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THE ELEPHANT-WALLAHS' MICROCOSM

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It is said that about 16,000 domestic elephants reside in Asia, but no one knows the exact numbers. The domestic elephant's world there is an anachronism — often beyond the pale of cyberspace, mass transport, and even gas-powered engines. It is also a microcosm beyond the concerns of international conservation. It's nice to know there are still places relatively untouched by progress, and that in the backwaters of Asia, man and elephant live and work side by side. But is this way of life safe from development, the masses, and the effects of western pop culture? Sixteen thousand elephants is a respectable population by any measure (Daniel, 1992, p. 177), but our demographic knowledge of the population is sketchy. Until recently, there were few written records and studbooks. Each year some of these domestic elephants die, victims of occupational hazards, misadventure, wild tuskers, and disease. Cows are lost in the forest, perhaps driven off by amorous tuskers, and in remote outposts, tribal people and foreign middlemen traffic elephants in a clandestine trade across international borders. Working elephants are rustled and smuggled to buyers in neighboring provinces or countries. And as this goes on, rural humanity slowly but relentlessly sprawls into the countryside and encounters wild elephants. Since neither respects the other's sovereignty, there is conflict. The result is the 20th century rogue elephant. In India, state forest departments are capturing and training crop-raiding elephants and selling them to temples and private owners. In Thailand, where the nation's timber industry has collapsed, the domestic elephant is a luxury too costly for private owners to maintain. According to Richard Lair (1997), a significant number of Thailand's domestic elephants will likely be released into the wild to fare on their own — a dubious gesture of Buddhist benevolence. But not all is gloom. Stable, self-sustaining breeding populations peacefully live in a few corners of Asia, such as the south Indian state of Tamilnadu (see Sukumar *et al.*, 1997).

Optimists argue that by virtue of their captivity, domestic elephants are safe from threats and are a hedge against the extinction of wild populations. But the situation is complex, and those with less faith in humanity like to point out that elephant conservation is not the reason why elephants exist in captivity. One cause for concern is that domestic elephant owners, like exotic pet owners in general, represent a mixed bag of motives, interests, and competence. From India to Indochina and Indonesia (cf. Fig. 1), elephants are owned by state and federal governments, corporations, and private individuals, and their living conditions differ as much as their owners. Some exercise daily; others spend their lives in chains. Urban elephants usually live singly, treading the hot pavement each day so their mahouts can collect alms in the name of God. Those belonging to temple trusts often live in groups, but their main exercise is to march periodically in religious processions. By far the best conditions are found in timber camps where working elephants live close to nature and socialize daily. Tourists literally flock to these establishments to witness the creatures at close range. But given their intrinsic interest, it strikes me as a little odd that domestic *Elephas maximus*, and elephant culture in general, has received so little investigation. The cultural evolution of man and elephant is a ripe

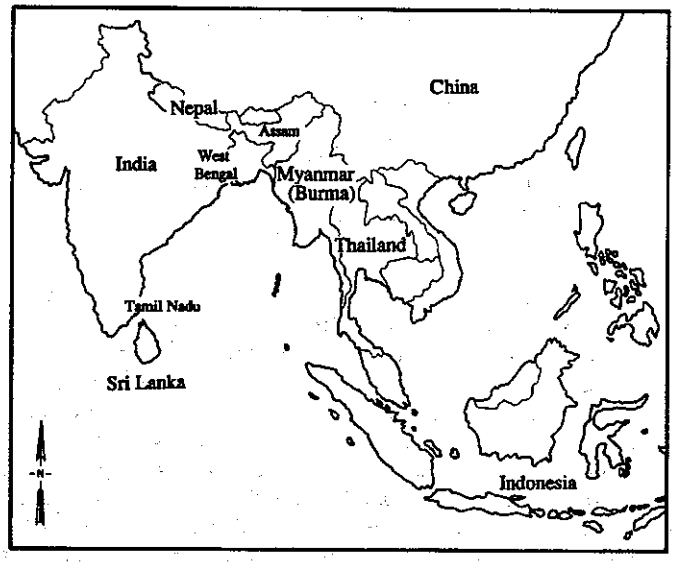

Figure 1. A simplified map of Asia, showing countries mentioned in this article [artwork by Jann S. Grimes].

topic for speculation, but elephant camps are captivating places amenable to systematic investigation of any number of topics using a variety of disciplines.

