

V. *Observations on the Manners, Habits, and Natural History, of the Elephant.* By John Corse, Esq. Communicated by the Right Hon. Sir Joseph Banks, Bart. K. B. P. R. S.

Read January 24, 1799.

SINCE the remotest ages, the elephant, on account of his size, his sagacity, and his wonderful docility, has attracted the notice, and excited the admiration, of philosophers and naturalists, both ancient and modern; and few travellers into Asia, or Africa, have omitted giving some account of him.

A residence, however, of more than ten years, in Tiperah, a province of Bengal, situated at the eastern extremity of the British dominions in Asia, where herds of elephants are taken every season, afforded me frequent opportunities of observing, not only the methods of taking them, but also the habits and manners of this noble animal.

From the year 1792 till 1797, the elephant hunters were entirely under my direction; so that I had it in my power to institute such experiments as I thought likely to discover any particulars, not formerly known, in the natural history of the elephant. Soon after my arrival at Tiperah, while informing myself of the methods of taking wild elephants, I had occasion to observe, that many errors, relative to the habits and manners of that useful animal, had been stated in the writings of European authors, and countenanced by some of the most approved writers.

The elephant has been declared to possess the sentiment of

modesty in a high degree; and, by some, his sagacity was supposed to excite feelings for the loss of liberty, so acute, as to cause him to refuse to propagate his species while in slavery, lest he should entail on his progeny a fate similar to his own; whilst others have asserted, that he lost the power of procreation in the domestic state.

So circumstanced, I was desirous of taking advantage of my situation, and of making such experiments and observations, as might tend to render more perfect the natural history of this useful animal.

Early in the year 1789, I gave an account of the methods then used for taking and training wild elephants, to the Asiatic Society in Calcutta, which was published in Vol. III. of their Researches; and the following experiments and observations, made since that period, on the natural history of the elephant, will not, I hope, prove unworthy the attention of the Royal Society.

The young of the elephant, at its birth, is about 35 inches high; and, as a knowledge of its progressive growth forms the best criterion by which we can judge of the age of this animal, I shall here note down some observations made on this subject, till the elephant has attained its full size; for, after this period, till signs of old age appear, I do not know any marks by which a tolerable guess can be made of the number of its years, unless we could examine the teeth accurately; and, even then, there would be much uncertainty.

Very erroneous notions have been entertained, with respect to the size of elephants, in different parts of India; for which reason, I have collected such facts as were likely to ascertain their general height. The following observations, of

the gradual increase of growth, were made upon a young elephant of Mr. STEPHEN HARRIS, which was accurately measured from time to time, and upon a female elephant of my own, till I left Tiperah.

Mr. HARRIS's elephant, at its birth, October 16, 1789, was 35 inches high.

				Feet.	Inches.
In one year he grew	11 inches,	and was	3	10	high.
In the 2d year	8	-	-	4	6
In the 3d year	6	-	-	5	0
In the 4th year	5	-	-	5	5
In the 5th year	5	-	-	5	10
In the 6th year	3½	-	-	6	1½
In the 7th year	2½	-	-	6	4

Except during his 4th and 5th years, the above measurement shows a gradual decrease in the proportion of growth for every year; and there was no opportunity of tracing the growth of this elephant further than its 7th year.

Another elephant, six feet nine inches high, at the time she came into my possession, was supposed to be fourteen years old; but, as the accuracy of the hunters cannot be depended on, it will be proper to take Mr. HARRIS's elephant, whose age is exactly known, as a standard; and, judging from its annual increase, this will lead us to consider the elephant, at the time I received her, to be only eleven years old; giving a period of four years, for the addition of five inches. I have made a greater allowance of time, on account of this elephant being a female, and Mr. HARRIS's a male, which there is much reason to believe grows faster.

During the next five years, before she was covered, she grew

only six inches; but, what is extremely curious, while pregnant, she grew, in twenty-one months, five inches; and, in the following seventeen months, though again pregnant, she grew only half an inch; at which time, she was sent from Comillah, as I was then preparing to leave India.

At this time, she was about 19 years old, and had perhaps attained her full growth. Her young one was then (Nov. 1796) not twenty months old; yet he was four feet five inches and a half high, having grown eighteen inches since his birth; which is the greatest progressive growth, in the elephant, that I have known.

