to hunters and gatherers, but that to some extent it occurs among more advanced peoples, for economic and apparently for other reasons as well.

2. Ainu Bear-Nursing

Bear ceremonialism once occurred among widely-scattered native peoples of northern Eurasia and North America, and in the Amur-Gulf of Tatory area young bears were captured, kept in cages, and later killed at "bear festivals" (Hallowell 1926: 131). So far as we have been able to determine, however, the only regular nursing of captive bear cubs occurred on the islands of Hokkaido and Sakhalin, among the Ainu, those hunting and gathering aboriginals of northern Japan.² Most reports of such bear nursing, moreover, date from past centuries. By the twentieth century, the bear festival had largely ceased on these islands (Hallowell 1926: 121; Munro 1962: 64), and presumably there has been a sharp decline, as well, in the practice of bear-nursing.

² The bear festival was not found among Ainu on the Kuriles (Hallowell 1926: 121).

Though these Ainu showed religious respect for all forms of animal life, the bear received by far the most veneration (Munro 1963: 169). The importance of the bear derived from its association with a particularly important spiritual being (*Nuburi-Kamui*, "master of the mountain"), who not only was the "owner" of bears but also controlled a major share of Ainu food resources (Hallowell 1926: 120-121). Bearflesh was in fact an important food for the Ainu and bearskins were used for clothing (Frazer 1912/2: 181). The bear was also distinctive for its power, ferocity, and bravery, and the hunting of bears, with the simple weapons formerly available, was seen as a very courageous act (Bird 1881/2: 99; Batchelor 1901: 471).

Bear hunts were commonly organized in early spring (St. John 1873: 252; Bird 1881/2: 99; Batchelor 1901: 473), with efforts being made to locate bears still in hibernation; when a hibernating female was killed, its cub would be brought home alive. Hibernating bears were found mainly in mountain and upstream areas, and groups living in or near such places were able to capture cubs each year, whereas in coastal regions, according to Watanabe (1964: 74), cubs might not always be obtainable. Nevertheless nineteenth-century reports for Hokkaido and Sakhalin (St. John 1873: 252; Schrenck 1881-1895: 736; Landor 1893: 214; Batchelor 1908-1926/1: 249) indicate that "many Ainu" kept one or two caged bears, that in some settlements there were four, five, or as many as ten young bears in cages, and that one found a young bear "in almost every Ainu hut."

Bear cubs were put into the care of women, whether those of hunters or of a chief or sub-chief. A woman might bring up a cub by hand or she might nurse it (Fig. 1). In either case she treated it with much affection; she fondled and played with it as if it were her own infant; she might even pre-masticate a cub's food and let it lick the food from her lips (St. John 1873: 252; Bird 1881/2: 99-100; Schrenck 1881-1895: 735; Dixon 1883: 42-43; MacRitchie 1892: 18, 19; Batchelor 1892: 173-174; Landor 1893: 59, 214; Reclus 1898/7: 398; Batchelor 1901: 483-485; Frazer 1912/2: 182; Watanabe 1964: 74-75). That her affection for such a cub was genuine is shown by the case of the Ainu woman who, on delivering her recently-sold cub to a visiting European, crouched beside it and wept freely (MacRitchie 1892: 19).

When a bear grew large and powerful, it was placed in a raised wooden cage. The Ainu bear cage typically had four poles, one at each corner. Topping the poles were "fluttering wooden spirals," apparently copied from the traditional Japanese Shinto sticks; these were decorated with strips of paper symbolic of divinity and sanctity (Schrenck 1881-1895: 736). Even though caged, however, a bear continued to be carefully nurtured and treated with respect and affection. After its first several months of confinement, an average cub is said to have eaten as much food, particularly salmon and wild nuts and berries, as several human adults (Watanabe 1964: 75). Providing such food was time-consuming and expensive, commonly beyond the means of a single keeper, who was aided in this by others.



Fig. 1: Ainu woman nursing a bear (MacRitchie 1892: Pl. II)

Eventually, usually after one to three years, the bear was taken from its cage and ritually killed at a communal feast, a bear festival (called *Iomante*, “to send away”) at which the bear’s spirit was sent back to its “master” (Hallowell 1926: 121, 122). The feast, usually held in the fall, was sponsored by the bear’s owner, who gained prestige and status thereby. The killing was often quite brutal, and the woman who had nursed the bear would, before and during the procedures, pull her hair in consternation, cry, wail, and after the animal finally died she might beat each of its killers with a tree limb (Bird 1881/2: 100; Schrenck 1881-1895: 735-736; MacRitchie 1892: 19; Czaplicka 1914: 297). Such acts presumably removed guilt for her part in the affair, and after they were carried out, she might willingly lead dances at the festival and even dance herself (Schrenck 1881-1895: 735-736).

