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“It will flourish, if naturalists, chemists, antiquaries, philologers, and men of science in different parts of *Asia* will commit their observations to writing, and send them to the Asiatic Society at Calcutta. It will languish, if such communications shall be long intermitted; and it will die away, if they shall entirely cease.” SIR WM. JONES.

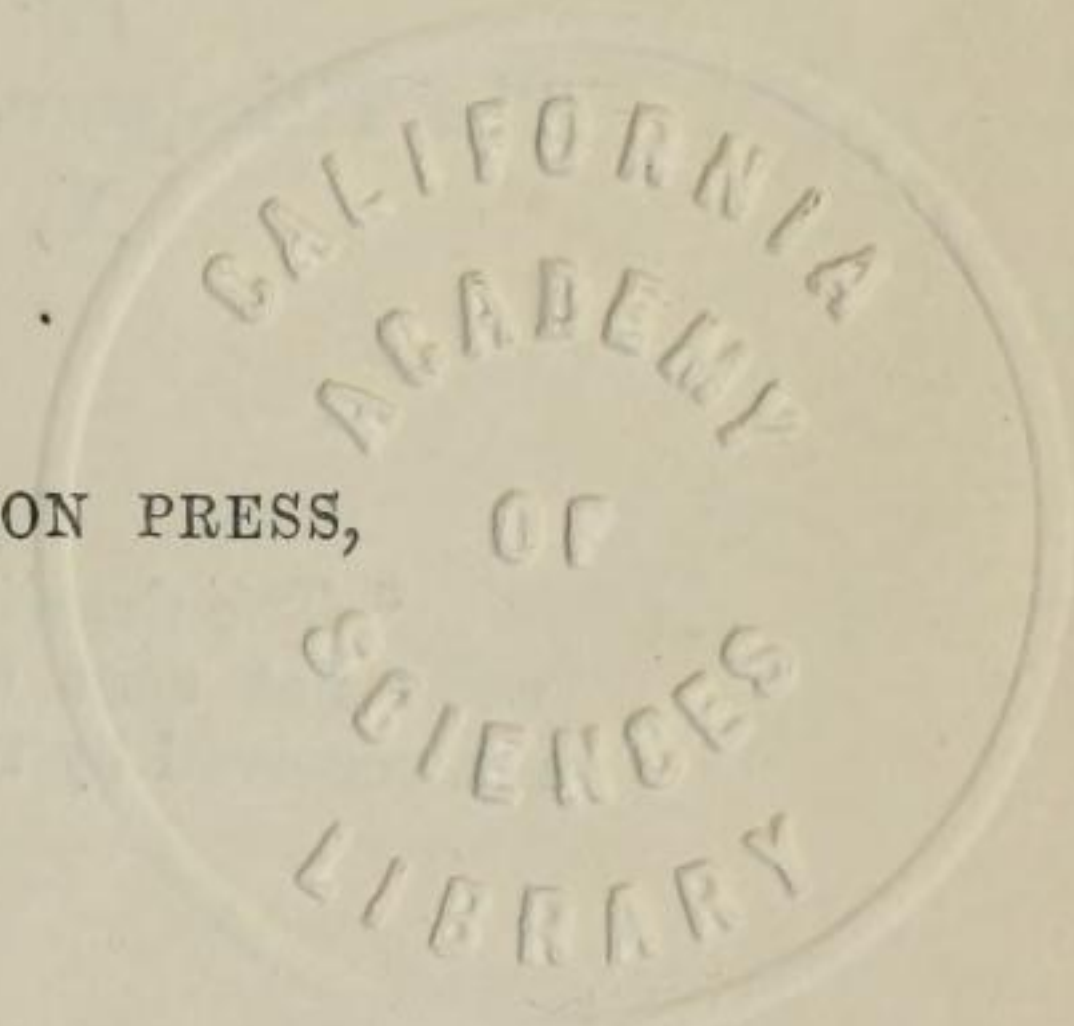
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IV.—*On the recent existence of Rhinoceros indicus in the North Western Provinces; and a description of a tracing of an archaic rock painting from Mirzapore representing the hunting of this animal.*—By JOHN COCKBURN, Esq.

[With Plates VII and VIII.]

[Received 7th June—read 1st August, 1883.]

On the 5th of July 1881 while hunting in the ravines of the Ken river two miles due south of the town of Banda, I had the good fortune to discover the fossil remains of a rhinoceros.

My attention was first attracted by a number of minute fragments of teeth which whitened the surface of a ridge. On closer examination I clearly identified the outlines of the skull of a Rhinoceros, marked by a faint trace of fragments of bone. A glance at the pattern of a fragment of a molar satisfied me of the correctness of my identification; and carefully marking the spot, I returned next morning accompanied by J. La Touche, Esq., the Collector, H. Miller, Esq., the Assistant Magistrate, and C. F. Knyvett, Esq., the Superintendent of Police. These gentlemen with much spirit, aided me, and we dug up an area of about 4 square feet with our own hands till no further trace of bone occurred.