My own interest in domestic elephants harkens back to a childhood reading of Elephant Bill. In his retirement, Colonel J. H. Williams (1897- 1958) wrote five books about life in the Burmese jungles — following a career as "teak wallah" for the Bombay Burma Trading Corporation (see Literature Cited; cf. Williams, S., 1962). They weren't masterpieces of colonial literature, but they were factual and created vivid images of the scenery, people, and life in and around the Burmese elephant camp. But the elephant camp didn't become a reality for me until I was sent to Nepal as a scientific advisor to the "Smithsonian-Nepal Tiger Ecology Project" in the late 1970s. The project was situated in Royal Chitwan National Park, a former hunting reserve of Nepal's rulers. Located in the lowland deciduous jungle known as *terai*, the project employed four elephants and 24 villagers as mahouts (elephant handlers, cf. Glossary), cooks, drivers, and shikaris (trackers). The Government Hathisar (elephant camp) was situated a stone's throw from our field station.

Elephants were indispensable to the project's success — not only as the most economical mode of jungle transport, but also as a means of capturing tigers. The "bieth method" of big game hunting is a Nepalese cultural tradition, which takes advantage of the fact that tigers (and many other large mammals) won't breach a flimsy cloth barrier standing 4 feet (about 1.2 meters) high. Witnessing these episodes from elephant back kindled my interest in elephant culture more than in tiger biology, and my memories still cling to the details.

Preparations begin before sunrise with the banter of Nepali voices. Two shikaris have returned from the field. A tiger killed the buffalo bait last night. With the sounds of hacking and spirited throat-clearing, the camp comes alive. In the breaking light, the Gurkhas are busy as you sip a tumbler of hot tea. Over a dozen elephants or "hathis" are loaded with bundles of bieth cloth (white muslin), and then as many as 8 passengers pile on. You mount up, the ropes creak, and when the pachyderm stands unexpectedly, you lurch forward and clutch for security. Your mahout smells of mustard oil and a rotten tooth, but there is also the leathery scent of live elephant. In the morning chill, your hathi trundles off through the thickets and down the sandy banks of the River Rapti, one of the Ganges' myriad but mighty tributaries. Into the water the hathis plunge, and, just as suddenly, all progress stops. What's the delay, you wonder. Plunk...plunk...plunkety-plunk... Why, it's the pause that refreshes. The animals drink deeply of the silty water, while steaming boluses float down the river. One by one they resume the march through the tall grass of the floodplain, and within an hour, the motley gang of shikaris and mahouts arrives in a glade near the tiger kill. They know their jobs well and deposit you in a tree together with the gunner who is armed with a "Capchur gun". From your aerial perch you watch the scene unfold. The shikaris dismount and disappear into the tall grass, draping the muslin on sticks and grass canes. When the bieth has been laid, two cloth fences diverge several hundred yards through the rank grass. A brainfever bird calls in the distance. It seems an ungodly kind of place, a coarse, crude kind of jungle, not the verdant forest of a Rousseau painting.

The clamor of a distant riot shatters your reverie; the tiger drive begins. In a few minutes, you discern the hathis cruising like ships in a sea of grass, and the mahouts are clearly in a lather. There is blood on the head of one of the animals — the mahout, a wiry little Tharu, has been using his bilhook or kukhri. Suddenly the tiger appears nearby and pauses to look over its shoulder. You hear the crack of the gun, and the tiger races off into the forest behind you. The clamor ends. The mahouts light up their beedis. Everyone waits. Twenty minutes later the shikaries make off on the koonkies — confident "commander elephants" — to locate the darted cat. It is an enervating experience.

Later you stand in the shadows of the elephants as the tiger is being collared. Suddenly there is a jabbering commotion and — "What the hell?!. waaah!!"—you are stumbling backwards to avoid an old cow elephant — Chanchal Kali by name. As if someone popped her clutch, she has bolted forward with an ear-piercing stentorian blast, stops short of the now twitching cat while her

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Figures 2-7, opposite page

Figure 2. Dr. V. Krishnamurthy, while working as Forest Veterinary Officer for the Tamilnadu Forest Department (Kozhikamuthi Elephant Camp, Anamalais Wildlife Sanctuary, Tamilnadu, India, 1985). [All photographs are by Chris Wemmer].