After the bear was killed, its head was removed, offerings were made, and the remaining flesh prepared and distributed to the guests (Batchelor 1901: 491-494). The skull of the bear was finally mounted on a post near the keeper’s house, a new post apparently being erected for each bear sacrificed. Several such skulls mounted on posts were found in each Ainu village, particularly near a chief’s house (Bird 1881/2: 99). It was said (Reclus 1898/7: 398) that such skulls protected the household. In any case, as long as the skull survived, the Ainu believed that the spirit of the animal somehow remained associated with it (Batchelor 1901: 495, 496); offerings were thus

made to the skull in hopes of gaining favor. One description (Batchelor 1901: 494-495) indicates that the posts used to display the bear skulls were forked at the top, like the posts widely used among tribal peoples in South-east Asia for the display of bovine skulls after sacrifice. Among hill tribes of the India/Burma borderlands, for example, a new post was erected for each sacrifice of mithan (*Bos frontalis*); posts were left standing near the sacrificer's house, and such posts were especially common around the homes of chiefs and wealthy men (Simoons and Simoons 1968: 204-207, 230).

3. Australia and Tasmania

The Australian Aborigines remained hunters and gatherers, without domesticated plants or animals (unless one is ready to consider the Australian native dog, or dingo, as fully domesticated), until the time of first European contact. Like the Semang and Sakai, however, Australian Aboriginal hunters would commonly bring home small wild animals—particularly dingoes, but also kangaroos, possums, and various kinds of birds—to keep as pets or for the entertainment of children (Basedow 1925: 88-89, 118-119). Certain of those animals would later be eaten by the Aborigines (Campbell 1965: 210) though others, particularly dingoes, might not be.

Australian Aborigines generally made little effort at feeding their animals, except for the breast-feeding of some young pets by women. Aborigines in one area of Western Australia were reported as breast-feeding young possums (Basedow 1925: 88-89), but the dingo pup is most often mentioned among animals suckled by women (Mitchell 1838/2: 341; Grey 1841/2: 279; Keppel 1853: 473; Waitz 1860-1877/6: 779-780; Smyth 1878/1: 148-149; White 1915: 726; Basedow 1925: 119; Meggitt 1965a: 15; Gould 1969: 179). When an Aboriginal hunter killed a female wild dingo with young, the pups were often brought home to be raised as pets, ultimately to serve among the encampment's watchdogs and hunting aides. Dogs, by sleeping with people, were also useful in providing warmth on a cold night (Kimber 1976: 142-143). Whatever their affectional ties with humans might have been, dingoes at times did attempt to return to the wild (Meggitt 1965a: 22-23); this sometimes led an Aboriginal woman to break a pup's front legs to prevent it from straying from the camp (Meggitt 1965a: 15; Rolls 1969: 358).

The dog, wild or domestic, was absent on Tasmania until Europeans arrived late in the eighteenth century (Jones 1970: 258-259). Prior to that time, Tasmanian Aborigines, most primitive of hunting and gathering peoples in the modern world, had no contact with Australia to the north (at least not since antiquity) nor with other lands where dogs were kept. They thus lacked even knowledge that the dog existed. Yet, following European contact it was not long before the dog came to occupy an important role in Tasmanian culture, particularly as an aide in hunting (Jones 1970). Along with this, Tasmanian women began to breast-feed puppies (Davies 1846: 412; Ludwig Salvator 1886: 65; Roth 1890: 123), both

because of a fondness for them and because of their economic potential as adults. Indeed, reports indicate that a Tasmanian woman would sometimes choose to suckle a well-liked puppy rather than her own child (Davies 1846: 412; Roth 1890: 123).

4. Oceania

It is no exaggeration to state that the breast-feeding of animals by humans is a near universal custom among the island peoples of the Pacific, or at least among those peoples living on islands where the dog and/or the pig can also be found. Reports of the nursing of one or both of these animals are quite abundant in the ethnographic literature for New Guinea, for the Melanesian islands to the east of New Guinea, and for the aboriginal peoples of Micronesia and Polynesia.

In New Guinea the nursing of dogs is reported for the coastal peoples of the Huon Peninsula (Schellong 1889: 13) and for the Motu of the island's south coast (Lyne 1885: 34). In addition, the Kiwai of the Fly Delta believe that "to make a dog faithful to its owner . . . the wife squeezes some of her milk into a coconut bowl and makes the dog drink it" (Landtman 1927: 442-443).