The appearance first presented was deceptive; the inferior lateral half of the skull was not perfect as might have been expected from the outline observed, and all the bones were in a fragmentary condition.

The bones and teeth obtained were the ascending ramus of the left inferior maxilla as far as the insertion of the last molar in four fragments; a fragment of the glenoid cavity of the right scapula; the right incisive tusk nearly perfect; several lower molars; and one perfect upper molar, which I regret to say was much split and dropped to pieces, when it was found impracticable to put it together again.

A large quantity of fragments of teeth together with some longitudinally split pieces of the shafts of long bones were also obtained.

The presence of well defined cingulum on the upper molar led me at first to suppose that the remains belonged to an extinct species, but on carefully comparing the extremely fragmentary fossils in company with Mr. Richard Lydekker, the remains were found to resemble those of *Rhinoceros indicus* sufficiently closely to enable us to tentatively assign them to that species.

R. namadicus to which species we might otherwise have assigned the fossil is now admitted to be identical with *R. indicus*.

The mineral state of the fossil, the nature of the locality it was obtained from, and the associated genera found in the Banda ravines closely

resemble the conditions under which Mr. Foote's *R. decannensis* was found.

Immediately below the rhinoceros bones was a hard stratum, 4 feet thick, which has yielded bones of *Bos*, *Equus*, *Portax*, and antelope.* The rhinoceros bones were slightly impregnated with mineral matter and studded with small nodules of kankar but not sufficiently so to imply any great antiquity. Other fossil bones picked up in these ravines are very highly impregnated with mineral matter possibly with a ferric base. Within 4 feet of the rhinoceros bones I picked up several chert and shell knives on the surface of the soil.

A molar of *Rhinoceros indicus* considered recent was obtained by Mr. Bruce Foote in the alluvium of Madras and is remarked on by Mr. Lydekker as "very interesting as showing the former range of that species far to the south of its present habitat, which Jerdon gives as the Terai from Bhotan to Nepal." (J. A. S. B. Part II for 1880, page 32.)

Carefully weighing the facts I came to the conclusion that these remains were not necessarily *very* ancient, and the split bones and shell and chert implements were evidence to my mind that the animal had been killed and cut up by savage man, at no remote period. Recently, (October 1881,) when asked by R. A. Sterndale, Esq., to contribute a chapter on *Rhinoceros* for his forthcoming work—"A Popular Natural History of the Mammalia"—describing *R. indicus* I wrote as follows:

"It is probable that this *Rhinoceros* was found throughout the plains of the North Western Provinces in unreclaimed spots as late as the fifth or sixth century."

According to the observations of Dr. Andrew Smith in South Africa these huge pachyderms do not absolutely require for their support the dense tropical vegetation we should think necessary to supply food to such huge beasts.† Since marching through the forests of the Maharaja of Benares in Keyra and noticing forest forms like *Shorea*, *Tectona*, *Diasperos* in alluvial country, their gradual disappearance when the humidity is lowered by debasement and the substitution of forms like *Butea* and *Zizyphus* characteristic of the scrubby jungles of the N. W. P., my ideas on the subject have considerably enlarged. I was not aware at the time that the Emperor Baber had recorded that he found both the rhinoceros and elephant common under the walls of Chunar when he visited that

* A list of the fossil shells found by me in the same locality and presented to the Indian Museum was given me by Mr. G. Neville, but I have unfortunately mislaid his letter.

† The tapir alluded to by General Cunningham as occurring on the sculptures of the Bharhut stupa is a mythical rhinocerote. The pensile lip is tolerably characteristic.

fortress in 1529, never having had the good fortune to meet with a copy of that rare work, Erskine's "Baber."

The accompanying tracing of an archaic petroglyph from the Ghormangur rock-shelter near the fortress of Bidjeygurh in the Mirzapore district, testifies to the recent existence of the Rhinoceros over this tract.

This drawing is of surpassing interest not so much on account of the portrait of this huge animal fast receding before civilization, and practically extinct in continental India—or of the vivid and spirited hunting scene probably many centuries old which it recalls, as owing to the clear and characteristic manner in which the spears used are depicted.

These spears I consider to have been made of wood and stone only. The reasons for this conclusion will be stated further on.

Admirably executed drawings of *Bos arni*, *Bos gaurus*, *Rhinoceros*, *Elephas*, &c. occur in most of the rock shelters in the neighbourhood and at first sight might be supposed to be of great antiquity, but it appears to me that they need not be more than 300 years old, if not less. For if the rhinoceros and elephant were found near Chunar on the banks of the Ganges in 1529 they were probably more numerous at the same time and continued to exist later, on the banks of the Sone where these shelters occur, a country yet covered with forests harbouring the tiger, bear and sambar.

Granting the possibility of these drawings being comparatively modern, we find ourselves face to face with the astounding conclusion that the "stone age" has but recently passed away among the aborigines of the Kymores.