These observations, when applied to the general growth of elephants, are to be taken with some allowance; since, during the state of the first pregnancy, there is so great an irregularity in the growth of female elephants, as alone occasions considerable difficulty, even supposing the progressive growth nearly equal in the species. It is probable, however, that this is not by any means equal: for, as elephants vary greatly in size, and as males are generally much taller than females, we must conclude they either grow faster, or are longer in attaining their full growth.* But it may be safely asserted, that elephants, like most quadrupeds, propagate their species before they have acquired their full growth. Many females have been known, when taken while pregnant, to have grown several inches higher before delivery; and, as it has been stated, that the female elephant on which my observations were made, could not exceed 16 years when she received the male, it is probable the wild female elephants are in heat before that period.

* A male elephant, belonging to the Cudwah Rajah till he was above twenty years of age, continued to increase in height, and was supposed not to have attained his full size, when I left Tiperah: he was then about twenty-two years old.

If, from the above data, it may be allowed to form a probable conjecture, elephants attain their full size between eighteen and twenty-four years of age. The height of the elephant, I believe, has been generally much exaggerated. In India, the height of females is, in general, from seven to eight feet; and that of males, from eight to ten feet, measured at the shoulder.

I have never heard but of one elephant, on good authority, that much exceeded ten feet: this was a male, belonging to ASOPH UL DOWLAH, the late vizier of Oude. His dimensions, as obligingly communicated to me by Mr. CHERRY, then Resident at Lucknow, were as follow.

He was measured on the 18th of June, 1796.

	Feet.	Inches.
From foot to foot, over the shoulder - -	22	10 $\frac{1}{2}$
From the top of the shoulder, perpendicular height	10	6
From the top of the head, when set up, as he ought to march in state - - -	12	2
From the front of the face to the insertion of the tail - - - - -	15	11

Capt. SANDYS, of the Bengal establishment, obligingly shewed me a list of about 150 elephants, of which he had the management during the late war with Tippoo Suldaun, in Mysore, and not one of them was ten feet, and only a few males nine feet and a half high. I was very particular in ascertaining the height of the elephants employed at Madras, and with the army under Marquis CORNWALLIS, where there were both Ceylon and Bengal elephants; and I have been assured, that those of Ceylon were neither higher, nor superior, in any respect, to those of Bengal; and some officers assert, that they were considerably inferior, in point of utility.

The Madras elephants have been said to be from seventeen to twenty feet high; but, to show how much the natives of India are inclined to the marvellous, and how liable Europeans themselves are to mistakes, I will relate a circumstance that happened to myself.

Having heard, from several gentlemen who had been at Dacca, that the Nabob there had an elephant about fourteen feet high, I was desirous to measure him; especially as I had seen him often myself, during the year 1785, and then supposed him to be above twelve feet. After being at Tiperah, and having seen many elephants caught, in the years 1786, 1787, and 1788, and finding all of them much inferior in height to what I supposed the Nabob's elephant, I went to Dacca, in 1789, determined to see this huge animal measured. At first, I sent for the driver,* to ask some questions concerning this elephant; he, without hesitation, assured me he was from ten to twelve cubits, that is, from fifteen to eighteen feet high; but added, he could not, without the Nabob's permission, bring me the elephant to be examined. Permission was accordingly asked, and granted: I had him measured exactly, and was rather surprised to find he did not exceed ten feet in height.

The Honourable Company's standard, for serviceable elephants, is seven feet and upwards, measured at the shoulder, in the same manner as horses are. At the middle of the back, they are considerably higher; the curve or arch of which, particularly in young elephants, makes a difference of several inches.

After an elephant has attained his full growth, it is a sure sign of old age when this curve becomes less; and still more

* Or *Mabote*, as he is generally called.

so, when the back is flat, or a little depressed. A partial depression of the spine is, however, no uncommon occurrence, even in very young elephants; and I am convinced it happens from external injury. I have been surprised to see the violence used (in herds of wild elephants just taken) by the large elephants, both male and female, putting the projecting part of the upper jaw, from which the tusks grow out, on the spine of the young ones, and pressing them to the ground, while they roared from pain.