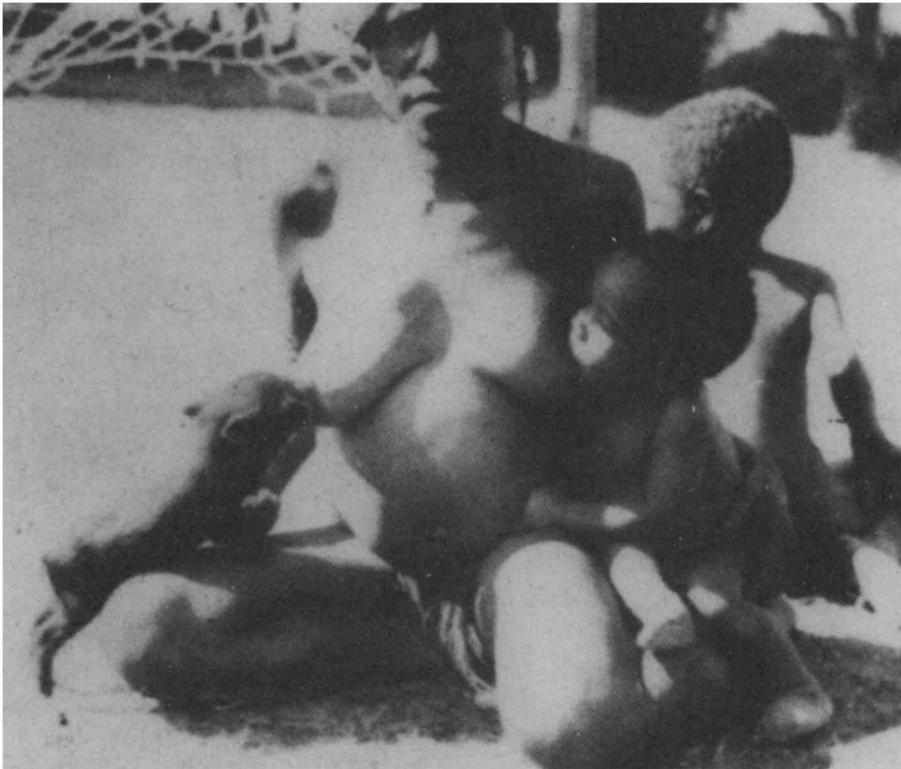


Fig. 2: Chimbu woman of New Guinea nursing her child and a piglet (Venkatachalam (1962: Pl. 4)

Reports of the nursing of piglets (Fig. 2) are notably more abundant for New Guinea than reports of dog-nursing. For lowland Papua New Guinea we have located such cases among the Tangu (Burrige 1959: 191), Turamarubi (Austin 1950: 206), and Gogodala (Baldwin 1978: 24), as well as among the populations living around Astrolabe Bay (Finsch 1888: 53) and on the coast of the Huon Peninsula (Schellong 1889: 13). Records of the suckling of pigs by women also exist for the Enga (Meggitt 1965*b*: Pl. 10), Melpa (Ross 1936: 350), Chimbu (Venkatachalam 1962: Pl. 4), Fore (Sorenson 1976: 54-56), Agarabi (Watson 1965: 64), and Kutubu (Bjerre 1964: 131) of Papua New Guinea's central highlands, as well as for the Tauade who live inland from the south coast (Hallpike 1977: 71) and for the Arfak mountain people of the former Dutch New Guinea, now known as Irian Jaya (Echoud 1962: 133). The suckling of piglets appears to be so common throughout New Guinea that at least four ethnographers have felt compelled to report that the groups they studied *do not* engage in the practice: the Heve of Papua New Guinea's Sepik Basin (Townsend 1969: 49), and the Madik (Crockett 1942: 111), Kaowerawédj (Echoud 1962: 133), and Dani (Heider 1970: 51) of Irian Jaya.

Two distinct traditions of pig husbandry—"pig-rearing" and "pig-breeding"—occur in New Guinea (Baldwin 1978), and the suckling of piglets by human foster-mothers plays an important role in each. Most New Guinea groups, particularly those living in the lowlands along the south coast, purposely do not breed their pigs, but in fact castrate all village boars. Consequently the village pig population can be maintained only by capturing wild piglets to be raised in the villages, usually after the wild mother has been killed by hunters, or by attempting to rear the progeny produced by the few chance matings which occur between free-ranging village sows and wild boars. Among the Gogodala and other such pig-rearing groups, wild piglets brought home from the bush are given to the women to raise. They are housed in the women's section of the dwelling, where they are continually petted, fondled, and soothed. A woman will attempt to feed a captive piglet pre-masticated food, or, if the animal refuses to accept such nourishment, she will suckle it to keep it alive. In contrast to this pig-rearing tradition, most New Guinea highland groups belong to the pig-breeding tradition. These groups maintain their pig herds by selective breeding, keeping stud boars expressly for that purpose. Among such groups a woman will also willingly suckle a baby pig, particularly if the mother sow is weak or happens to die before the piglet is weaned. Throughout New Guinea, whether one looks at groups of "pig-rearing" or "pig-breeding" tradition, the ultimate fate of every village pig is to be killed and consumed at some ceremonial or ritual occasion, usually to the accompaniment of the wails of the woman who raised it. Lowland pig kills are rather small-scale affairs, but in the New Guinea highlands it is not unusual for dozens or even hundreds of pigs to be butchered at a single pig feast (Malynicz 1970; Vayda 1972). Throughout New Guinea a family which raises a pig, whether captured in the wild as a piglet or bred in the village,

is normally prohibited from eating its flesh after it has been killed.³ Among the Agarabi, for instance, "if a woman has suckled a piglet she will eat none of it for 'it is the same as her own child' " (Watson 1965: 65).

Elements of this "pig complex" can be traced eastward from New Guinea through the Melanesian archipelagoes. And, commonly, where one finds the islanders raising pigs and sponsoring pig feasts, one finds records of their nursing piglets as well: in New Ireland (Powdermaker 1933: 276), in the Solomon Islands (Romilly 1887: 68-69), and in the New Hebrides (Baker 1929: 29). We have, as well, located evidence that the nursing of puppies occurs in at least some of these islands. In the words of a nineteenth-century British administrator, "the women [of the Solomon Islands] are constantly to be seen suckling young . . . dogs," as well as pigs (Romilly 1887: 68-69).