A state of stone culture calls up a host of anthropological questions; but before going further I may mention that I had long before come to the conclusion that the aborigines of the Kymores were in a stone age as late as the 10th century A. D. The remarkable piece of sculpture from Kalinjar, now in the Indian Museum, which was supposed in the short note by H. J. Rivett-Carnac, Esq. (read by me before the Society, P. A. S. B. January, 1883,) to represent an aborigine armed with a stone axe is possibly, from the absolute identity of the axes and chert implements found in the rock shelters of Mirzapore and on the surface in the vicinity of Kalinjar, intended to represent one of the same race as those who hunted the rhinoceros in Mirzapore.

The tracing of the rhinoceros hunt Plate [VII] is a faithful tracing of a petroglyph in the Ghormangur cave in Pergunnah Bidjeygurh of the Mirzapore District.

This cave was visited by me on the 17th of March 1883. Its exact position is two miles due south of Mow Kullan bridge, and within three miles of the celebrated fortress of Bidjeygurh, and five of the river Sone.

This rock shelter has the appearance of a huge mushroom. It is a

gigantic boulder, the remnant of some rocky ridge with the sides scooped out by atmospheric agency for three-fourths of its circumference leaving a huge central pedestal or stalk on which the drawings have been executed.

The drawings are in the usual red pigment which was generally hæmatite, pieces of which were dug up in caves. This was probably mixed with animal fat and laid on with a fibrous brush, while the outlines were executed with a pointed stick.

These drawings are as a rule in tolerable preservation probably owing to the fact that they have been protected from the weather by the situation of the cave.

The first drawing of a rhinoceros observed by me was in a shelter about 400 yards south of the camping ground at the village of Roup in Pergunnah Burhur. It was at this village that Dr. Hooker camped on the 3rd of March 1848, (See *Him. Jour.* Vol. I, p. 60) and its position is plainly marked on the map that accompanies his work. The sketch was about 3" long, and I am not ashamed to confess that I did not recognise the animal at the time, probably unconsciously deeming it incredible that the animal could have occurred here. The following extract bearing on the subject is from my note book.

"February 9th.—There is a group of three men attacking a boar whose tusk is planted on the tip of his nose like the horn of a rhinoceros. Two of the men who are in advance wear short skirts, but the form of their lance heads is on too small a scale to be defined. Attacking him from the rear is the obliterated figure of a man on a large scale, and the form of lance-head he is using plainly indicates the chip spear."

The next step in the process of the discovery is detailed below in an extract from my note book.

"March 14th.—Harni Harna cave near Bidjeygurh. There are numerous well executed drawings of Sambar hinds identified by the stag alongside, but the most remarkable drawing is what looks much like a rhinoceros hunt. The drawing is much injured; there are traces of six men (whose uplifted arms are evidently discharging spears) pursuing an animal, which the evidence of my senses compels me to say resembles a rhinoceros. The horn is perfectly represented, and had not half an inch more of the snout scaled away, I should have been able to identify the animal with certainty."

The same night in a foot note to the notice of their Roup cave, I remarked.—"Having since found several drawings of boars with the tusks in the right position I consider it improbable that men who represented animals so accurately as these savages, would have drawn a boar's tusks, thus (on the top of the nose). This may be evidence in favour of the animal seen to-day in the Harni Harna cave being a rhinoceros." Knowing I was

in a promising locality, I strained every nerve to find a more perfect drawing, walking twenty miles a day, and undergoing more fasting and privation than the most enthusiastic votary of superstition.

The question no longer admits of doubt for the animal in the drawing now exhibited is as plainly a rhinoceros as the objects around it are men.

On the 17th of March I had the good fortune to be shown to the Ghormangur cave which is well-known to the Kol and Gond wood-cutters in the locality, though they were quite ignorant of the fact that scores of other caves with paintings existed higher up the bluff. This cave is called the Ghormangur or horse cave, and was said to contain drawings of horses, but I was quite unable to find a single drawing of the horse although this animal is not uncommonly depicted in other caves.

I may now proceed to a description of the sketch [Pl. VII,] which is a faithful tracing taken by brushing tissue paper with kerosine oil to render it transparent securing it on the rock with pellets of wax and going over the lines with a blue pencil. The kerosine oil afterwards readily evaporates on exposure to the air.

A group of six men have attacked a rhinoceros identified at present with *R. indicus*.* One of these the animal has tossed with his horn and the position of the man sprawling in the air is comically like our own drawings of people tossed. A man wearing an unusually large head-plume who is in the rear has tried to draw the animal off by plunging his spear into its hind-quarters. His attitude indicates that he has thrown his entire weight into the thrust.

In front of the enraged animal are two men, the lower of whom in an attitude highly indicative of action, has what appears to be a simple spear of hardened wood with two supplementary barbs, levelled at the animal's breast. The upper of these two figures has nothing remarkable about him, his head-plume differs slightly, and he seems to be armed with the ordinary triangular-headed spear with two supplementary barbs which is found throughout these cave drawings.