It has been stated, that the sagacity of the elephant is so great, and his memory so retentive, that when once he has received an injury, or been in bondage, and afterwards escapes, it is not possible, by any art, again to entrap him. Great as my partiality is for this noble animal, whose modes of life and general sagacity I have had so many opportunities of observing, yet a regard to truth compels me to mention some facts, which contradict that opinion. The following history of an elephant taken by Mr. LEEKE,* of Longford Hall, Shropshire, contains many interesting particulars on this subject. The elephant was a female, and was taken at first, with a herd of many others, in the year 1765, by Rajah KISHUN MAUNICK, † who, about six months after, gave her to ABDOOR REZAH, a man of some rank and consequence in the district. In 1767, the Rajah sent a force against this ABDOOR REZAH, for some refractory conduct, who, in his retreat to the hills, turned her loose into the

* He was then the Resident of Tiperah, and took some pains to ascertain the facts here mentioned.

† The Rajah is the principal Zemindar in the province of Tiperah, paying the usual revenue for his lands in the low country; but, in the hills he is an independent sovereign, has the power of life and death over his subjects, a mint, and other insignia of sovereignty.

woods, after having used her above two years, as a riding elephant. In January, 1770, she was retaken by the Rajah; but, in April, 1771, she broke loose from her pickets, in a stormy night, and escaped to the hills. On the 25th of Dec. 1782, she was driven by Mr. LEEKE's elephant hunters into a *keddab*;* and, the day following, when Mr. LEEKE went to see the herd that had been secured, this elephant was pointed out to him by the hunters, and particularly by a driver who had had charge of her for some time, and well recollected her. They frequently called to her by name; to which she seemed to pay some attention, by immediately looking towards them, when her name, *Juggut-Peāuree*, was repeated; nor did she appear like the wild elephants, which were constantly running about the *keddab* in a rage, but seemed perfectly reconciled to her situation.

From the 25th of December to the 13th of January, (a space of eighteen days,) she never went near enough the outlet (or *roomee*) to be secured; from a recollection, perhaps, of what she had twice before suffered.† Orders, however, had been given, not to permit her to enter the outlet, had she been so inclined, as Mr. LEEKE wished to be present when she was taken out of the *keddab*. On the 13th of January, 1783, Mr. LEEKE went out, when there were only herself, another female, and eight young ones, remaining in the inclosure. After the other female had been secured, by means of the *koomkees*‡ sent

* The inclosure in which elephants are secured. *Vide Asiatic Researches*, Vol. III. Art. "Method of catching Elephants."

† When elephants were secured in the outlet from the *keddab*, they bruised themselves terribly. *Vide Asiatic Researches*, Vol. III.

‡ *Koomkees* are female elephants, trained for the purpose of securing wild elephants, and more particularly those large males which stray from the woods, named *goondabs*. *Vide Asiatic Researches*, Vol. III.

in for that purpose, the hunters were ordered to call *Juggut-Peāree*. She immediately came to the side of the ditch, within the inclosure; on which, some of the drivers were desired to carry in a plantain tree, the leaves of which she not only took from their hands, with her trunk, but opened her mouth, for them to put a leaf into it, which they did, stroking and caressing her, and calling to her by name. Mr. LEEKE, seeing the animal so tame, would not permit the hunters to attempt tying her; but ordered one of the trained elephants to be brought to her, and the driver to take her by the ear, and order her to lie down. At first, she did not like the *koomkee* to go near her, and retired to a distance, seemingly angry; but, when the drivers, who were on foot, called to her, she came immediately, and allowed them to stroke and caress her, as before; and, in a few minutes after, permitted the trained females to be familiar. A driver, from one of these, then fastened a rope round her body, and instantly jumped on her back; which, at the moment, she did not like, but was soon reconciled to it. A small cord was next fastened round her neck, for the driver to put his feet in, who, seating himself on the neck, in the usual manner, drove her about the *keddab*, the same as any of the tame elephants.

After this, he ordered her to lie down, which she instantly did; nor did she rise till she was desired. He fed her from his seat, gave her his stick to hold, which she took with her trunk, and put into her mouth, kept, and then returned it, as she was directed, and as she formerly had been accustomed to do. In short, she was so obedient, that had there been more wild elephants in the *keddab*, to tie, she would have been useful in securing them.

