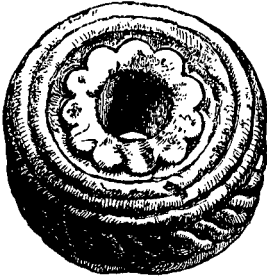


NOTES ON THE EVIDENCE OF SPINNING AND WEAVING IN THE
 BROCHS OR PICTISH TOWERS SUPPLIED BY THE STONE WHORLS
 AND THE LONG-HANDLED "BROCH COMBS" FOUND IN THEM.
 By JOSEPH ANDERSON, KEEPER OF THE MUSEUM.

Among the various relics obtained from the "Brochs or Pictish Towers," none are of more constant occurrence than stone whorls and long-handled combs.

In the Museum there are seventy-seven of these whorls obtained from brochs, and thirty-six of the long-handled combs. Of the latter, four are from a kitchen-midden, one from a hut-circle, one from a Roman camp, and thirty from Pictish Towers or Brochs.



Whorl for the Spindle of the
 Distaff of red sandstone,
 found near Roslin. (Actual
 size.)

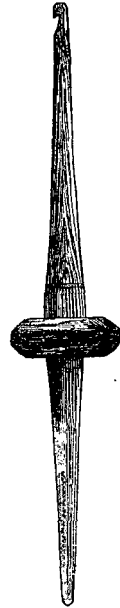
The whorls, which are of all degrees of rudeness, from those that are merely chipped into shape to such finely ornamented specimens as that from Roslin (see figure), were at one time conjectured to be buttons of stone, but they were simply the "whorls" of the spindle, when spinning was done by hand with a spindle and distaff, the use of the "whorl" being to act as a fly-wheel to the twirling spindle, and by its weight to

assist in drawing out and twisting the thread, which was rolled upon the

spindle from time to time as it was made from the distaff. The latter was a staff with a notched head on which the prepared lint was wound, and from which the spinner fed the spindle as required. The distaff having the "lint" or "tow" loosely wound round its head, was struck in the girdle of the spinner and projected upwards under the left arm, so as to give freedom to both hands in the management of the thread. A distaff in the Museum measures 27 inches in length. This method of spinning is still practised among the poorer classes in many parts of the Continent, although in this country it has long been superseded by the spinning-wheel, which in its turn has also become a thing of the past, except in a few of the remoter districts of the Highlands and Islands, where the use of the earlier implements has even survived to recent times; and in the recent examples, as well as in ancient times, the whorl of the spindle is usually of stone. The specimen here figured upon its spindle, as when in use, was presented to the Museum in 1855 by Mr Thomas Bryce, West Calder, and was used for spinning by his mother. Hugh Miller states that in 1825 there was not a spinning-wheel in Gairloch, but all the women used the spindle and distaff; and Dr John Alexander Smith informs me that when in Skye in 1857, he noticed an old woman busily engaged in spinning with the distaff and spindle at the village of Ardvasar, Sleat, in the southern extremity of the island. In the old "Statistical Account of the Parish of Harris" (1794), it is mentioned that an old woman there had been so diligent with her spindle and distaff, that she had made £50 by spinning.

The presence of the spindle-whorls in such numbers and with such constancy in the ruins of the brochs undoubtedly implies that the females of the broch period were diligent workers with the spindle and distaff, and affords also *prima facie* evidence that they must have made cloth as well as spun yarn.

The ultimate object of the spinning being primarily the manufacture

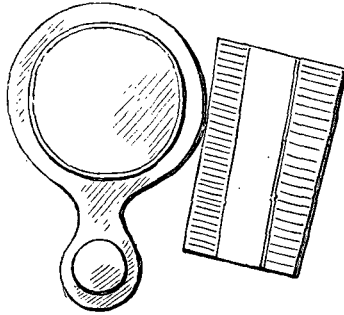


Spindle with its Stone Whorl in position, from West Calder. (9½ in. long.)

of cloth for clothing, the next question comes to be, whether the Brochs have yielded any evidence of the existence of the art of weaving?

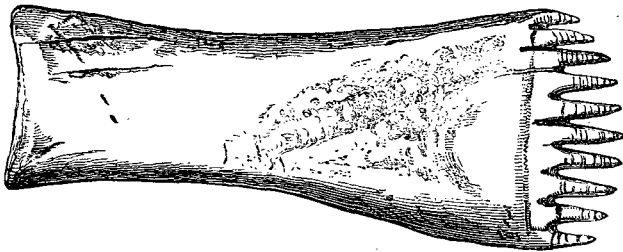
To this question my answer is, that I believe we have in the long-handled "Broch combs" a very extensive set of specimens of the characteristic implement of the early weaver's art.