* The sentence in Jerdon's Mammals, p. 234 under *R. sondaicus* "One of these species formerly existed on the banks of the Indus where it was hunted by the Emperor Baber," has been usually considered by subsequent writers to allude to *R. sondaicus*. I am strongly inclined to think that the species hunted by Baber was *R. indicus*. I am not aware what authority Jerdon had for saying that *R. sondaicus* was found on the northern range of the Rajmahal Hills near the Ganges, but have a faint recollection of seeing some such statement in an old Indian sporting publication.

Ball questions the fact. It is, however, unfortunately but too true that neither Blyth nor Jerdon knew *R. sondaicus*, Blyth having named a characteristic stuffed specimen of *R. indicus* as *R. sondaicus*. Blyth Cat. M. M. A. S. No. 460 A.

Only one of these men appears to be absolutely naked, the others appear to have on a short kilt which is elsewhere represented in this cave and may have resembled the fringed kilts commonly worn by savages in all parts of the world.

All save two it may be noted wear head-plumes, a characteristic of savages although our field marshals might demur to this statement. In the hindmost individual this plume is of unusual size. An examination of a head 3" long in which the plume is plainly shown leads me to believe these plumes were coloured feathers and other objects worked into a queue or scalp lock somewhat similar to those indulged in by the Nagas and North American Indians at the present day. The lines which occupy the head and body of the rhinoceros I have noticed elsewhere. They may be intended to represent the segments into which this animal almost appears to be divided by the overlapping coat of mail, but are more probably a conventional way of filling up blank space in a drawing. There are a few other objects of interest in this cave which have not been noticed elsewhere. In the hand of a plumed individual to the left of the rhinoceros hunt is a spear valuable as being drawn on a somewhat large scale and being in a very perfect state of preservation. [See Plate VII.]

This spear closely resembles the mongile or double-barbed spear which is a favourite pattern with the modern Australians and Polynesians, and is always cut out of solid hard heavy wood.*

A very similar spear but with eight such barbs is figured by Brough Smith, in his *Aborigines of Victoria*. [Pl. VIII, F.]

It occurs to me at this stage that I have not yet brought forward the evidence, which has led to so bold a hypothesis regarding the material of which these spears are made and will do so now.

Stone-tipped implements of three kinds are, I consider, figured in the various caves I have hitherto examined, viz : spears, arrows and stone knives ; but it must not be inferred from this that iron implements are wanting.

* With reference to the efficiency of wooden and stone spears for destroying large mammalia, it may not be generally known that an Australian savage has been seen not only to transfix but nail a man to a tree at 30 yards with a wooden chip spear thrown by the womerah.

They readily kill *Macropus major*, cows and even horses belonging to the settlers with these weapons and even the mighty whale succumbs to a slate harpoon-head in the hands of an Esquimaux.

Nearer home the Naga panjie which will penetrate any living thing shews how effective pointed bamboo may be. It is more than probable that some of the spears here represented were of bamboo. The bamboo found in the vicinity of Bedjeygurh is valued at the present day for spear shafts and latties beyond all others, and having had my own hog spears shafted with it I can testify to its superiority.

On the contrary almost every cave contains well defined drawings of iron implements which form one of the best proofs I have that the other implements so closely resembling those of modern savages were made of stone and wood.

For example, in a painting in a cave at Lohri I found what is an iron-headed spear [Pl. VIII B] But in this very shelter occurs also a drawing of a man spearing a stag sambar with a weapon, which is similar to one represented in the Likuniá rock-shelter, and which I am convinced every anthropologist will be prepared to accept as a non-metal weapon. [Pl. VIII, E] Another form of iron spear head, not uncommonly found in the hands of horsemen, is a typical form not unlike a lozenge-shaped form of head yet used among ourselves. [Pl. VIII, A.]

The metal arrow-heads here and there observed [Pl. VIII, C] are as obviously of metal* as the pike staves of the spears are of wood.

Lastly, I may mention that the foreigners usually represented in these drawings are often armed with round shields and curved sabres which apparently differ in no wise from the modern tulwar. I have also to state that I have actually found a portion of an iron arrow-head in a cave.

The best evidence we can have in support of the idea that the drawings above alluded to represent stone weapons is the fact that stone implements occur in abundance in the soil of the caves mingled with the identical material with which the drawings were executed.

The spear head D [Pl. VIII.] is I believe intended to represent a wooden spear as it is yet a favourite pattern with savages. A painting in the Lickunia rock shelter near Shahgunge represents a man about to spear a hind. The weapon in his hand referred to above is a spear with a broadly angular head followed by nine barbs. [Pl. VIII, E] The aboriginal Australians in smoked bark-drawings, and doubtless in caves, represent their stone spears in a manner so very similar to this drawing [See Pl. VIII, G] that I have no hesitation in expressing my opinion, that the similar weapons represented in the Mirzapore rock shelters were headed with stone, wood and bone, convinced as I am that further researches will abundantly prove the truth of this theory whatever the age of the drawings may be.

