XXV.—*On the worked Flints of Pressigny le Grand* : by JOHN EVANS, *Esq.*,
F.R.S., F.S.A., F.G.S.

Read November 16th, 1865.

At a time when the worked flints discovered in such profusion near Pressigny le Grand are attracting so much attention among French archæologists, it seems probable that a few remarks upon them, and upon the controversy to which they have given rise, may be of interest to this Society.

Public attention appears to have been first called to the discoveries at Pressigny by a letter from the Abbé Chevalier to M. Élie de Beaumont,^a but it is, I believe, to Dr. Léveillé of Pressigny, or to Comte Alexis de Chasteigner, that the merit is due of first observing the real character of the worked flints. MM. Brouillet and Meillet, the authors of the “*Époques Antédiluvienne et Celtique du Poitou*,” first published representations of some of the specimens, and M. Gabriel de Mortillet, the accomplished editor of the “*Matériaux pour l’Histoire positive et philosophique de l’Homme*,” Dr. Eugène Robert, the Abbé Bourgeois, M. Pengilly l’Haridon, the Marquis de Vibraye, and others as well as myself, have taken part in the discussion which has been carried on in France as to the antiquity to be assigned to these objects.^b

It was in January of the present year that I visited Pressigny in company with my valued friend the late Mr. Henry Christy and MM. Brouillet and Louis Lartet;^c and the specimens now exhibited, including those belonging to the Society, are a small portion of those which we then collected upon the spot.

Pressigny le Grand is a small town situated on the river Claise, an affluent of the Creuse, in the department of Indre et Loire. It lies about 30 miles to the

^a *Comptes rendus des Séances de l’Académie des Sciences*, vol. lvii. p. 427.

^b See *Matériaux pour l’Hist. de l’Homme*, vols. i. and ii. *passim*; and *Comptes rendus des Séances de l’Académie des Sciences*, 1864 and 1865, *passim*. See also a Paper on this subject by Sir John Lubbock and Professor Steenstrup in the *Transactions of the Ethnological Society*, N.S. vol. v. p. 221.

^c Since this Paper was read, I have revisited Pressigny accompanied by Mr. J. W. Flower, F.G.S., and I have incorporated some of the results of our further investigations in the text.

south of Tours, and is most readily accessible from the station of Port-des-Piles on the Orléans Railroad, from whence it is distant about 24 kilometres (say 15 miles). We, however, drove to it from Chatellerault—a rather longer journey.

The peculiar worked flints of which principally I wish to speak, are but rarely found at Pressigny itself, and, though occurring elsewhere, are most abundant at two farms called La Claisière and La Doucetterie, rather more than two miles from Pressigny, and on the opposite side of the Claise. The soil is a red loam, overlying the cretaceous rock of the district, and during wet weather becomes extremely soft and sticky, so much so as to have acquired the local name of *mélasse*. In some places whole fields of this loam were replete with worked flints, and the large specimens, which from their resemblance to pounds of butter have received from the peasants the name of *livres-de-beurre*, were very abundant, notwithstanding that whole cartloads of them had been collected at the farm-house of La Claisière and some neighbouring cottages; and the soil teemed with flakes, mostly broken, and with splinters of flint. Near the farm, in a road section, a bed of flakes was to be seen at a depth of about two feet from the present surface, and, so far as could be judged, worked flints abounded in the soil in every direction, even to a small distance below the depth of the present cultivation.

The most remarkable of the worked flints are the *livres-de-beurre* already mentioned, of some of which representations are given in Plate XX. These are large blocks of flint, usually 10 to 12 inches long and 3 to 4 inches wide in the broadest part, the thickness being in most cases less than the width. In general outline they may be described as boat-shaped, being square at one end and brought to a point—more or less finished—at the other. The outline has been given by striking a succession of flakes from the sides of a mass of flint, until the boat-like contour has been obtained, with the sides slightly converging towards the keel, and then the upper surface corresponding to the deck of the boat has been chipped into form by a succession of blows administered at right angles to the first, and in such a manner that the deck, as originally formed, was convex instead of flat. After this convex surface was formed, one, two, or even more long flakes were dislodged along its whole length, or nearly so, by blows administered at the stern of the boat, thus leaving one or more channels along what corresponds to the deck. In rare instances these long flakes have not been removed (Plate XX. fig. 2); in others of more frequent occurrence one of the flakes has broken off short before attaining its full length.

Looking at a number of these *livres-de-beurre* arranged together, the eye is

HATCHET (?) PRESSIGNY.