It may be necessary here to meet the preliminary objection, that these long-handled combs may have been simply combs for the hair. But the common form of double-margined comb (which is associated with the mirror on the early sculptured stones as the comb of the toilet¹) is usually found in company with these long-



Mirror and Comb from the Maiden Stone, Chapel of Garioch, Aberdeenshire.

handled combs. In one case, in the Broch of Burrian, Orkney, no fewer



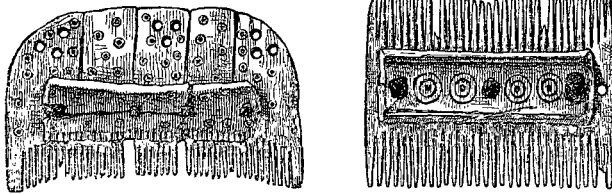
Long-Handled Comb from Broch of Burrian, Orkney, showing marks of wear upon its Teeth. ($4\frac{3}{4}$ in. long.)

than sixteen of these double-margined combs were found, with eighteen of the long handled kind. It is difficult to suppose that the peculiar

¹ See the representation of such a comb on the sculptured stone from Monifieth, Plate IV.

marks of wear on the teeth of the latter could have been produced by use among the "matted locks" of the females of the period, while it is equally clear that, possessing the common form of toilet-comb in such numbers, they did not require the long-handled implement for the operation of hair-dressing, for which, it must be confessed, it is extremely unsuitable; while the peculiar marks of wear upon the teeth are exactly such as would be produced by its use as a weaver's implement, in the manner hereafter to be shown.

In the very able and excellently illustrated paper on these combs,¹ by Mr Millen Coughtrey, their characteristic features, and their analogies with combs for other purposes, are specially noticed, and the whole subject of their manufacture, and their special peculiarities pointing to



Combs of Bone, found with Long-Handled Combs in the Broch of Burrian. (Half actual size.)

their probable use, elaborately discussed. When that paper was passing through the press, I mentioned to Mr Coughtrey that I had formed a notion that these combs must have been used in weaving. He also had found some indications in that direction, but he left it undetermined whether any operation in weaving, or simple teasing of the wool preparatory to spinning, was the special purpose for which these combs were used. Since that time, in looking over some materials for my paper on the Brochs, a chance reference set me on the track which I have followed out, with the result of convincing myself that this form of comb was

¹ Proceedings, vol. ix. p. 118.

really the primitive *pecten textoris*, and that it probably came to the Broch-dwellers originally through the Romans.

The most striking fact in connection with the distribution of these long-handled combs is, that while they are constantly found in the Brochs, and occasionally in hut-circles in Scotland, they are usually found in England with Roman remains.¹ The fine specimens in the York Museum are associated with undoubted Roman relics. The Hamhill specimen in our Museum was found on the site of a Roman camp in Gloucestershire. The two specimens obtained from Kent's Cavern were found in the upper layer of the floor, associated with Samian pottery. Three found in Maiden Castle, Dorsetshire, were associated with Anglo-Saxon knives of iron, and with coins of Postumus, Helena, Julianus, and Valens.² One found at "Crawford Castle," an ancient earthwork near Spettisbury, Dorsetshire, was associated with human remains, and sword-blades, spear-heads of iron, fibulæ, and spiral finger-rings of bronze, bronze cauldrons, bone-needles, and pottery having a smooth surface and dull grey texture. The fibulæ are described as lyre-shaped, and of late Roman type; and Professor Queckett, describing two human skulls found with the remains above specified, says, "They are neither Britons nor Anglo-Saxons, but they agree in every respect with the Roman forms in the Museum." Those found in the Dowkerbottom caves at Craven, in Yorkshire, were associated with coins of Trajan and Antoninus, and with fibulæ, Samian ware, and other relics of undoubted Roman character.³ That the British inhabitants of the Craven district did weave cloth is shown by the Rev. W. Greenwell having found, in a tree-coffin under a barrow, a body which had been enveloped from head to foot in a fabric of wool loosely woven.⁴

The specimens of this implement thus associated with Roman remains differ from the broch and hut-circle specimens only in being, as might be expected, better finished, and more elaborately ornamented. If, then, we can ascertain the fact, that such an implement as this long-handled comb was known and used among the Romans, it is most likely that the same

¹ See Mr Coughtrey's paper, Proc. vol. ix. pp. 124, 148.