No modern form of iron spear-head resembling E is known to me. In a single instance I have observed, that the huge sword-shaped blade of the Naga spear was followed by two supplementary barbs which were of a piece with the blade.

The Andamanese not uncommonly whip on two or three supplementary iron or bone barbs to their pig arrows, but these latter are not usually in pairs but alternate.

* Specimens of this type made of iron are in the Indian Museum.

Both these Tribes have not long passed out of a stone age and the persistence of the custom points to the fact of their having used many barbed spears in other material at no distant period.

A multibarbed form of copper harpoon or spear-head appears to have been used in India during what here corresponds to the Bronze Age. Three such harpoon-heads were ploughed up in a field in the Mainpuri District of the Gangetic Duab, associated with flat copper celts and copper bangles. [See P. A. S. B. 1868, pp. 251-262.]

The celts were of exactly the same type as one found in a Buddhist mound at Muttra by General Cunningham (Arch. Surv. of India, Vol. II, p. 16). One of these copper spear-heads is now in the collection of the Indian Museum, and two other similar specimens were in the Allahabad Museum when I was Curator of that Institution.

The specimen in the Indian Museum is well worn on the first barb by grinding and has two eyelets at the base. The short thick truncated rounded tang in all three specimens favours the idea that they were fixed in a shifting socket as the Andamanese pig arrow is at the present day. They were not therefore necessarily harpoons for spearing aquatic creatures.

A larger and different form of copper spear-head, said to be from Bithur? near Cawnpore) is also in the collection of the Indian Museum. It has three pairs of blunt rounded supplementary barbs below the blade. I am not disposed to think that the broadly triangular head and fine sloping lines of the barbs of the cave-spears were intended to represent either of these forms in copper. The great number of barbs on the cave-spear adds much to the probability of these barbs having been of stone.

A peculiar class of angular flakes [Pl. VIII, H] very common in these caves were I would suppose let into grooves in wood as shown in the restoration of a stone spear [Pl. VIII, I.]

I cannot here refrain from stating that this discovery is entirely due to the liberality of H. Rivett-Carnac, Esq., C. S., C. I. E., F. S. A. without whose constant aid I should neither have been able to find the caves nor write this paper.

Note to the above.

Two important objections might fairly occur to a critic after reading the above. *First*, that Baber's identification of the rhinoceros at Chunar in 1529 is at the best doubtful. *Secondly*, that the occurrence of the rhinoceros in the vicinity of Chunar would imply the presence of forests there, whereas the district now is semi-arid.

With regard to the *first* objection I would point out that Baber was *previously acquainted* with the rhinoceros. His description of the rhinoceros hunted by his son on the banks of the Indus is most accurate, and leaves no room for doubt as to the genus of the animal he described. He compares the folds of its skin to housings and its internal anatomy to that of the horse, a fact which subsequently required the

genus of Cuvier to detect. With regard to the *second* objection as to the existence of forests in the vicinity, there is in my opinion ample evidence to show that tree forests existed not only near Chunar, but right through the Gangetic Duab as high as Cawnpore till the 16th century and later.