In certain of the islands of Micronesia, particularly in the western Caroline Islands, the wet nursing of young animals is also a commonly reported culture trait. Pigs, apparently a post-European introduction to the island groups of Yap and Ifaluk, are nursed by the local women (Hunt, Schneider, Kidder, and Stevens 1949: 132; Müller 1917: 57-58; Spiro 1949: 7). As well, there are reports from the same area of the suckling of dogs, which unlike pigs antedate European contact in most parts of Micronesia (O'Connell 1836: 200; Titcomb and Pukui 1969: 52).

Turning to Polynesia, reports of the breast-feeding of infant animals again refer to piglets or puppies. The Tahitians, for example, at the time of earliest European contact were described as having domestic pigs and dogs, both of which were nursed by Tahitian women (Peschel 1878: 46). The Maori of New Zealand possessed only the dog as a domestic animal at the time of European contact, although they quickly adopted the pig as a commonly kept village animal. By the middle years of the nineteenth century, there were several reports of Maori women nursing favorite piglets at the breast (Best 1924/2: 4). Like the Tahitians, the ancient Hawaiians aboriginally possessed both the dog and the pig, and at least one early visitor to those islands was amazed to discover that "the custom of suckling dogs and pigs is common to the natives of the Sandwich Islands" (Macrae 1922: 42).

Three explanations have been proposed to explain the proclivity of Polynesian women for nursing their pets. Forster (1777/1: 377), who observed at Huahine "a middle-aged woman, whose breasts were full of milk, offering them to a little puppy which had been trained up to suck them," suggests that the practice was indulged in by a woman whose child had died, presumably to solve the problem of excess milk production. Luomala (1960: 202)

³ A recently-published comparative study of traditional exchange in New Guinea bears the title, *Your Own Pigs You May Not Eat* (Rubel and Rosman 1978); since everyone is prohibited from eating his (or her) own pigs, i.e., those animals which they have raised and perhaps breast-fed since they were piglets, a complex system of exchange and social organization has evolved based in effect on the maxim, "You give me your pig and I'll give you mine."

agrees that the practice was indeed indulged in by women who had lost children, but also notes that the flesh of dogs reared in such fashion was regarded as the best eating: it may be, then, that Polynesian dogs—if not pigs as well—were breast-fed in a conscious attempt to improve the flavor of the meat. Titcomb and Pukui, in contrast, argue that breast-fed dogs were highly valued, but not primarily for food. Rather, such puppies were commonly reared by Hawaiian mothers along with their own offspring.

After the child was weaned, the puppy was then breast-fed for a time. If the child died, the puppy was killed and buried with its human counterpart as a companion in death. . . . If the dog died, its canine teeth were extracted and worn by its owner, whether still a child or grown. And if the owner of the dog were ever a victim of sorcery, the dog would constitute a protector, offsetting the evil power (Titcomb and Pukui 1969: 10).

These three explanations, however, are not mutually exclusive, and it is likely that the comfort of the mother, the desire for a tasty meat supply, and faith in animal “scapegoats,” to say nothing of simple affection for the animals involved, were all responsible for the widespread popularity of animal nursing in Polynesia.

5. The Americas

Among the Indians of tropical South America, especially those of the Amazon Basin, are peoples who equal or surpass the Malayan aborigines in their love of pets obtained from the wild. Ehrenreich (1891: 13-14) and Cook (1909: 93-95, 100), writing several decades ago about the Carajá of Mato Grosso, Brazil, emphasized the Indians' delight with animals, their sense of oneness and equality with the animal world, their amazing skills at taming wild, often shy creatures, and their warm treatment of animals as members of the family, with captive wild mammals frequently being breast-fed by humans or, occasionally, by domestic dogs. This fond treatment was based, both writers insist, not on concern with the animals' economic products, but simply on a desire to have animals nearby for pleasure and entertainment. Indeed the only significant products obtained from such captives were the plumages of certain birds, which were made into colorful ornaments. Birds kept by the Carajá included macaws, parrots, ducks, and storks; captive mammals included monkeys, capybaras, peccaries, tapirs, and agoutis (*Dasyprocta* spp.); “pet” reptiles included tortoises, lizards, and, surprisingly, crocodilians. Domesticated dogs, cats, and chickens were kept also, although the Carajá made little real economic use of their products either. Chickens, for example, may have served to keep the village insect population down, but neither their flesh nor eggs were consumed.⁴

⁴ Nordenskiöld (1922: 10-11) notes the pattern, among primitive Indian tribes of South America of keeping chickens, like other pets, mainly for companionship, and not for their flesh or eggs. See also Brüning 1928: 56 (Jívaro) and Becher 1960: 87 (Surára, Pakidái, and the Arawak and Carib tribes of Guiana).