² Journal, Arch. Ass., March 1872.

³ See Geol. and Polytech. Soc. of West Riding of Yorkshire Reports for 1859 and 1864-5.

⁴ Proc. Geol. and Polytech. Soc., West Riding of Yorkshire, for 1867, p. 18.

implement among the Picts would be used for the same purpose. It seems also to be much more probable that the form and use of the implement came northward through England in Roman times, than that it should have travelled southward to the civilised Roman province, from the region of the Brochs lying beyond the wall of Antoninus.

I now proceed to show, that precisely such an implement as this long-handled comb really was the characteristic implement of the ancient weaver's art; that it was in use among the Egyptians, the Greeks, and the Romans, as well as among the Lake dwellers of the Swiss Pfahlbauten; and that it continued in use even in mediæval times in almost every country of Europe.

Rous, in the *Archæologia Attica*, details the process of weaving among the Greeks as follows:—

“*Ξαντική*, the teasing or the carding of the wool, or *σημιονπηχισ*, when they went to spinne out the *σημων* or *stamen*, and to divide it and part it from the rest of the wool; or, last of all, the weaving and joining the *σημονες* together with the help of the *περκις* (the *pecten* or the *sley*, like a comb), and the *αγυυδες* or the *Δεία*, smooth stones, (like our smooth lace-sticks, that they might not weare), which hung at the end of the threads.”

Rich, in the “*Illustrated Companion to the Latin Dictionary*,” says under the word *pecten*:—

“2. *περκις*, an instrument with teeth like a comb, employed by the ancient weavers for the same purpose as the reed, lay, or batten of our own time, viz., to run the threads of the web close together, by inserting its teeth between the threads of the warp, and pressing the comb up or down according to the direction in which the web was intended to be driven.”

Rich also gives a drawing of an Egyptian comb with a handle for this purpose, which was found in a tomb at Thebes, and is now in the British Museum.

In Donnegan's “*Greek Lexicon*,” under the word *κτεῖς*, the following explanation is given, “A comb, *the comb of a loom*, a hand with the fingers outspread.” The peculiar form of these long-handled combs has suggested the idea that they were made in imitation of the human hand with the fingers outstretched, which, as appears from the above quotation, was also the form of “the comb of a loom” as used among the ancient Greeks.

Again, in the same Lexicon, under the word *κερκis*, the following explanation is given :—" A weaver's comb, an instrument used for fastening (compacting?) the threads in weaving; also the long bone of the leg and the short bone of the fore-arm."

It may be inferred, from the employment of the word *κερκis* both for the weaver's comb itself and for the long bone of the leg, either that the comb resembled a shank-bone in shape, or that such bones were used as the material from which the comb was fabricated.

Also under the word *κερκισis*, the explanation is, the art of weaving, properly of striking the threads with the *κερκis*.

In Smith's "Dictionary of Antiquities," (Lond. 1856), under the word *Tela* (a loom), there is a full description of the ancient methods of weaving in the upright loom. It consisted of two side posts connected by a cross-bar at the top, under which was the beam on which the cloth was rolled as it was woven. From the beam the warp (*stamen*) hung down, and was kept hanging straight by weights (*pondera*), usually smooth stones tied to the lower end. The warp was decussated by straight wands thrust horizontally through it, the threads alternating on either side, so that by pulling forward one of these wands the warp could be passed through from side to side, either by a long rod or by a shuttle. The rest of the process is thus described :—

"After the woof had been conveyed through the warp it was driven downwards or upwards, according as the web was woven from the top or from the bottom. Two different instruments were used in this part of the process. The simplest, and probably the most ancient, was in the form of a large wooden sword (*spatha*). This instrument is still used in Iceland exactly as it was in ancient times.

"The *spatha* was, however, in a great degree superseded by the comb (*pecten*, *κερκis*), the teeth of which were inserted between the threads of the warp, and thus made by a forcible impulse to drive the threads of the woof close together. It is probable that the teeth were sometimes made of metal, and they were accommodated to the purpose intended by being curved (*pectinis unci*), as is still the case in the combs which are used in the same manner by the Hindoos.¹ Among us the office of the comb is executed with greater ease and effect by the reed, lay, or batten"

¹ See the figure of such a comb used for this purpose by the Hindoo weavers of the present day, p. 559.