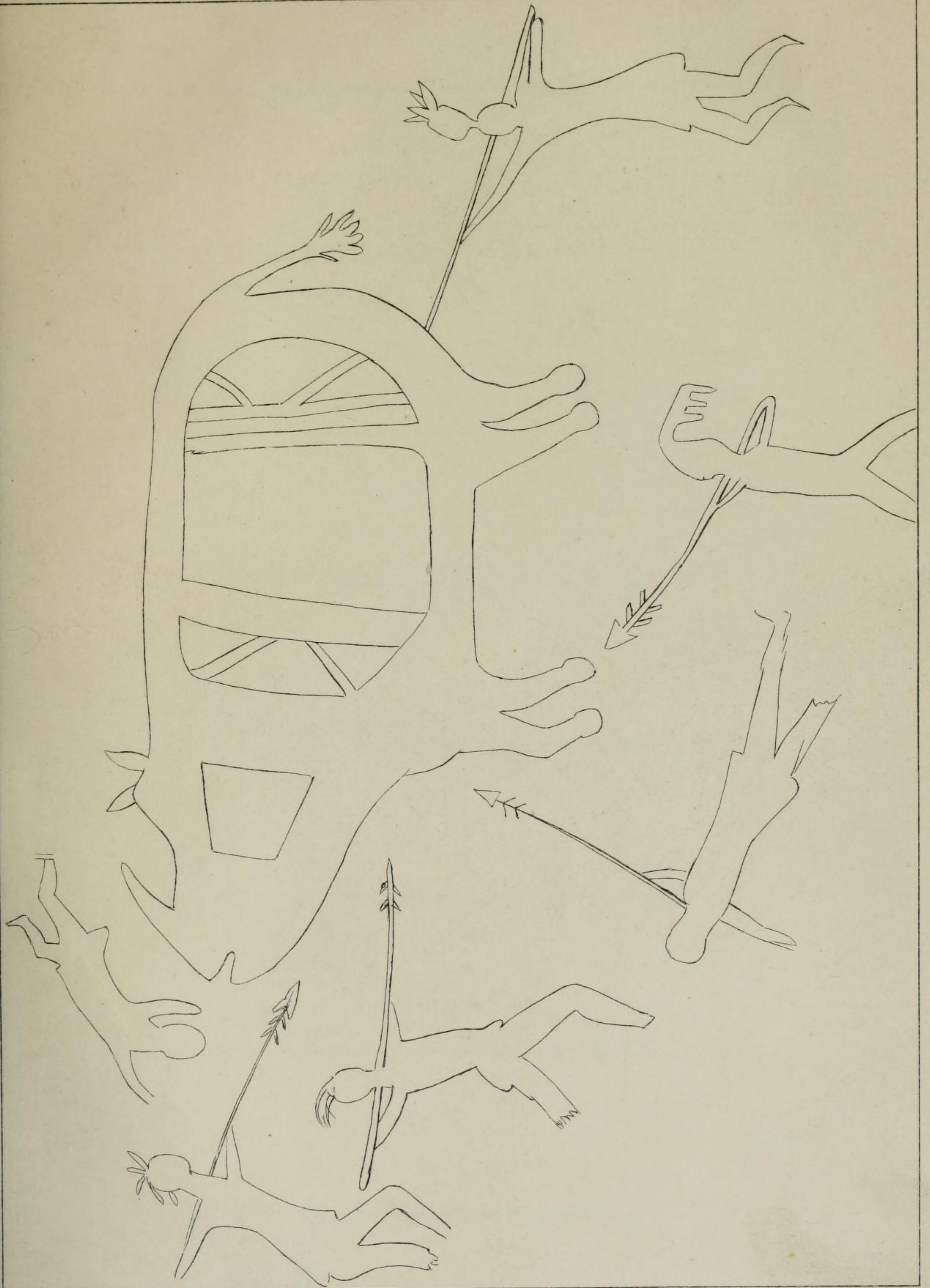
It requires some abstraction to conceive that this now semi-arid region largely productive of reh and usar was covered with forest so recently, but such was without doubt the case. Wild elephants are stated in the Ayeen Akbari to have been found near Kalinjar in Banda, in Kuntil, in Mirzapore, Kurrah Manickpore, in Allahabad and Chunar. These points define a former forest tract throughout which stone implements occur.

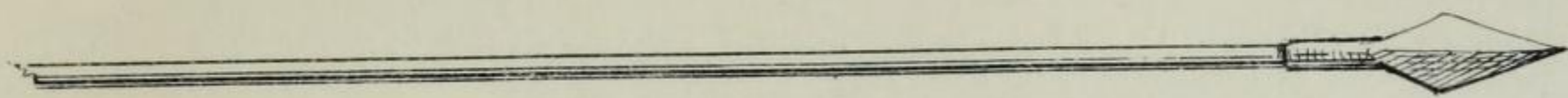
Rhinoceros indicus, it may be noted, frequents grass by preference, while *Rhinoceros sondaicus* is a forest and mountain loving species. But the habitat of *R. indicus* at the present day, the great grass jungles on the banks of the Brahmaputra, and those of the Himalayan terai are in either case bordered by forest, in which the rhinoceros is occasionally found, and seeks refuge when pursued. In the occurrence of both the rhinoceros and elephant near Chunar in 1529 there is evidence that extensive forests did exist in the immediate vicinity of the river's bank; for granting that the rhinoceros did frequent the heavy grass which was certain in places to have covered the alluvium within the immediate influence of the great river, such would not have been the case with the elephant, for the food of *Elephas indicus* consists of succulent leaves, shoots and twigs, and it requires large tracts of forest to maintain itself; differing in this respect from its African ally. We have, however, the evidence of a modern Englishman which shows that my supposition regarding the bordering forest is correct. Capt. Blunt who marched from Chunar to Ellora in 1795 records that a "thick forest" existed between the Jurgo nadi below Chunar and Suktesgurh, (Asiatic Researches, Vol. VII, 1801, p 57.) The Chinese Pilgrim who in the 7th century marched from Allahabad to Kosim stated that he passed for several days through a vast forest infested with wild bulls. I have marched by what is considered by General Cunningham the same route, and was struck by the absence of vegetation, and the prevalence of reh. Bits of dhak jungle (*Butea*) scattered over this tract may be the remains of what was once a forest. This growth everywhere in the N. W. P. appears to replace true forest forms, once the conditions necessary for their existence are altered.

The change effected in the climate has undoubtedly been great, and everywhere in the plains of the N. W. P. dried watercourses and rivulets, barren ravines, and saline efflorescence, attest to the slow but certain progress of aridity and exhaustion.