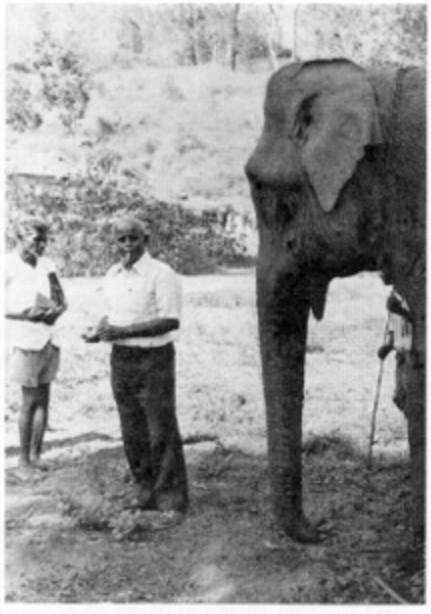
Figure 3. Forest Department elephants waiting for their evening meal of ragi balls at Theppakadu Elephant Camp, Mudamalai Wildlife Sanctuary, Tamilnadu, India (May 1985).

Figure 4. A Nepali mahout prepares his elephant's evening meal of "kuchi", padi (unhusked rice) packaged in a grass wrapping. Each elephant receives an allotment based on its body size, but little is digested compared with boiled rations such as ragi (Tiger Tops, Royal Chitwan National park, March 1984).

Figure 5. Burmese oozi from Alaungdaw Kathapa National park, Sagaing Division, Myanmar (Burma) (December 1994).

Figure 6. Kethan, a gifted trainer and his elephant Venkatesh. Kethan is a Kurruba tribal. When Indian tourists appear at the elephant camp on weekends, Kethan earns extra change by performing with his elephant (Kozikhamuthi, Anamalais Hills, June 1993).

Figure 7. Most rural elephant camps in Asia are situated in protected areas and reserve forests near logging areas. This camp (Pyone Byone Kya) is located in the Ponnyadaung Range of Sagaing Division, Myanmar (Burma) (April 1995).



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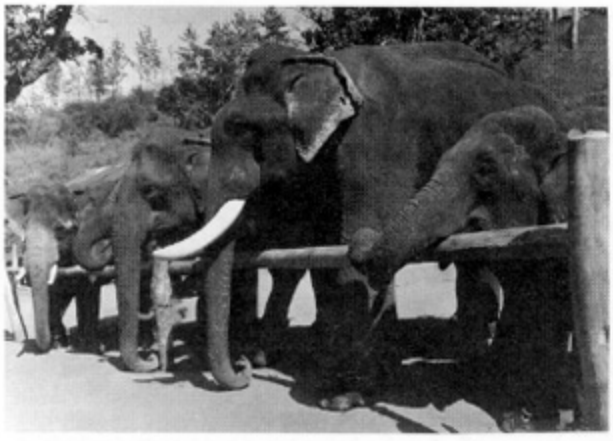

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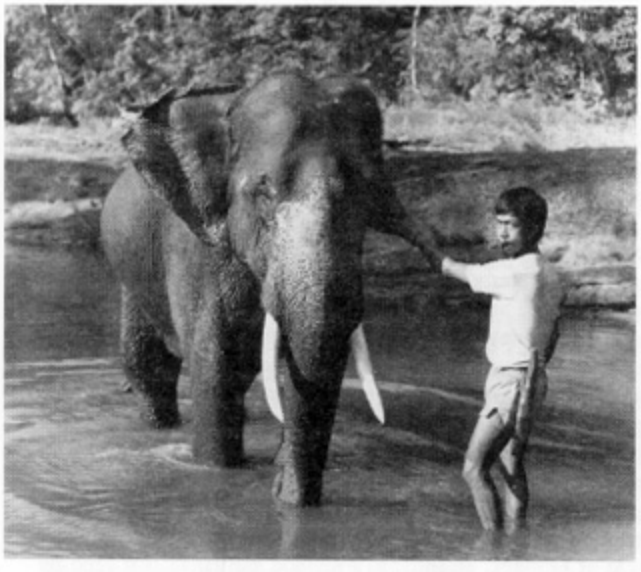

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cursing mahout pounds her scaly dome with the back of his kukhri. During the reign of the Rana family back in the 1950s, she had been trained to deliver the *coup de grace* to any downed predator that showed signs of life. Indeed, this is another world, and you realize that there is much to learn about these hathis and their keepers.