Adam, in his "Roman Antiquities" (Lond. 1830), p. 485, says :—
When the web was woven upright, a thin piece of wood, like a sword (*spatha*), seems to have been used for this purpose ; and in the weaving of Arras, of Turkey carpeting, &c., in which alone the upright mode of working is now retained, the weft is driven up *with an instrument somewhat like a hand with the fingers stretched out*, made of lead or iron.

Ovid (Met. vi. 55), gives a minute description of the process of weaving as follows :—

"Tela jugo vincta est ; stamen secernit arundo
Inseritur medium radiis subtemen acutis,
Quod digiti expediunt, atque *inter stamina ductum*
Percusso feriunt insecti pectine dentes."

Also (Fasti iii. 820), he says that Pallas was the inventress of weaving, and adds :—

"Illa etiam stantes radio percurrere telas
Erudit ; et *rarum pectine denset opus.*"

Juvenal (Sat. ix. 30), makes Naevolus complain that sometimes he gets greasy and coarse clothes badly woven :—"Et male percussas textoris pectine Galli," 'and insufficiently *struck with the comb* of a Gaulish weaver,' *i.e.*, the threads of the woof not driven closely enough together by the comb, which then served the purpose now effected by the lay.

Virgil (*Æn.* vii. 14) represents Circe as

"*Arguto tenuis percurrens pectine telas.*"

And in the Georgicon (lib. i.),

"Interea longum cantu solata laborem
Arguto conjunc percurret pectine telas."

Claudian (lib. ii. 381) has,

. "doctissimus artis
Quondam lanificae, moderator pectinis unci."

These examples may be sufficient to demonstrate the use of the comb as a weaver's implement among the ancient Greeks and Romans. That it continued in use down to mediæval times is shown by the following quotations.

Alexander Neckham in his work, "De Naturis Rerum," written in the twelfth century, and recently published in the valuable series of chronicles now being issued under the direction of the Master of the Rolls, has a chapter (cap. clxxi. De Textore) on weaving, in which, after describing the insertion of the weft, by means of the shuttle, he says :—

"Inde textrix telam stantem *percurreret pectine.*"

Here the description of the process used to close up the threads by the twelfth century weaver, is given in almost the same words as those used by Virgil in describing the same operation as performed by Circe. In the twelfth century, too, the weaver is a female. It may also be added that the word *percurreret* exactly describes the operation necessary for closing or striking up the weft, if the instrument employed was a comb held in the weaver's hand.

In Du Cange's "Glossarium," under the word *Apidiscus*, the following is given :—

"*Apidiscus, Gloss. Sax. Aelfrici ; Apidiscus, Webhoc, id est, pecten [textorius uncus].*

In Minsheu's "Guide into the Tongues," (Lond. 1617), under the word *Slaie*, the following explanation is given :—

"The slaie of a weaver's loome having teeth like a combe, a Teutonic Slagen, *i.e., ferire, percutere ; quod feriendo conficiat pannum*, the thing that makes the web by striking [the threads together]."

He also gives the name of the implement in the following languages :—

Belgic or Low Dutch—*Wæuerkam ; id est, textoris pecten*—that is, the comb of a weaver.

Gallic or French—*Peigne de tisserand.*

Italian—*Pettine di tessitore.*

Spanish—*Peyne de texedor.*

Latin—*Pecten textoris, dentes enim habet instar pectinis.*

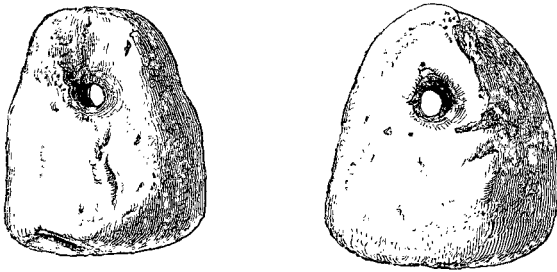
Also he explains "Weauer" by the Latin *Textore, id est, pectinis moderator.*

Under the word "Woufe of Cloth," he gives the Belgic synonym *Inslach*, *ab ein et schlagen ; id est, percutere, pectine enim dum cogitur, percussitur.*