Mr. LEEKE himself then went up, took her by the ear, and bade her lie down; a command she instantly obeyed.

I have known several other instances of elephants being taken a second time; and was myself a witness both of the escape and retaking of one, as related in the following account.

In June, 1787, *Játtra-Mungul*, a male elephant, taken the year before, was travelling, in company with some other elephants, towards Chittigong, laden with a tent and some baggage, for our* accommodation on the journey. Having come upon a tiger's track, which elephants discover readily by the smell, he took fright, and ran off to the woods, in spite of the efforts of his driver. On entering the wood, the driver saved himself, by springing from the elephant, and clinging to the branch of a tree under which he was passing; when the elephant had got rid of his driver, he soon contrived to shake off his load. As soon as he ran away, a trained female was dispatched after him, but could not get up in time to prevent his escape; she, however, brought back his driver, and the load he had thrown off, and we proceeded, without any hope of ever seeing him again.

Eighteen months after this, when a herd of elephants had been taken, and had remained several days in the inclosure, till they were enticed into the outlet, there tied, and led out in the usual manner, one of the drivers, viewing a male elephant very attentively, declared he resembled the one which had run away. This excited the curiosity of every one, to go and look at him; but, when any person came near, the animal struck at him with his trunk, and, in every respect, appeared as wild and outrageous as any of the other elephants.

* Mr. BULLER and myself.

At length, an old hunter, coming up and examining him narrowly, declared he was the very elephant that had made his escape about eighteen months before.

Confident of this, he boldly rode up to him, on a tame elephant, and ordered him to lie down, pulling him by the ear at the same time. The animal seemed quite taken by surprise, and instantly obeyed the word of command, with as much quickness as the ropes, with which he was tied, permitted; uttering, at the same time, a peculiar shrill squeak through his trunk, as he had formerly been known to do; by which he was immediately recognized, by every person who had ever been acquainted with this peculiarity.

Thus we see that this elephant, for the space of eight or ten days, during which he was in the *keddab*, and even while he was tying in the outlet, appeared equally wild and fierce as the boldest elephant then taken; so that he was not even suspected of having been formerly taken, till he was conducted from the outlet. The moment, however, he was addressed in a commanding tone, the recollection of his former obedience seemed to rush upon him at once; and, without any difficulty, he permitted a driver to be seated on his neck, who, in a few days, made him as tractable as ever.

These, and several other instances which have occurred, clearly evince, that elephants have not the sagacity to avoid a snare into which they have, even more than once, fallen.

The general idea, that tame elephants would not breed, has doubtless prevented trials being made, to ascertain whether, under particular circumstances, this supposed reluctance could be got the better of.

I was however convinced, from observation, as well as from

some particular facts, that elephants had their seasons in which they were in heat; I shall, therefore, first mention the circumstances which induced me to attempt breeding from tame elephants, and then relate the success of the experiments instituted for this purpose.

The circumstances to which I allude, happened in January, 1790, at a *keddab* near to Comillah, the capital of Tiperah.

Messrs. HENRY BULLER and GEORGE DOWDESWELL, of Chittigong, being then on a visit at Comillah, accompanied me and several others, to see a herd of elephants which had been lately taken. Our visitors then proposed a trial being made, of tying the wild elephants immediately, in the *keddab*, in the manner practised at Chittigong, instead of waiting till they were enticed, one after another, into the narrow outlet, there to be secured, and led out in the usual manner.*

This mode they recommended so earnestly, from a conviction of its superior utility,† that Mr. JOHN BULLER, to whom

* *Vide Asiatic Researches*, Vol. III. article, “Method of catching wild Elephants;” where this process is particularly described.

† Though fully convinced of this, I could not bring the hunters to adopt the Chittigong method, till the year 1794. After this, during the last three years I remained at Tiperah, I did not lose one elephant in twenty; whereas, by the former method, of tying them in the *roomee*, near one-third of those taken died in less than a year, in consequence of the hurts they received from their violent efforts to get free, before they could be properly secured. The natives of Tiperah, and indeed of most parts of India, are extremely attached to old customs; and it was with the utmost difficulty I prevailed on the hunters to deviate from the practice of their ancestors, though the method recommended was followed at Silhet, as well as at Chittigong. The method was, simply to surround a herd, in the first convenient place, with a ditch and palisade; and, when this was finished, to send in the *koomkees*, and proper persons to tie the wild elephants on the spot, and then conduct them, one by one, through an opening in the palisade, from the *keddab*, as soon as they were tied.