That the Carajá are not unique among tropical American Indians in their love of pets and in their habitual breast-feeding of mammals is attested to by numerous accounts of other South and Central American aboriginal groups—in the Gran Chaco: the ancient Abipón and Mbayá (Métraux 1946: 264, 265); in the Amazon Basin and adjacent areas of Brazil: the Mundurucú (Tocantins 1877: 90; Horton 1948: 273; Downs 1960: 39), Tapirapé (Baldu 1944-1949: 112; Wagley 1964: 401), Paumary and other Purus River tribes (Wallis and Petersen 1886: 265; Petersen 1887: 578; Métraux 1948: 666), Tucano (Brüzzi Alves da Silva 1962: 178-179, 427), Jívaro (Brüning 1928: 55-56; Cotlow 1966: 190; Harner 1973: 86-87), Waica (Barker 1953: 443), Waiwai (Guppy 1954: 114), and Surára and Pakidái (Becher 1960: 85-88); and in Central America: the Miskito and related Caribbean lowland groups (Conzemius 1932: 57-58; Kirchhoff 1948*a*: 221) and the Maya (Landa 1941: 127). Most frequently mentioned among mammals nursed by women are the dog, monkey, and peccary. The early sixteenth-century Maya, although not reported in the early accounts as nursing these three animals, are reported to have nursed captive deer.

We have found other references to women breast-feeding animals among South American Indian groups without clear indication that it occurred in a pet context. Kirchhoff (1948*b*: 483) notes, in a general statement about tribes of the Cariban family living north of the Orinoco River in Venezuela, that “people raise many animals in captivity” and that “when young mammals refused to eat, women would feed them at their breasts.” The breast-feeding of dogs is reported for the Lule of the Gran Chaco (Waitz 1860-1877/3: 480), but there is no indication of the context of the practice. For the Yahgan of Patagonia, dog-nursing is said to have been unusual, done only occasionally to keep a puppy alive when sick or when its mother had died (Gusinde 1937: 721). For certain eighteenth-century Indians of Surinam (Beckmann 1787: 19), and for the “Cameiro” (Canoeiro?) (Anonymous 1910-1912: 406-407) and seventeenth-century Tupinamba of Brazil (Cardim 1906: 500-501), such breast-feeding of dogs was related to the usefulness of the animals in hunting. It should be noted, as well, that certain groups mentioned in the previous paragraph used breast-fed dogs in hunting.

Among North American Indian and Eskimo groups, too, there are scattered reports of women breast-feeding animals. In some cases, breast-feeding was done to enable a pet, household animal, or captured young animal to survive, as with Crow women who nursed captive young beavers (Morgan 1959: 168); Pomo women who nursed pet fawns (Loeb 1926: 175-176); Hidatsa women who suckled a favorite puppy or wounded bear cub (Wilson 1929: 245), or Eskimo women who nursed a puppy whose mother had died (Oesterhaus 1885: 734). In other cases, however, breast-feeding of animals in aboriginal North America was done mainly with the comfort and well-being of the human mother and child in mind. In northwestern Mexico, for example, there is a report of lactating Seri women with an over-abundance of milk allowing puppies or piglets to nurse what their babies cannot use

(Davis and Dawson 1945: 201; Davis 1965: 203). One also reads of Arapaho women nursing young puppies or captive raccoons if there were more milk available than the baby needed, or if the human baby refused to take its mother's milk or seemed to become ill from drinking it (Kroeber 1902-1907: 16; Hilger 1952: 44, 55, 220). The belief was that the dog or raccoon would keep the surplus milk from going bad or that the animal would somehow draw out the bad milk and provide pure milk for the infant. Sometimes an older child, man, or woman might perform the same task, however, suckling a mother's breasts to clean out the bad milk. Both the Arapaho and the Gros Ventre believed that the "first milk" (colostrum) was bad for an infant and, within those tribes, a new mother might nurse a puppy for a few days in order to draw off the colostrum (Hilger 1952: 220; Flannery 1953: 138).

6. Other Areas

One may ask about animal-nursing by women in areas not mentioned above: in the Far East, Near East, Africa, Europe, and among overseas peoples of European descent. The fact is that very little animal-nursing is reported for these areas. Our search has uncovered no evidence of such animal-nursing among the Chinese or among any Far Eastern people other than the Ainu.⁵ We have also found no evidence of the practice in the ancient or modern Near East. Although there are several excellent studies of African domesticated animals which draw on widely-scattered materials (i.e., Kroll 1928; Boettger 1958; Frank 1965, Epstein 1971), we have been unable in them or in our broader search of the literature to identify any widespread, regular nursing of animals in Africa. Barbara Frank (pers. comm.), who has done the most thorough study of dogs in African cultures, and Jan Vansina (pers. comm.), who has broad knowledge of the equatorial forest peoples, confirm our view that the practice is indeed very rare in Africa. There is the general statement by Oesterhaus (1885: 734) that Negro women in Central Africa breast-feed monkeys, but no specific data or references are given. There is also Dybowski's report (1893: 182) of a Bondjo woman in the Congo breast-feeding a mangy, hairless puppy; Dybowski claimed that such breast-fed dogs are eaten upon reaching adulthood. Tessmann (1913/1: 108) described a Fang woman of the Cameroons breast-feeding a young leopard in an attempt to save its life; after it clawed her, however, the woman hastily abandoned her kindly effort.