SCRAPER, PRESSIGNY.

FLAKE, PRESSIGNY.

FLAKE, PRESSIGNY.

DAGGER, RIVER SEINE.

FLAKE, PRESSIGNY.

Scale, Figs 1 to 5. $\frac{1}{2}$; Fig. 6, $\frac{2}{3}$.

struck by the great similarity of form prevailing among them ; and their uniformity of shape and the regular neat manner in which their edges are chipped would at first sight lead to a presumption that they were intended for use as implements of some sort or other. They have accordingly been regarded by some of the local authorities as having been intended for ploughshares, and by others as some kind of large and heavy axes. There is however one very strong argument against this view of the case, as it seems utterly impossible that such an enormous number of them could have been lost or thrown away in a single spot, and there is no evidence whatever of there having been any ancient cemetery at La Claisière where implements or arms such as these might by some possibility have accumulated as offerings to the dead.

It is true that in certain instances, such as the bone caves of the Dordogne and Belgium, the Swiss, and even some Irish, lakes, we have vast accumulations of worked flints, but in these cases the size is usually much smaller than at Pressigny, and there is reason for supposing them to have been lost, or thrown away as worn out, like the obsidian razors of Mexico, of which it is on record that several were used up in shaving one person.^a At Pressigny, so far as I could see, the large *livres-de-beurre* show no sign of use or wear. Those persons, moreover, who have paid most attention to the flints have come to the conclusion that they are not, strictly speaking, implements at all, but rather the refuse or waste resulting from the manufacture of implements. They regard them, in fact, as the nuclei, matrices, or cores, from which long flakes or knives have been removed, and which have then been thrown away as having served their purpose.

On this point indeed nearly, if not quite, all those who have written upon the subject are agreed ; but M. Eugène Robert, M. Decaisne, and M. Élie de Beaumont are of opinion that these blocks of flint, instead of belonging to any remote period, when stone knives or lance-heads were in use, are to be assigned to a much more modern period, even to the days since the invention of gunpowder. They say, in fact, that they are the refuse arising from the manufacture upon the spot of flints for fire-arms, and M. Robert, with a happy fertility of imagination, has determined that the long flakes struck off lengthways of the matrices were intended for gun-flints, while the short flakes struck off transversely from the blocks furnished the flints for pistols.

Assuming this suggestion to be true, we might indulge in some interesting speculations founded upon the comparative quantities of the long and the short

^a Torquemada, *Monarquía Indiana*, quoted in Tylor's *Anahuac*, p. 331.

flakes, as to the proportionate numbers of guns and pistols in use in France at the time when these nuclei were formed, and, as there are at least ten short flakes to one long one, the excess of pistols over guns at the period would prove to have been somewhat surprising. In corroboration of the gun-flint theory, some local traditions have been cited of the manufacture of gun-flints upon the spot; but though in a country abounding in flints there would appear to be no reason why such a manufacture should not have been carried on, yet on examination there appears to be no foundation for any such traditions with respect to Pressigny, and M. Penguilly has moreover shown that the kind of flint found there is not fit for gun-flints. It is moreover fatal to the gun-flint theory that the ground is full of flakes of various lengths, all adapted, so far as form is concerned, to be made into gun-flints, but yet thrown away, and that the nuclei themselves are of a different form, and far larger in size than those resulting from the ordinary gun-flint manufacture, in which the blocks of flint are usually utilised, until no more flakes fit for chipping up into gun-flints can be struck off them.

These blocks must, therefore, be regarded as the waste or refuse resulting from some other manufacture, and there can be no doubt that this was the production of long flint knives or lance-heads. In the first place we find evidence of such long blades of flint having been produced, in the long furrows remaining upon the nuclei; and in the next place it appears, from an examination of these nuclei, that, as a rule, they were not thrown away until, either from their reduced size, or from some defect in the flint, they were no longer adapted for the production of long blades. It will perhaps appear singular to most persons that so much care should have been bestowed in chipping these *livres-de-beurre* into shape, if they were not themselves to be made use of as implements, but were merely the blocks from which flakes of flint were to be split.

It will, however, on a little consideration become apparent that this chipping into a regular form is in fact one of the necessities of the case for the production of long blades of flint. Where flakes of only three or four inches long are required, such as are used for the manufacture of ordinary gun-flints, the operator may readily, with his hammer, strike off from the outside of his block of flint a succession of chips, so as to give it a polygonal outline, the angles of which will serve for the central ridges or back-bones of the first series of regular flakes that he strikes off. The removal of this first series of flakes leaves a number of projecting ridges, which serve as guides for the formation of a second series of flakes, and so on until the block is used up.