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not gratify their passions in public ; but no opportunity offered of prosecuting this inquiry, till 1792. Having then taken upon myself the management of the elephant hunters, a very fine male was caught in November : he was both young and handsome, and also of a most docile disposition ; I therefore promised his driver a considerable gratuity, if he would get him into high order, so that I might have an opportunity of bringing his procreative powers to trial, with a tame female.

In the month of March, 1793, the driver of a favourite female elephant informed me, that she had then signs of being in heat ; and that, if the male and she were kept together, and highly fed, an intimacy would probably soon take place. They were therefore, shortly after this, brought near to Comillah, where a spacious shed was erected for their accommodation.

In the day, they went out together, to feed ; they also brought home a load of such succulent food as their drivers and attendants could collect. After their return, they stood together, slept* near each other, and every opportunity was granted them to form a mutual attachment. In the evening, they had each from ten to twelve pounds of rice soaked in water, to which a little salt was added ; and, from the middle of May till the latter end of June, some warm stimulants, such as onions, garlic, turmeric, and ginger, were added to their usual allowance of rice. Long before this, however, a partiality had taken place, as was evident from their mutual endearments, and caressing each

* It is always a good sign, when an elephant lies down to sleep, within a few months after he is taken ; as it shews him to be of a good temper, not suspicious, but reconciled to his fate. Elephants, particularly *goondabs*, have been known to stand twelve months at their pickets, without lying down to sleep ; though they sometimes take a short nap standing.

other with their trunks; and this without ceremony, before a number of other elephants, as well as their attendants.

Near the end of June, I was satisfied the male would not, even to regain his freedom, quit the object of his regard; I therefore ordered the keepers to picket the female, by one of her fore-legs only, in the house where they stood, but to leave the male at full liberty. Fearful, however, of hurting their supposed delicacy, and thinking the nearness and sight of the attendants might possibly give umbrage to their modesty, I desired them to remain quiet in a little hut, erected on the outside of the building appropriated to the elephants, where they could see equally well as if nearer.

On the evening of the 28th of June, 1793, the male was let loose from his pickets; and, soon after, he covered the female without any difficulty, although before this she never could have received the male, being taken when very young, about five years and a half prior to this period. The male was then led quietly to his stall; but, early on the morning of the 29th, he became so troublesome, that the drivers, in order, as they said, to quiet him, but partly, I suspect, to indulge their own curiosity, permitted him to cover her a second time; which he readily did, before the usual attendants, as well as a number of other spectators. After this, the driver brought me a particular account of the whole process. Though much pleased with the success of the experiment, yet I was rather chagrined he had not given me notice, that I might have been myself an eye witness; and therefore told him, he should not receive the promised reward, till I had satisfied myself of the fact.

About two in the afternoon of the same day, I was desired to repair to the place where the elephants stood, as the male had

been trying to get nearer the female. On this, I proceeded to the spot, with my friend Captain ROBERT BURKE GREGORY: when we arrived, I ordered the male to be freed from his shackles; and, after some toying, and a few mutual caresses, we had the satisfaction to see him cover the female.

When the male mounted, he placed one of his fore-legs on each side of her spine, with his feet turned to, and pressing against, her shoulders, and his trunk over her forehead; supporting himself firmly in this situation, during coition, which he continued nearly the same time, and in the same manner, as a horse with a mare.