For Europe we have uncovered three items of significance. One is the ancient reference in Euripides's *Bacchanals* (Milman 1908: 19) to women suckling kids and wolf cubs. A second (Ash 1927/1: 311n) is the advertisement in an Italian journal seeking a young healthy woman to nurse five thorough-bred English spaniel puppies whose mother had died. Also relevant

⁵ Wolfram Eberhard (pers. comm.) uncovered one report (*T'ai-shang pao fu t'u-shao*, Vol. 5: 26a) of pigs being fed with human milk in Sung-period China (A.D. 960-1279). It did not, however, indicate whether or not the pigs were nursed.

are the rumors or stories of German women with a superabundance of milk breast-feeding a piglet to obtain relief or, when a mother sheep died, wet-nursing its lamb (Oesterhaus 1885: 734-735). Plümacher (1886: 280) recounted a similar situation in Tennessee, where women with surplus milk, troubled by tender breasts and sore nipples, nursed young dogs to obtain relief. Perhaps the most widely publicized case of animal-nursing in the United States described and pictured in a book by famed photographer William Lyman Underwood (1921: 17-26 and passim; Wellemeyer 1977: 58), was that of a woman in a Maine logging camp whose husband, in



Mr Underwood took this picture of Ursula and Bruno and me with my consent and I am glad to have him use it in this book.
Bruno's Foster Mother

Fig. 3: American woman in Maine nursing her daughter and a bear cub (Underwood 1921: opp. p. 18)

an interesting echo of Ainu practices, killed a hibernating female black bear and brought home its newly-born cub. Attempting to save its life, the woman nursed the cub along with her own daughter, and successfully raised the animal to adulthood (Fig. 3). In Oklahoma several women recently offered to nurse a young chimp whose mother refused to do so, but the offer was turned down (Anonymous 1979).

7. Implications

That a woman should offer her breast to a young animal is looked on in some cultures around the world as bizarre, if not disgusting behavior, and the subject is often the butt of rude jokes. One anthropologist, by way of illustration, discusses the breast-feeding of young pigs in a sub-chapter entitled "Perversion" (Powdermaker 1933). Where such negative attitudes prevail, particularly in Western cultures, animal-nursing may in fact occasionally be done, but in private, out of sight of persons who would censure or mock the practice. Under the pressures of Westernization, moreover, many groups among whom animal-nursing was once acceptable behavior have stopped the practice. Two recent ethnographic studies (Hallpike 1977: 71; Sorenson 1976: 56), for example, relate how, with increased exposure to Western ideas of decency and propriety, the once-common practice of wet-nursing piglets has apparently been abandoned by some New Guinea groups.

There seem to be, nevertheless, two well-documented—if atypical—cases of groups who began the nursing of animals in recent historical times, and only following their initial contact with Europeans. Both cases involved hunters and gatherers: the Onge of the Andaman Islands and the Tasmanian Aborigines. Both groups seem first to have practiced such breast-feeding only in the eighteenth or nineteenth centuries, when they first obtained dogs and came to value them highly as hunting aides.

There were also several other hunter-gatherers (e.g., the Australian Aborigines, the Ainu, the Pomo) among the animal-nursing groups listed above. Discounting the dog, such groups normally keep no domesticated mammals that could provide milk to orphan animals brought home alive from the wild. Farmers were prominent, too, among animal-nursing groups, but in most cases such groups lacked the herd animals (particularly sheep, goats, and bovine cattle) that serve dairy purposes elsewhere in the world. In any case, virtually all groups regularly reported as nursing animals are of nondairying tradition, and lack a convenient, regularly-used alternative milk supply to that of nursing women. That dairying peoples of the Indian subcontinent, the Near East, Africa, and Europe have possessed such an alternative for millennia probably accounts for the virtual absence among them of any regular human breast-feeding of animals.

Also influencing the geographic distribution of animal-nursing are sharply contrasting cultural views of animals. Among Old World animals, the pig and dog are the most widely noted as being breast-fed by women. More often than any other domesticates, however, these two are singled out as being unclean (Simoons 1961). It is no accident that breast-feeding of pigs and

dogs is absent throughout the Islamic world, for these two animals are particularly defiling to Moslems.

Breast-feeding of animals by humans seems to have been carried out as a consequence of four distinct, though quite often overlapping, human motivations. By far most common and widespread, among both primitive and advanced peoples, is what we classify as "affectionate" breast-feeding. In this form the primary motivation for a woman to nurse a young animal, whether newly-captured from the wild, a pet, or some other household creature, is compassion, warmth of feeling, love. Such sentiments commonly develop in nurse-maids, but in the particular form of breast-feeding defined here, these feelings precede the decision to nurse and indeed are the basic motivation for doing so. Affectionate breast-feeding seems to prevail among the hunting and gathering groups of Malaya and among the Amazon Indian groups described above. A second form of the practice is "economic" breast-feeding. This grades into the first form, but the initial motivation for nursing here is economic, a desire to preserve the life of an animal with some economic potential, for example a hunting dog or a pig that later can be eaten. Quite commonly, however, women with initial economic motives, as well as their families, are, because of the affectional ties that develop, not able or not permitted to eat animals that have been nursed. A third form of the practice, which grades into the first two, is "ceremonial" breast-feeding, in which nursing is undertaken to provide an animal for sacrifice and ritual consumption. This form is perhaps best represented by Ainu bear nursing. The fourth form we term breast-feeding for "human welfare," in which the act is initiated in the health interests of the human mother and child. One example of this, cited earlier, is the practice of nursing puppies or piglets to relieve a human mother of the pain of excess milk production. Another example is the Arapaho breast-feeding of dogs and raccoons to draw off a human mother's colostrum, which is believed to sicken the newborn human infant.