In 1982 I had the good fortune to meet a colorful assortment of elephant workers (or "elephant wallahs") at an Asian elephant workshop in West Bengal. This gathering had been organized by an eloquent and unforgettable professor of English and elephant maven, D. K. Lahiri Choudhury. Choudhury combined the rhetorical force of William Jennings Brian with the drama of Lord Shiva. Among the group was Lalji Barua, Assam's Maharaja of Gauripur, and members of his family, including his petite daughter and mahoutni, Parvati Barua, who has since gained international fame in Mark Shand's film "Queen of the Elephants". I was drawn particularly to one V. Krishnamurthy, a Forest Veterinary Surgeon from India's Tamil Nadu state (Fig. 2). "Doc", who spent his career doing the veterinary rounds between three elephant camps, has a memory like a computer hard drive and enough elephant experiences to fill a gigabyte. I had found my guru. Since then we have visited many Asian elephant camps, and through Doc, I was able to penetrate the microcosm of the domestic elephant. The result has been several papers on "historical elephantology" (Krishnamurthy and Wemmer, 1995a, b).

Several initiatives followed, assisted measurably by grants from Smithsonian's Scholarly Studies Program and USAID's now defunct Program in Science and Technology Cooperation[1]. Our first project continues even today — a comparative morphometric study of domestic elephants. Debate simmers periodically in Asia about regional differences in the size and phenotypes of elephants. When we witnessed shoulder height being measured — by stretching a tape from forefoot to forefoot over the shoulder and dividing the distance by two — it seemed a standard methodology was needed. We developed one (Wemmer and Krishnamurthy, 1992), and started to measure elephants with a modified foresters caliper used to measure the height of saplings, essentially, a method similar to that used by Benedict (1936). We also trained a small number of co-workers, including Dr. Sunder Shrestha in Nepal, Ms. Wasantha Senenayake in Sri Lanka, and veterinarian U Myo Than in Burma. It became apparent that the age-shoulder height relationship described by Sukumar *et al.* (1988) did not apply to all domestic elephants. In some cases, the shoulder height regression assigned an unacceptable degree of youth to old crones and stiff old tuskers. These elephants were sometimes the size of adolescents, but their brittle ears, rheumy eyes, and sagging skin told us the regression didn't apply. Why the disparity between regions? The answer may be due to nutrition. South Indian forest department elephants receive tender loving care in the form of nutritious concentrates and liberty to browse in the forest at least 10 hours each night. They also receive a daily ration of ragi balls — a proteinaceous dough made from horsegram and an indigenous South Indian grain called ragi (Fig. 3). Body size is often smaller in elephants not allowed to graze at night and deprived of protein supplements. Like many ungulates, and mammals in general, body size has genetic limits, but is modulated by nutrition (Fig. 4).

It occurred to us that body condition might provide a clue to the nutritional differences between elephant populations, but there was no methodology in use that allowed quantitative assessment. We knew most elephants were mesomorphs, and now and then an endomorph or ectomorph was encountered, but we also knew that psychologist William Sheldon's somatypes (1940) wouldn't cut the mustard biologically. Doc had necropsied over a hundred elephants and knew which body parts showed the greatest variation in body fat. So based on his knowledge, we developed a preliminary methodology. For each of six body regions, we designated criteria and point scores. Soon we started to see elephants in a new way and, before long, could assign point scores based on a visual "Gestalt". After several more excursions over the next few years, we had confidence in the method's reliability. But it took ten years and nearly a thousand photos before we had the data and materials to write it up for publication. Several people were key to improving the method, including Nepali wildlife veterinarian Sunder Shrestha, whom we deployed under the USAID grant to undertake his Ph.D. research on the reproductive cycling of domestic Nepalese elephants (Shrestha, 1995).

During our studies we met and observed many mahouts working their elephants. They were cooperative and deferential, especially to Doc whose legendary dedication has earned him a kind of reverence, but there the similarities end. You can't judge a mahout by his looks, either as a man or as an elephant handler (Fig. 5). You can count on the macho mahout to be a young fellow with a clever twinkle in his eyes; he wields his stick with bravado and shouts his commands like Pavarotti. He knows that the bigger and more dangerous the elephant, the greater the mahout's prestige in the elephant camp; so he plays the role for all it's worth. And when his neighbor is killed by a musth bull, he's the first in line to replace him. Another fellow may look like a dim-wit, but to a few mumbled words and vague gestures his elephant performs superbly. At this point you realize Pavarotti is a sham. But one observation stands out. Mahouts differ in their abilities to command their elephants to carry out even simple tasks. At first I thought verbal communication was the problem, but this was not the case because Doc is fluent in the mahouts' language. We had a lot of questions. How does one measure a mahout's proficiency? How do mahouts differ in their proficiency as elephant handlers? Is there a relationship between proficiency and experience, age, religion or ethnic group?