The female remained perfectly still, during the coitus. When the male had finished, he stood quietly by her side, while she caressed him with her trunk; and, as they then appeared well pleased, and gentle as usual, I went up and patted them both, as I had formerly been accustomed to do, without the smallest apprehension. In the evening, they were brought home to be fed; and, though only a few hours had elapsed since his last embrace, the male seemed inclined to make another attempt; to which I would have consented, to gratify a crowd of people then present, had I not now learned, that he had covered the female in the open plain, about ten in the morning, when going out for food, in spite of the exertions of the drivers and attendants; at least so they alleged, in excuse for having permitted it, contrary to my orders. As he had already covered four times in about sixteen hours, I was afraid a further indulgence might be prejudicial, and therefore would not permit it; especially as Mr. IMHOFF, to whom he then belonged, was absent. That gentleman, however, returned two days after; but, when the two elephants were brought together, in order that Mr. IMHOFF'S curiosity might be indulged with so novel a sight, the

female, being no longer in heat, was so uncivil as to give the male a kick in the face, when he was using what she then thought improper liberties; nor did she afterwards permit him to cover her, though, when standing together, they mutually indulged in a few caresses.

During the time they were kept together, the male never showed signs of his passions being excited, by any exudation from the ducts of the glands near his temples; which is generally considered as the sign of a male elephant being peculiarly ready for the female. This, however, I am inclined to believe is a vulgar error; as not one of the male elephants I have seen cover, in a domestic state, nor any of the males which were caught singly, or rather entrapped, by their desire to have connexion with the tame females, had, at those times, the smallest appearance of such an exudation. Had this happened, in any one instance, during my residence in Tiperah, I think I must have known it; for, when this exudation takes place, the elephant has a dull heavy look, and it is dangerous for strangers to go near him. I have seen elephants in this situation, after they had been many years caught; but, though they were then said to have their passions excited, I have never known one to cover during the continuance of this exudation: nor have elephants, so far as I have been able to observe, any particular seasons of love, like horses and cattle. Of five instances of elephants covered at Tiperah, one received the male in February, another in April, a third in June, a fourth in September, and the fifth in October. Besides these, an attempt was made by a tame male, to cover, in the month of January, a wild female, then in heat.* When the female is in

* Many pregnant females are taken every year at Tiperah, and produce young ones in the different months: this clearly shows, that there are no particular seasons during which the females are in heat.

heat, the parts of generation show it, by an unusual fulness of the labia; and, if she is placed near a male, she endeavours, by caresses, to excite his desires.*

After the female had been covered by the male, as has been just related, there being then no other female ready, he was placed with an elephant which had had a young one about four years before this, and some months ago was reported to have been in heat. It was thought, after some trial, that she was likely to permit him to cover, as she caressed him occasionally, and roused his passions; but she would not allow him to gratify his desire.

The drivers, tired of this coyness, and stimulated perhaps by the hopes of another gratuity, were so brutal as to tie her, and let the male make an attempt upon her, while tied. His attempt, however, was to no purpose; though he continued his efforts till he appeared to be quite exhausted. This being told me, I severely reprimanded the people; and ordered the female to be left at full liberty to reject or receive the male, as she might think proper.

Here, however, was positive proof, that the male would have effected his purpose by force, when he found he could not obtain it any other way. He remained at Comillah till October, 1793, without my being able to procure a female that was in heat; he was then sent to Calcutta.

I now became extremely solicitous about the health of the

* It may be proper to observe, that the penis of a full grown elephant is from two feet four to two feet six inches in length, and from fourteen to sixteen inches in circumference. I caused the penis of two males to be measured, after their passions were excited, in order to ascertain the real size. On some occasions, I have seen the penis absolutely touch the ground, when the elephant has been walking; but it must be recollected, that the hind legs of an elephant are very short, in proportion to his size.

female which was covered in June; and gave particular directions not to overheat her, but merely to give her as much food and exercise as were likely to keep her in the best condition, as she was now known to be pregnant. In three months after she was covered, she became fuller, her flesh felt softer, and her breasts began to swell. These marks of her being with young, were so evident to the driver, that he mentioned them of his own accord; which convinced me, that an elephant, three months after conception, may be known by the keepers to be pregnant.

She had always been a favourite, from having been the gift of my worthy and respected friend Mr. JOHN BULLER,* as well as from her gentle and docile disposition; and I now had hopes of her going her full time.

She was seven feet three inches high, when covered; but, after this, increased so fast, not in bulk only, but also in height, as to exceed seven feet eight inches, before she brought forth. On the 16th of March, 1795, she produced a fine male; just twenty months and eighteen days after she was first covered.

The young one was thirty-five inches and a half high; and had every appearance of having arrived at its full time, being the largest I had known produced in Tiperah.