Of the four categories of breast-feeding, the human welfare type would seem to offer the least incentive for humans to sustain wild animals in captivity for any length of time, a necessary first step in the domestication process. Human welfare breast-feeding requires an animal only for a short time, and for a task which is often as readily performed by a convenient human. Ainu need for sacrificial bears led them to ceremonial breast-feeding, a form that, at least in the particular case of the Ainu, would seem to present little incentive—because of the high cost of feeding adult bears—for maintaining a breeding population of bears as long as the local wild bear population remained numerous. In affectionate breast-feeding, as among the Semang, maturing creatures are often permitted to return to the wild or they may escape on their own. Some animals, however, may choose to remain with a human group. If a breeding population is then formed, a very loose form of domestication—with or without man's further active intervention—might indeed occur. The incentive for humans actively to establish a breeding popula-

tion of pets would, however, appear to be greatest among groups who practice economic breast-feeding, especially where a supply of wild animals was not locally available or was scarce.

Sauer's position that pet-keeping played a key role in the domestication process has been criticized by Downs (1960: 39), who has argued that "the fact that most people keep pets of some kind refutes this theory or origins rather than supports it." What Downs seems to be saying is that since early man's proclivity for pet-keeping (and the breast-feeding of those captive pets) did not result in complete domestication in *every* case, in every part of the globe, it could have resulted in such domestication in *no* case. We disagree. We feel that the available ethnographic evidence strongly indicates that the domestication of certain animals, in certain regions of the world—and in particular the dog and pig in Southeast Asia—may trace back to early man's penchant (in the manner of the Semang and Sakai) for keeping populations of wild creatures captive in and around his settlements or encampments, in a state of semi- or quasi-domestication.

The Australia and New Guinea evidence seems to be most crucial here. The Australian Aborigines and the lowland New Guineans of "pig-rearing" tradition live in close association with animals, the dog in Australia and the pig in New Guinea. Neither of these animals is consciously bred nor, after being weaned from its surrogate mother, provided with much in the way of food. Both the dog in Australia and the pig in lowland New Guinea are as a rule captured in the wild when young and then "adopted" into human society (Baldwin 1978; Kimber 1976).⁶ What we are dealing with here, both in Australia and in lowland New Guinea, is a kind of "institutionalized" pet-keeping, in which both the capture and the nursing of infant wild animals have become integral parts of the system.

The dog and the pig are vital, both economically and ritually, for the functioning of their respective human societies, but these societies are able to obtain all the animals they require from the wild, thus avoiding the difficulties involved with maintaining a breeding stock of animals. These difficulties include particularly the providing of food to adult animals. In order to control their breeding, animals must—at least at times—be kept in a confined space, and such confinement normally requires that food be brought *to* the confined animals. Breeding stock cannot be allowed to forage by themselves, in a rather loose "free-ranging" system. We feel that this rather loose, "freeranging," institutionalized pet-keeping system seen today in Australia and New Guinea represents a survival of one phase in the historical evolution of man's relationship with the Southeast Asian animal world.

⁶ It is perhaps significant to note that among at least some lowland New Guinea peoples (see Saulnier and Bisiaux 1963: 44), when a human is adopted into a group not his own, he must, as part of the ceremony of adoption, suck a few drops of milk from the breast of a local woman. This symbolic nurturing then enables that person to be considered a true member of the society. Could it not be that the widespread practice of wet-nursing captive wild animals, besides the obvious nutritional advantages, has *symbolic* value as well?

The suckling of such captive pets, a trait as we have seen which is very commonly reported in Australia and New Guinea, is necessary for the taming, in each generation, of such wild-born creatures. Some recent biological and psychological research is relevant here. The process of raising individuals of one animal species by individuals of another species is known to ethologists as "cross-fostering." Experiments with rodents have shown that such cross-fostered animals, if placed in a situation where they are free to choose between associating with animals of their own biological species or with animals of the species with which they have been fostered, tend to select the foster species more often than their own (Quadagno and Banks 1970). Experiments with race horses have demonstrated that foals which soon after birth are subjected to much human handling, particularly petting and stroking, develop into adults which are unusually manageable and responsive to man (Hendrix, Van Vlack, and Mitchell 1966; summarized by Rappaport 1968: 58-59). And work by psychologists has demonstrated the critical nature of the "lactation complex," that is, the practice of suckling at the breast, in creating and nurturing the mother-child bond (Count 1967).

Thus, by bringing small animals home alive from the hunt, by raising such animals within the human group "as if they were children," by subjecting them while young to much human tactile contact, and particularly by allowing the captives to nurse at the breasts of human females, born-wild dogs and pigs can be made tractable with a minimum of human effort. What is more, born-wild animals raised in this fashion, even though allowed to wander about freely in search of food, as a rule tend not to stray very far from the human group, and are thus conveniently available when needed—as a source of food, as guardians, or for ritual or ceremonial purposes. With reference to Australia, one author has noted, that "in spite of . . . harsh treatment the [Aboriginal] dogs appear to be so successfully imprinted on their owners at the puppy stage that they remain devoted and faithful" (Hamilton 1972: 289).