To answer these questions we would have to measure the elephant handling skills of mahouts. First we had to develop a method to inventory the actions which elephants can be commanded to perform. It wasn't hard to begin. There is a basic lexicon of verbal commands (see Milroy, 1922; cf. Wemmer, 1995) familiar to elephant-wallahs through much of India and Sri Lanka. Despite minor variations between areas even in Tamilnadu, and differences in pronunciation, it is clear that a basic command language based on Urdu was once widely used in the subcontinent. The words described in Milroy's *On the Management of Elephants* back in 1922, are still in use over a large area. Next, we asked mahouts to tell us what their elephants could be commanded to do. This added a few more commands to the inventory, but it is the rare mahout who can tell you off the top of his head how many commands his charge responds to. To verify his claims, we asked each mahout to demonstrate his elephants' capabilities, and then asked him to try a number of other actions. Even more actions were uncovered, and the list grew longer. We realized this was going to take time. We also discovered that photographs are a useful aid during the interview process. Judging by their reflective consideration of each photo, mahouts read a great deal more into these photos than we do. A single photo of a foreign mahout can occupy many minutes of pensive discussion.

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[1] Genetics and Population biology of domestic Asian elephants: C. Wemmer and E. Stevens, Grant #DHR-5600-G-00-0062-00.

The inventory grew to over 60 actions which we classified according to similarity — actions of the head and trunk, of the legs and tail, postures, and locomotory actions. A final category of entertainment actions includes all those amusing postures which demonstrate the circus elephant's ability to look foolish — two legs up, three legs up, and so on. While the composite inventory of actions may number more than 60, we found significant differences between regions. South Indian elephants, for example, have the largest repertories, and females there can perform more actions than males. Tamilnadu elephants have an average repertory size that is larger than Karnataka elephants. The celebrated Burmese timber elephant, on the other hand, gave us a surprise. Until we went to Burma and worked with elephant veterinarian U Myo Than, we had simply assumed that if a mahout could command an elephant while mounted on it's back, he could do the same thing while standing next to it. We were wrong, and as a result we had to revise our inventory of command actions to include mounted and unmounted versions of the same command.

As the evidence accumulates, it seems that one of our hypotheses — that command repertory is proportional to standards of husbandry and body condition — is about to be refuted. Both outstanding and marginal performers are to be found in a wide range of physical condition. In Burma, for example, 90% of all elephants tested (a sample of 118) perform only 8 commands — nearly all of them actions associated with husbandry or navigation (i.e., lie down, stand up, halt, turn, about face, go forward, go backward). The bell-shaped-curve holds sway — most elephants are average in their repertory size, a few have very small repertories, and a few others can perform an exceptional number of actions. There seems to be one clear tendency, however. Those few elephants with the largest repertories are invariably tended by mahouts who take a special interest in their charge and cater to it like a favored pet (Fig. 6). They are talented trainers who have never heard of operant conditioning but understand the principles well. Watching them work their elephants is truly a pleasure.

Local inconsistency of care is in part due to the high rate of mahout turnover. Mahouting was a family tradition, but the times are changing. Though 87% of Burmese oozies have fathers who were oozies, these days few stick with the profession. In South India, where 60% of the mahouts are born into mahout families, the turnover rate is lower. Cost of living is the reason. Even in rural Asia, an annual salary of a few hundred dollars isn't enough to make a living and support a family. Job turnover also explains why the average age of the Burmese oozie is only 39 years. If he can get a better paying job, or one that delivers a regular paycheck, he promptly forsakes his elephant at the prospect of a better life. But, even in the best of times, most mahouts live close to the soil (Fig. 7). To make ends meet, many mahouts gather and sell forest products and work as daily wage laborers. Many sources of protein are eaten — rats, reptiles, and crickets, for example. But they are also given to addictions, especially cheap country liquor.