But in a case where a flake ten or twelve inches in length is required a different

process becomes necessary. For it is nearly impossible with a rough mass of flint to produce by single blows plane surfaces 10 or 12 inches in length, and arranged at such an angle as to produce a straight ridge such as would serve to form the back-bone, as it were, of a long flake; and without such a back-bone the production of a long flake is impossible. It is indeed this ridge (which need not, of course, be angular, but may be more or less rounded or polygonal) that regulates the course of the fissure by which the flake is dislodged from the matrix or parent flint, there being a slight degree of elasticity in the stone which enables a fissure once properly commenced in a homogeneous flint to proceed at right angles to the line of least resistance in the dislodged flake, while at the same time exerting a nearly uniform strain, so that the inner surface of the flake becomes nearly parallel to the outer ridge. It was to obtain this outer ridge that the Pressigny flints were chipped into the form in which we find them, and it appears as if the workmen who formed them adopted the readiest means of obtaining the desired result of producing along the block of flint a central ridge whenever it became necessary, until the block was so much reduced in size as to be no longer serviceable. I have already described the manner in which this was effected, viz., by first chipping the block into a sort of boat-like form, and then by blows from the sides producing a rounded ridge along the upper surface. This process could be repeated from time to time after each set of long flakes had been dislodged, until the block was used up. The specimens exhibited show these nuclei in various stages, one of them having the central ridge left upon it, and others having had one or two long flakes dislodged from them. A specimen of each of these three varieties is engraved in Plate XX. and a section of each with the ridged side upwards is placed below them.^a The causes why they were rejected as useless are still susceptible of being traced. In some cases the nucleus had become so thin that it would not bear re-shaping; in others a want of uniformity in the texture of the flint, probably caused by some included organism, has made its appearance, and caused the flakes to break off short of their proper length, or has even made it useless to attempt to strike them off. In some rare instances, when the striking off long flakes has proved unsuccessful on the one face, the attempt has been made to procure them from the other. The abundance of large masses of flint in the country—some as much as two or three feet over—has, however, rendered the workmen rather prodigal of their materials.

As a proof of the necessity which exists for chipping the nuclei from which

^a It should be stated that the specimens in Plate XX. figs. 1 and 3, and Plate XXI. figs. 2, 4, and 6, are in the Christy Collection; the rest are in my own collection.

long flakes are to be dislodged into this boat-like form, I may mention that several of the longest nuclei found upon what appears to have been the site of an ancient manufactory of flint implements at Spiennes, near Mons, in Belgium, are shaped in a precisely similar manner to those from Pressigny. A very few nuclei of the same form have also been found in Denmark.

Some of the blocks which have been used for the production of shorter flakes are of the same character as the nuclei of ordinary occurrence, and in the neighbourhood of Leugny, about 8 or 10 miles from Pressigny, where *livres-de-beurre* also occur, large flat nuclei are found, from which wide thin flakes have been struck. The flakes themselves, which are found associated with the nuclei at Pressigny, are evidently derived from them; but, so far as I could learn, the long ones are never found perfect, but only in a broken condition, or as "wasters." Three of these fragments are engraved in Plate XXI. figs. 1, 2, and 4. Figs. 1 and 2 are portions of the first flakes struck from the nuclei after a central ridge had been produced by cross-chipping, as may be seen by the character of the external face. Fig. 4 exhibits the cross-chipping on one only of its external facets; the other, which is much straighter and flatter, being the result of another flake having been previously struck longitudinally from off the parent block. Altogether there is evidence of a manufacture of flint implements having been carried on on a large scale at Pressigny; but these implements seem to have been principally though not exclusively the long knife-like blades, though the Marquis de Vibraye^a and Sir John Lubbock record having found round-ended scrapers and some other forms of implements upon the spot. I have also found a few of these scrapers, one of which, from la Claisière, is engraved in Plate XXI. fig. 5. It is, as will be perceived, of considerably larger size than is usual with instruments of similar form. Others from the same spot are smaller and proportionally broader. Many of the flakes are minutely chipped along some part of their edges, not improbably by having been used for scraping bone or some other hard substance. I observed this more particularly in the flakes which abound at L'Épargne, a farm on the opposite side of Pressigny to La Claisière, and about the same distance from it. At this spot also the *livres-de-beurre* occur, but not in so great profusion as at La Claisière. There are some flakes and portions of flakes which present small well-defined semicircular notches, either in the ends or sides, but whether these have been intentionally made or produced by wear, or whether they are not rather the results of accidental blows of the pick, given during the cultivation of the soil, has yet to be determined.