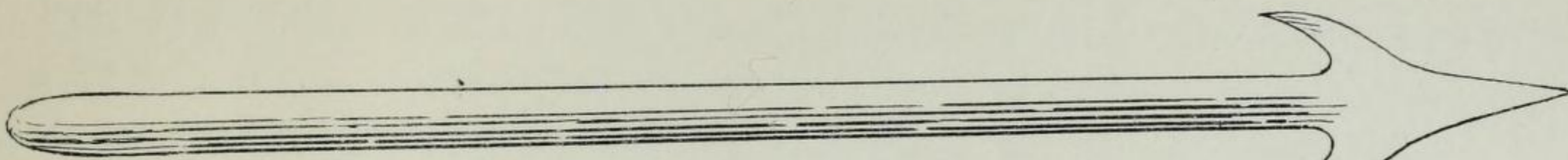
As regards the precise locality where the drawing of the rhinoceros hunt was found, sal forests yet exist there in patches, and the occurrence of numerous characteristic drawings of the Bison (*B. gaurus*), a forest loving animal, renders it nearly certain that primæval forest existed at the time. In the swamps engendered by these forests I would suppose the rhinoceros depicted to have lived. Both *R. sondaicus* and *R. sumatrensis* frequent what must be very similar localities at the foot of the Garo, Khassia and Naga hills where I was informed by the late Major C. R. Cock that he had seen both species.

The cover frequented by the rhinoceros seen by Baber on the banks of the Indus would better be discussed by some one more familiar with the Province than I am, but there is much probability that forests harbouring elephants existed at the period of the invasion of Semiramis.