These patterns are widespread, but Sri Lankan mahouts differ in several details. First, they have a distinctive dress code that reflects their own wealth and that of their owners. While formal dress is usually a torn t-shirt and threadbare shorts, Lankan mahouts sport a wrap-around lungyi or sarong, a clean dress shirt, silver belt, dagger, necklace and prayer capsule, and often other jewelry, as well as tattoos. Second, they often have greater authority over their charge than the jungle camp mahout or Burmese oozie and use the elephant to earn their living. These and other insights into the ethnozoology of Sri Lankan elephants and mahouts are a sampling of the findings of Ms. Wasantha Senenayake who just completed her M.Sc. thesis under the tutelage of Dr. W. D. Ratnasooriya at the University of Colombo. With the support of our USAID grant, using carefully designed methods, Wasantha painstakingly interviewed a large sample of owners and over a hundred mahouts. Her study is the first of its kind. In March of 1997, Doc and I assisted a South Indian student to initiate a similar study in the state of Kerala where elephant culture shares many likenesses with Sri Lanka. Ms. Nibbha Namboodiri is using a methodology tailored to local conditions.

As the years roll by, the work continues. What began as a personal and intuitive quest has focused progressively on the challenges of recording and utilizing traditional knowledge, of conserving a vanishing species, and of documenting a way of life that is quickly becoming obsolete. The quest has been stimulating, and the process has led the way to an ever-expanding circle of colleagues. A sense of urgency is not dispelled by the published results of these initiatives, and I have often wished my interest had been ignited a decade or two earlier. The world is rapidly changing, and with the passing of the senior elephant-wallahs, lifetimes of knowledge are lost.

Acknowledgments

In this composition I have mentioned several co-workers whose help and friendship have been indispensable, but others have contributed equally and uniquely to the collaborative enterprise. Among them are Daw Khyne U Mar of the Myanmar Timber Enterprise who, in 1994, assisted me by organizing a workshop on elephant data collection methods. U Myo Than, a workshop participant, is now an invaluable source of information and has collected a large volume of data in the outposts of Sagaing Division. Our recent forays have been joined by the National Zoo's John Lehnhardt, whose talent as an elephant trainer has lent special insights. Dr. Ted Stevens was a valued colleague in Sri Lanka and South India in 1994. Dr. Ullas Karanth opened the door to elephant culture in Karnataka, and Forest veterinarians K. A. Nanjappa and B. C. Chittiappa (Karnataka, India) showed me their work and helped collect data on several occasions. Sally Walker (Zoo Outreach Organization, Coimbatore) has been a trusted agent and helpful messenger. Last, without the cooperation of the Forest Ministry of Myanmar and Sri Lanka, Nepal's Department of Wildlife Conservation, and State Forest Departments of Tamil Nadu, Karnataka, these projects would never have happened. Scott Derrickson provided comments on the manuscript.

Glossary

beedi (also *bidi*) (Hindi): small vile-smelling cigarette enjoyed by South Asian villagers.

bieth (Nepali): a long piece of undyed muslin cloth used to create a visual barrier and to funnel the movement of game animals past the hunter.

bilhook: a curved knife used for lopping branches from trees.

brainfever bird (*Cuculus varius*): the hawk cuckoo of South Asia, famous for its endlessly repeated call — "brain-fever, brain-fever..."

Gurkha (Nepali): a generic term for the inhabitants of Nepal, but more particularly the people from the midland hills representing several tribal groups; also a member of the Indian army regiment of that name.

hathi (*haathi, hasthi, hasthin*): The Sanskrit word for elephant, widely used in India and Nepal.

hathisar (Nepali): elephant stable with facilities for mahout families.

khukri (also *kookri, kukhri, kukri*) (Nepali): all purpose Nepalese knife with a curved blade.

koonki (*khoonki*): a well-trained domestic elephant used for catching and training wild elephants.

lungyi (*longyi, lungi*) (Hindi): a sarong, length of cloth worn as a skirt by men and women in South Asian countries.

mahout (Hindi): elephant handler or elephant driver.

oozie (*oozy, oozi*) (Burmese): mahout or elephant driver.

shikari: (Hindi): a hunter or tracker, from shikar (hunt, track, catch).

Shiva (Hindi): Hindu God of Destruction who rules the city of Kailas; husband of Parvati, father of Ganesha and Kartika.

terai (*tarai*): the lowland sub-Himalayan jungles of northern India and southern Nepal characterized by sal (*Shorea robusta*) forests.

Tharu: ethnic group of the terai and traditional elephant handlers.

Urdu: the language of the Muslims of Pakistan and India, derived from and linguistically similar to Hindustani, but written in Arabic script and incorporating many Arabic loan words.

wallah (*walla*) (Anglo-Indian): man, person; used as a suffix for various professions in India, hence punkah wallah, tiger-wallah, elephant-wallah, and so on.

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