In Lee's translation of Dr Ferdinand Keller's work on the Lake Dwell-

ings of Switzerland, there is a chapter devoted to an explanation of the simple mechanism by which the inhabitants of the Lake Dwellings might have managed to manufacture such a variety of woven fabrics as has there been discovered. But singularly enough there is no reference to the implement with which the operation of driving home the weft could have been performed—an operation absolutely essential in every description of loom. But from an examination of the remains found in these lake dwellings, we find that the spindle whorls and clay loom-weights are associated with combs of the long-handled form, made (as is often the case with the Broch combs) of flat pieces of stag's horn; one of these is figured in plate xxviii. of Keller's book.¹ It presents the same peculiarity of transverse markings towards the apices of the teeth which distinguish the Broch combs, and which I consider to be due to long-continued use in striking the threads of the weft in weaving. This use is indeed suggested by these combs being found as at Nussdorf along with twenty-five spindle whorls, and loom-weights in great numbers.

I add figures of corresponding clay loom-weights now in the Museum.

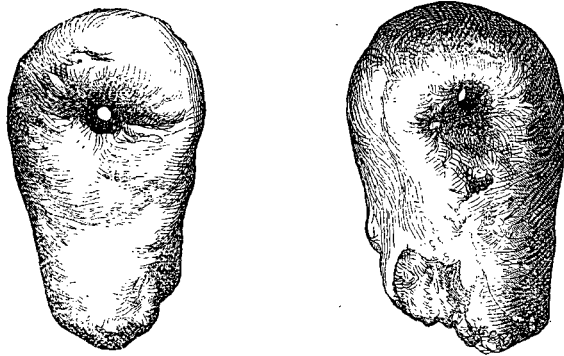


Clay Loom-weights found at Ravensby, Forfarshire.
(4 inches in height).

They were found in the remains of an ancient structure at Ravensby in the parish of Barry, Forfarshire, and were presented to the Museum in 1871, by Mr James Neish, a Fellow of the Society. They are similar in

¹ See Mr Coughtrey's figure of this comb in plate xvii. of this vol., fig 6.

form to the clay loom-weight of the Swiss Lake dwellings, but considerably larger and heavier. For comparison with these the figures of two other loom-weights found at Montblairy, Banffshire, and presented to the Museum in 1858 by Alex. Morrison, Esq., of Bognie, F.S.A. Scot., are also appended.

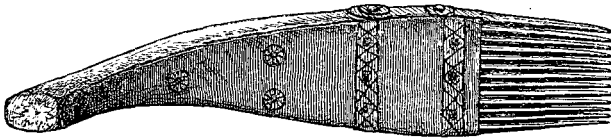


Clay Loom-weights found at Montblairy, Banffshire.
($5\frac{1}{2}$ inches in length.)

Having thus found evidence, as I thought, of the use of this implement from the earliest times, among the Egyptians, the Greeks, the Romans, and the Swiss Lake Dwellers, and indications of its continued use in different countries of Europe, and in our own country down to the twelfth century, as well as of its survival among the Hindoos and the carpet-weavers of the present day, I thought it advisable to test the correctness of my theory by an examination of the existing implements, if any of these could be obtained. Accordingly, I wrote (through Dr Arthur Mitchell) to Dr Forbes Watson of the India Museum, enclosing a sketch of one of the long-handled combs from a Broch, and asking whether, among the implements used in Indian manufacturing industry at the present day, there was anything analogous to it. In reply, I received the Hindoo weaver's comb, with which he strikes home or closes up the

weft, which I now exhibit. It is probably the form of comb referred to by Claudian when he terms the weaver "moderator pectinis unci."

This implement, though made of wood, and having its teeth of iron, is of the same hand-like form as the long-handled Broch combs, and it is used at this day for the purpose for which I suppose the Broch combs to have been used in their day. Unfortunately, its teeth are of iron, or we might have compared the actual marks resulting from the striking of the threads by this implement with those on the Broch combs which I suppose



Comb with iron teeth used by Hindoo weavers for striking home the weft.
From the Indian Museum (13 inches long).

to have been so produced. But even on these iron teeth, a close examination may detect slight indications of such transverse markings, and in the iron comb, as in those of bone, it is the apices and not the bases of the teeth that are so marked.

Dr John Alex. Smith also applied for me to Mr Whytock, carpet manufacturer, George Street, a Fellow of the Society, for information concerning the old methods of carpet-weaving in this country, and received the following reply:—

“Edinburgh, 24th April 1872.”