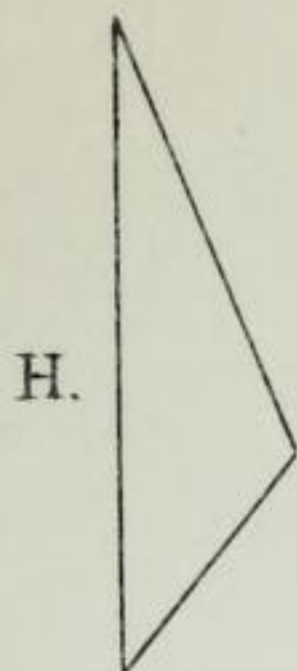




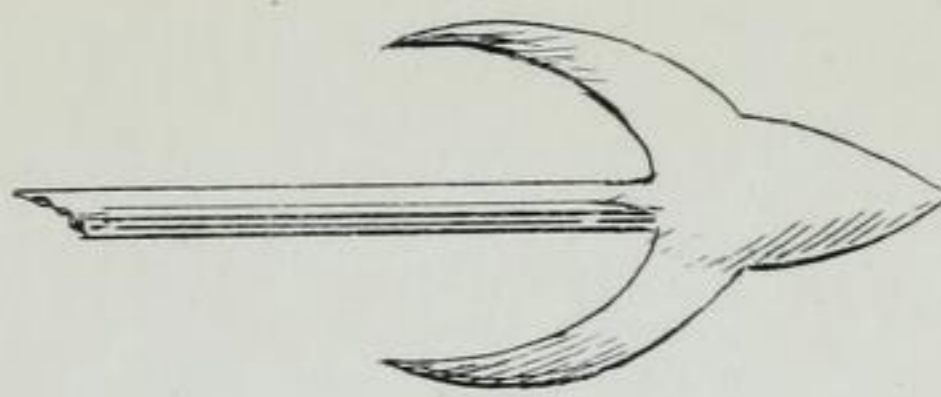
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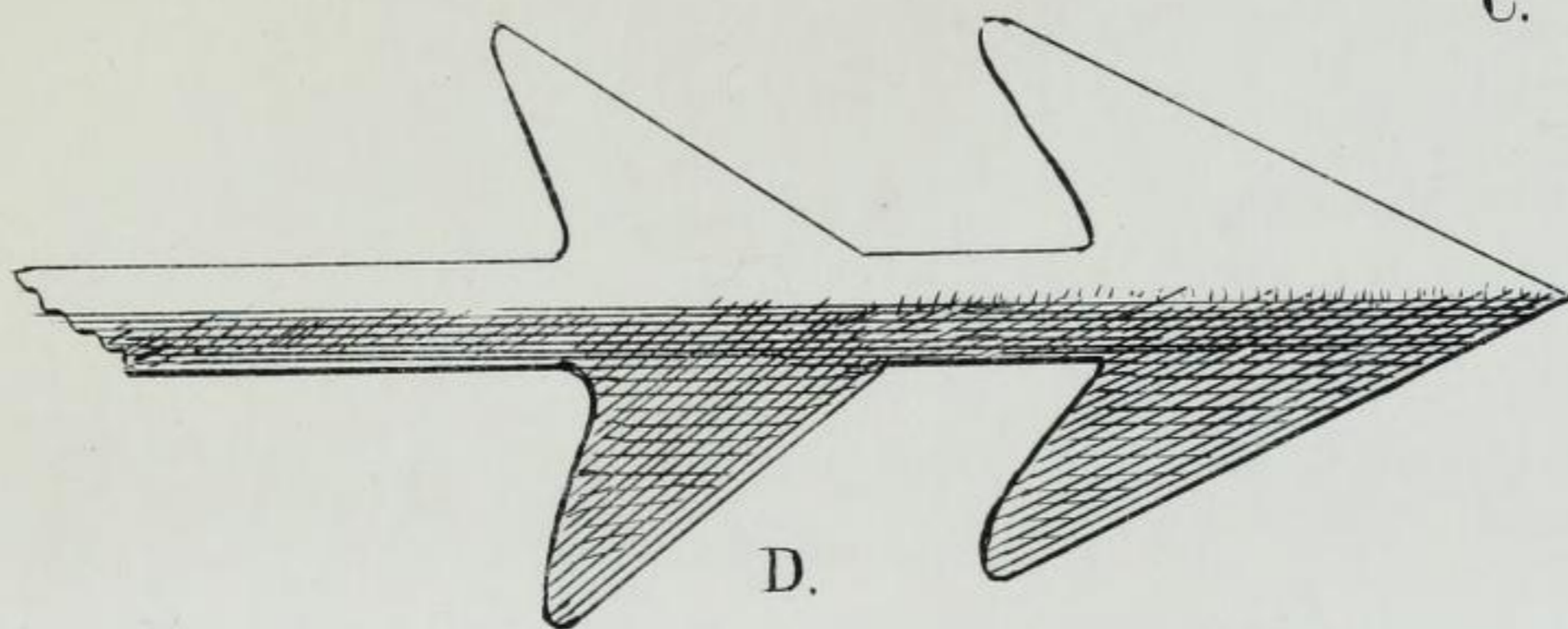
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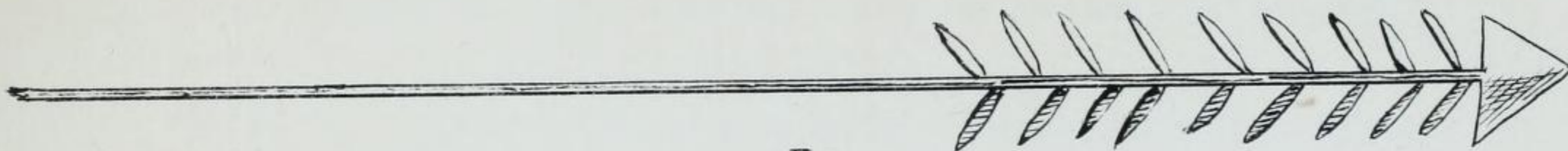
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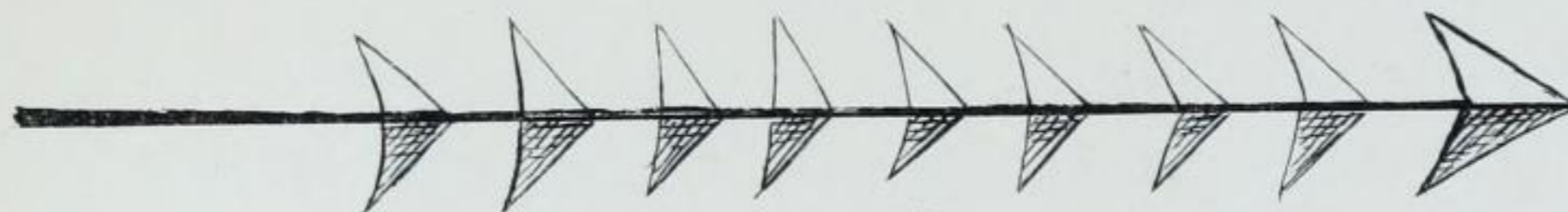
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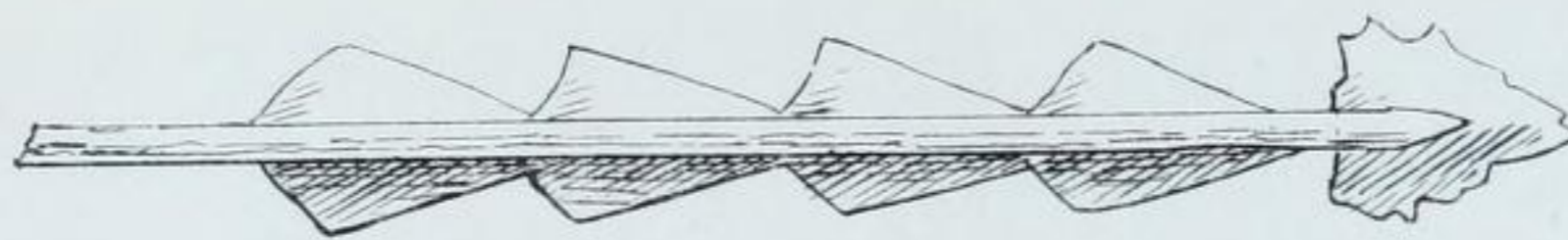
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