We have many young produced every year, by the females which are taken while breeding, and these seldom exceed thirty-four inches; this, however, may be owing to the weak and reduced state the mothers are brought to, while breaking in.

The young of the elephant, at least all those I have seen, begin to nibble and suck the breast soon after birth; pressing

* Now one of the Members of the Board of Revenue, at Calcutta.

it with the trunk, which, by natural instinct, they know will make the milk flow more readily into the mouth, while sucking. Elephants never lie down to give their young ones suck; and it often happens, when the dam is tall, that she is obliged, for some time, to bend her body towards her young, to enable him to reach the nipple with his mouth; consequently, if ever the trunk was used to lay hold of the nipple, it would be at this period, when he is making laborious efforts to reach it with his mouth, but which he could always easily do with his trunk, if it answered the purpose. In sucking, the young elephant always grasps the nipple (which projects horizontally from the breast) with the side of his mouth.

I have very often observed this; and so sensible are the attendants of it, that, with them, it is a common practice to raise a small mound of earth, about six or eight inches high, for the young one to stand on, and thus save the mother the trouble of bending her body every time she gives suck, which she cannot readily do when tied to her picket.

Tame elephants are never suffered to remain loose; as instances occur of the mother leaving even her young, and escaping into the woods.

Another circumstance deserves notice: if a wild elephant happens to be separated from her young, for only two days, though giving suck, she never afterwards recognizes or acknowledges it. This separation sometimes happened unavoidably, when they were enticed separately into the outlet of the *keddab*. I have been much mortified at such unnatural conduct in the mother; particularly when it was evident the young elephant knew its dam, and, by its plaintive cries and submissive approaches, solicited her assistance.

Here it may be observed, that a female was believed to have gone twenty-one months and three days; being supposed to have been covered on the 13th of January, 1788, some days before she was driven into the inclosure. When I made particular inquiry as to the real time she was taken, the superintendent* of the hunters said it was in January; but the principal hunters† declared she was among the herd taken in February following, and was probably the same elephant Mr. BULLER, Captain HAWKINS, and many others, saw covered on the 9th and 10th of that month. Perhaps, some days prior to this, she might have been covered in the woods, before she was brought into the inclosure; but, as a herd was taken in each of those months, and not kept separate, and two years had nearly elapsed before I thought of making any inquiry, it was impossible for me to determine in which of those months she was really taken; and the only motive I then had for endeavouring to ascertain this point, was to form some probable conjecture as to the period of an elephant's gestation, which has now been ascertained, in the instance before related.

Early in September, 1795, the female that had been covered, and had bred under my own observation, was known to be in heat; this was less than six months after bringing forth. Learning, at the same time, that the Rajah of Cudwah, a principal Zemindar of the province, had a very large male that had been in the family near twenty years, from the time he was about five years old, I sent a messenger, requesting the elephant might be sent to Comillah, which request the Rajah immediately complied with.

To prevent any interruption from the number of spectators,

* The *Dárogab*.

† The *Dydars*.

the elephants were put into a small inclosure, on the 17th of September; the female was picketed by one leg, and the young one, to which she was giving suck, was tied to a tree at some distance, fearing, if permitted to run about, he might receive some injury.

After a few caresses from the female, the male at length effected his purpose, and covered her twice the same evening. As the intention of the male elephant's visit was known in the district, and a few days had elapsed since the two elephants were brought together, in order to make them acquainted, the number of spectators was greater than on any other similar occasion.

She was afterwards covered, several times, on the 20th of the same month; the male, in this case, being admitted after an interval of three days, although formerly, in June, 1793, she refused him when only two had elapsed. She again proved with young; and, in November, 1796, being myself in a bad state of health, and under the necessity of returning to Europe, I sent her to Lucknow, together with her young one, at the request of my friend Captain DAVID LUMSDEN: though she was then very big, she was still giving suck.

About a month before that period, I got my friend, Mr. STEPHEN HARRIS, to permit a female of his to be covered; the same which had, in 1793, rejected the attempts of the male to cover her contrary to her inclination. Another messenger was dispatched to Cudwah, for the Rajah's elephant, which was again sent to Comillah. He covered her repeatedly, on the 14th, 15th, and 16th of October, 1796, before many Europeans, as well as natives; and, the last time he covered her, it was evidently contrary to her inclination; so that, in fact, he used

force to effect his purpose, and held her so firmly, that the marks of the nails of his fore-feet were deeply imprinted on her shoulders.