“Dear Sir,—We have the pleasure to send you a portion of a sley, such as was used in the old Brussels carpet hand-looms.

“But in the manufacture of the Persian or Axminster carpet, made in one piece and worked in an upright loom, the instrument used for beating down the weft or pile was about four inches broad, with teeth resembling those of a horse-comb, fastened into a short handle, used with both hands by the worker.

“Agreeably to your request, we have also written to our successors at Lasswade, where the manufacture of the Scoto-Persian (or Axminster)

carpets was carried on formerly by our firm, asking them if they can find one of the old-fashioned heavy combs that were used in beating down the weft in those vertical webs.

“The shape of those combs, as nearly as we can remember, was something like the rough sketch annexed, the teeth being of iron, and the head of the comb was weighted with lead. [The sketch showed a toothed implement in shape somewhat like the short flat hand-brush used by painters in whitewashing, or indeed a good deal like the Indian loom comb (previously figured), only a little broader in proportion to its length]. The velvet tufts were knotted on the warp by boys; and as the carpet was woven all in one piece, the shuttle was shot and re-shot through the sheds of the warp by means of a cross-bow.

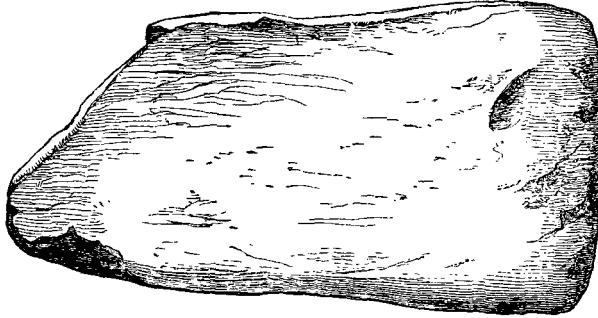
“You may be aware that Sir J. G. Wilkinson in his ‘Ancient Egyptians,’ gives a woodcut of a comb which he supposed to have been used in splitting the fibres of flax. We are quite of opinion, however, that the teeth of the comb are not fine enough for such a purpose; and that it must have been intended to supersede the primitive wooden sword anciently employed for beating in the weft.”

The inquiries made at the works at Lasswade and Roslin, for a possibly surviving specimen of this old-fashioned implement were unfortunately unsuccessful, the last noticed having been lost in 1868.

Along with the long-handled combs found in the Broch of Burrian, seventeen in number, there were found seven implements made of flat slabs of bone, with rubbed and rounded edges polished by use, similar to that figured below, some of which were at first supposed to be hatchets. The edge, however, is a rubbing and not a cutting edge, and I have no doubt they are the “rubbing-bone” so well known to the Irish handloom weaver, used for smoothing down the web as it is woven.

In consideration of all these facts, I find it impossible to avoid the conclusion that the long-handled comb of the hut circles and the Brochs of Scotland is the *Pecten textoris*, and I am strongly inclined to believe that it may have come to the northern districts of Scotland through contact with Roman industrial art. It is certainly suggestive of this, that while these combs are constantly found associated with remains of the Roman or Romano-British period in England, there is not a single specimen of such a comb in Ireland, where the Roman influence seems to

have been scarcely felt. This does not imply that the Irish were not weavers, but simply that they did their weaving differently—using the *spatha* instead of the comb. The *spatha* was also (till quite recently) the implement of the Scandinavian loom, and it may be remarked that the Romans had little or no direct influence on early Scandinavian arts



Rubbing bone made of the bone of a whale, found in the Broch of Burrian, Orkney.
(6½ inches by 3¼ inches.)

and industry. We find the comb or traces of its use in all the countries of Europe to which the Roman influence extended; but we do not find it in those countries where the Roman influence was never felt.

[Dr Bruce A. Bremner, a Fellow of the Society, said that his friend Dr Malcolm Monro Mackenzie, Civil Surgeon, Dharwar, Bombay, who was present, might be able to tell the meeting something regarding the use of the Indian implement.

Dr Mackenzie stated that he thought it somewhat curious to find a learned society speculating as to the probable use of an implement with which he was so very familiar. In all the jails in his district in Bombay, the work of the convicts was chiefly weaving, and the implement that was universally used for beating in the weft was a hand-comb, generally of wood with iron teeth, like the one now exhibited. Looking at the form of the ancient combs of bone from the "Pictish Towers" and the marks upon their teeth, he had no doubt they were the same implement.]