^a Mat. pour l'Histoire de l'Homme, vol. i. p. 520.

I also found at L'Épargne three or four implements of a roughly triangular outline, and approaching very closely in character to the so-called hatchets of the Danish *kjökken-möddings*. The most symmetrical and carefully chipped of these is engraved in Plate XXI. fig. 3. Others, from their rudeness, come nearer still to the *kjökken-mödding* type. I may mention that in the collection of the Abbé Bourgeois, of Pontlevoy, are numerous specimens of identically the same form as those from the Danish refuse-heaps, but which have been found upon the surface in the neighbourhood of Pontlevoy, and that I have myself found an implement of the same form in company with numerous scrapers, flakes, &c., and a few arrow-heads, both barbed and leaf-shaped, in the ancient camp of Maiden Bower, near Dunstable. It would appear, therefore, that the use of this form of implement was not, as has been supposed by some antiquaries, confined to the inhabitants of the sea-coast.

A few fragments of flakes have been found at Pressigny, carefully worked along both edges so as to form a sort of knife or dagger; but they would appear, like the numerous other “wasters,” to have been broken or spoilt in the process of manufacture. Their evidence, however, taken in conjunction with that of other similar but more perfect specimens found in different parts of France, is of great value as affording an at-all-events approximate solution of the question as to the period to which this manufacture is to be assigned, for these long flakes or knives occur in the interments in the dolmens or cromlechs of central France, which are referred to the Stone period of that country. In the museum at Poitiers is one of these flakes, carefully re-chipped on one face and $8\frac{1}{2}$ inches in length, and in the Musée d'Artillerie at Paris are two beautiful flakes 8 inches long, the edges neatly finished by chipping, which were found in the Seine in constructing the foundations of Pont Napoléon III. Another, $7\frac{1}{2}$ inches long, found at Thenay, near Pontlevoy, is in the collection of the Abbé Bourgeois. Another, no less than 13 inches in length, was lately discovered at Pauilhac near Fleurance, in the department of Gers, and is engraved in the *Revue de Gascogne*, vol. vi. Mr. Franks has lately procured another specimen found in the Seine, and beautifully chipped. It is nearly 7 inches long, and represented in Plate XXI. fig. 6; unfortunately it is broken across, and a small portion is wanting. And what is remarkable, in four of these instances at least, the material of which the flakes are formed is precisely the same flint as the nuclei of Pressigny. I may mention, that this is a peculiar ochreous-coloured flint, rather coarse-grained and opaque, and that the beds from whence it is derived are micaceous chalk, by French geologists considered to belong to the zone of *ammonites peramplus* or the

SECTION.

SECTION.

SECTION.

THREE FLINT CORES.

PRESSIGNY LE GRAND, INDRE ET LOIRE.

Scale $\frac{1}{2}$.

Turonien of d'Orbigny. Besides the flakes and nuclei which I have described, polished stone axes occur occasionally near Pressigny, and several of the polishing or grinding stones used in their manufacture have been found in that district, among which a specimen in the possession of Dr. Lèveillé stands pre-eminent. Some of these ground axes, however, are not made of the flint of the district.

I may add, that in the gravel deposits at Pressigny, and other places in the neighbourhood, and on the surface at la Pinauderie near Leugny, flint implements have been found closely resembling those from the valley deposits of the Somme and of some of our English rivers; but the circumstances under which they have been discovered require further examination. On the present occasion I confine myself principally to calling attention to these remarkable nuclei and flakes, which seem to prove the existence of a regular manufactory of stone weapons so long ago as the Stone period of central France, for there is a similarity in the workmanship of the different nuclei so striking that many of them seem to have been formed by the same hand, and it seems more probable that there should have been a settlement upon the spot of men who manufactured these long knives and afterwards bartered them away, than that the flints were worked by various tribes who visited the spot as one abounding in the raw material for their cutlery. What was the current value of an eight-inch blade in hides, meat, corn, or other necessities of life must remain an unsolved problem. If the manufacturers were paid anything like the present price for such objects they were certainly not badly remunerated.

But under any circumstances we cannot but regard with interest these almost the only relics of a manufactory on a large scale of cutlery of the Stone period in France with which we are acquainted.