Having mentioned a sufficient number of instances, to prove the ability, as well as the inclination of the elephant, to propagate his species in a domestic state, and that without any signs of modesty, and having ascertained the period of gestation to be twenty months and eighteen days, it may be necessary to observe, that it is a difficult matter to bring a male, which has been taken about the prime of life, into good condition to act as a stallion; for, being naturally bolder, and of a more ungovernable disposition, than the female, he is not in general easily tamed, till reduced very low; and it requires considerable time, as well as much expence and attention, before he can be brought into such high order as is requisite. He must also be of a gentle temper, and disposed to put confidence in his keeper; for he will not readily have connexion with a female, whilst under the influence of fear or distrust. Of this I have seen many instances; nor do I recollect one male elephant in ten, which had been taken after having attained his full growth, much disposed to have connexion with a female. This is a most convincing proof, that those males which are taken early in life, and have been domesticated for many years, more readily procreate their species than elephants taken at a later period. In their wild state, however, they show no reluctance; for, besides all the males that are entrapped, from their desire to have connexion with the trained females which, though not in heat, are carried out to seduce them, several instances have occurred, of wild elephants covering, immediately after being taken, in the *keddab*.

On the 3d of April, 1795, a very fine male elephant covered a female twice, in the midst of the herd, and before all the hunters. On the 4th, I saw him attempting to cover a third time, when he was suddenly disturbed, by the noise the hunters made to drive away some of the herd which had come too near the palisade. In consequence of this interruption, he threw down first one and then another small elephant, and gored them terribly with his tusks, though they came between him and the female only for their protection: he had, before this, killed four, and wounded many others. When the poor animals were thrown down, conscious of their impending fate, they roared most piteously; but, notwithstanding their prostrate situation, and submissive cries, he unfeelingly and deliberately drove his tusks through, and transfixed them to the ground; yet none of the large elephants, not even the dams of the sufferers, came near to relieve them, or seemed to be sensibly affected. This savage animal had been then confined four days in the inclosure, along with the herd, upon a very scanty allowance of food, and could have but very little hope of escaping; yet here his passions were stronger than his fears. It was on account of this savage disposition, the hunters had asked permission to shoot him, before I had either seen him or the herd, and thence judged he was a *goondab*,* that had lately

* From this instance, as well as many concurring circumstances, I am convinced that these *goondabs* generally leave the herd of their own accord, and join it when they think proper, or are induced to it from a female being in heat; yet it has been supposed, that they are driven from the herd, at an early period of life, by their seniors. This appears improbable, as it is not often that very large males are taken with a herd of elephants; for, depending on their own strength, they stray singly, or in small parties, from the woods into the plains, and even to the villages; and it is in these excursions they are taken, by means of the trained females. As these *goondabs*

joined. Having never before known any elephant killed wilfully, in the *keddab*, by the larger males, and having no idea that he would commit such terrible havock, I unluckily refused to grant their request, being desirous to save so stately an elephant. When the palisade was finished, I got him tied, and led out; but, not brooking restraint, he languished about forty days, after he was secured, and then died.

In the course of this narrative, I have, in general, related only such particulars concerning the elephant as came within my own knowledge, and which were either not known, or not published. To enter into a particular history of the elephant was not my intention; and, although the procreation of tame elephants has been proved, yet the expence incurred by breeding them, may deter others from making attempts of this kind. But it opens a field of curious inquiry to the naturalist; and, now that the facility with which it may be done is ascertained, it suggests itself as a mode by which the breed of elephants may be improved, in size, strength, and activity. In this way, any expence which might be incurred, would more than repay itself, in the future benefits to be derived from a superior breed of elephants.

are much larger, and stronger, than the males generally taken with the herd, it is not probable they would submit to be driven from it, unless at an early period. I have seldom seen, in a herd of elephants, a male so large as may be commonly met with among two or three *goondabs*; but, if these last were driven from the herd when young, the very reverse would be observed.