We propose that at some time in the past certain human groups keeping dogs and/or pigs in such a state of permanent semi-domestication began consciously and purposely to breed their animals. At this point, then, a state of full domestication would have been achieved. We can only, at this time, speculate as to how and why this transition may have occurred. Perhaps a pet-keeping human population migrated into a region where a local supply of wild animals could not be found. The breeding of the group's pets would then be one solution to the problem of maintaining a desired, economically useful, and conveniently accessible animal population. Or perhaps the population numbers and density of such a pet-keeping human group increased to such a level that the area of unoccupied land, the reservoir for new generations of village pets, decreased markedly. Then, assuming the people would want to continue having economically and ritually useful animals conveniently available to them, the "invention" of animal-breeding would be a handy recourse.

Even in a primitive animal-breeding group, however, the breast-feeding of small animals might continue to play an important role in husbandry practices. For example, in the central highlands of New Guinea, where deliberate pig-breeding is practiced (and where, incidentally, the local human population densities are the highest on the island and where very few wild pigs can be found), the suckling of baby pigs is a commonly reported culture trait. One anthropologist with much field experience in the New Guinea highlands has noted that "pig husbandry [in the highlands] does not result in many large, fat pigs. A lactating sow often becomes thin" (Brown 1978: 91). Even though village pigs in this region are regularly confined and hence provided with a large portion of their food supply, such food is often limited in quantity and (perhaps more critically) often highly deficient in protein. Lactating sows thus have difficulty in providing enough high-quality milk for their offspring. The human suckling of piglets reported for such pig-breeding highlands groups as the Enga, Melpa, and Chimbu may thus be an effort by these groups to insure that as many piglets as possible are able to obtain enough milk, from whatever source, to survive infancy.

Turning now to the question of whether the nursing of animals by women has a detrimental effect on the well-being of the nursing infants with whom they compete, we note a few cases reported sporadically in the literature where the needs of a nursing animal apparently led a mother or father to kill their own child. Hodgson (1846: 221), for example, wrote of an Australian Aborigine who valued so highly the seven puppies given him by a European that his wife, who was breast-feeding the animals, apparently killed her own infant "so that the puppies might not be robbed of their food." Dupeyrat (1954: 246-250) has cited a similar case in New Guinea. These events must have been quite exceptional, though other authors (Davies 1846: 412; Roth 1890: 123; Batchelor 1901: 483-484) have noted that sometimes a mother will treat a favorite nursing animal better than her own offspring.

In cases where a human infant and a young animal compete equally in suckling, there would seem to be little if any detrimental effect on the child as long as the mother produces sufficient milk for both. If she does not, the nutritional well-being of both child and animal could suffer, perhaps putting both their lives at risk. Tests carried out in New Guinea (Bailey 1965: 47-48) indicate that the average breastmilk production of lactating New Guinea women is less than one-half that of comparable U.S. or European women (about 400 ml. per day compared to about 850 ml.) If a New Guinea woman whose breastmilk production is so limited attempts to nurse both a child and an animal, it seems reasonable to assume that neither would be able to get enough milk for sufficient nutrition. Infant malnutrition and kwashiorkor are indeed of concern in many parts of New Guinea (Bailey 1972), but the relationship of these problems to the widespread practice of breast-feeding of animals by humans has, to our knowledge, not been investigated.

There is also the special case of certain North American Indian groups who use an animal to suckle a human mother for the first few days after she gives birth, to draw off her colostrum. This practice stems from an apparently localized belief that colostrum is bad for the human infant, a view that in fact is erroneous. Colostrum, for one thing, contains even more antibodies, needed especially by the premature baby, than milk. It is rich in protein, minerals, and vitamin A (Parfitt 1977), and is more readily digested than milk because its fat and carbohydrate concentration is less. As well, "it has a slightly laxative effect, clearing out the meconium (the dark green or blackish matter discharged from the newborn baby's bowels) and in general readying his digestive tract for the milk he'll be getting in a few days" (La Leche League International 1963: 54-55). The Plains Indian practice would thus appear to be detrimental to the health of the human child. It should be emphasized, however, that the ultimate problem here is an erroneous folk medical belief, and not animal-nursing per se.

8. Conclusions

This initial survey of the practice of breast-feeding of animals by humans leads us to three general conclusions about the practice. First, we note that virtually all contemporary human groups reported as regularly nursing animals belong to cultures which either possess no dairy animals or, if they do, do not milk them. Second, we note the importance of animal-nursing as a taming mechanism used by some human groups who capture infant animals in the wild, and suggest that animal-nursing may have contributed to the full domestication of such often-captured pets as the dog and the pig, Sauer's "household" animals. Finally and most tentatively, we conclude that the practice of animal-nursing, particularly in areas such as New Guinea where human breastmilk production is low, may at times pose a health threat to human infants who must compete with animals at the breast.

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