A MESOLITHIC STRUCTURE AT SHELDON

WITH A NOTE ON CHERT AS A RAW MATERIAL ON MESOLITHIC SITES IN THE SOUTHERN PENNINES

By J. RADLEY

THE site was discovered by Mr. Thurston Goodwin of Townend Farm, Monyash, while closely studying the area between Sheldon and Monyash. He had the foresight to find out the significance of his first finds by having two backed blades examined at the British Museum. Subsequently the site was excavated by Mr. Goodwin under the supervision of Mr. D. Bramwell and the writer. All excavated material was double-riddled, every piece of non-limestone rock retained, and the site restored leaving the slight structural remains untouched. Thanks are due to Mr. D. Bramwell for identifying the bones; to Mr. Goodwin for making his results available for publication; to the landowner, Mr. H. V. Hawley, Town Hill, Monyash, for permission to excavate; and to J. Davies, Dr. M. Eager and Dr. T. Ford for information on the problem of chert.

Situation

The hills to the south of Sheldon form gentle rounded nobs of limestone, reaching just over 1,000 ft. above sea-level. They are amongst the less prominent of the Peak District hills, but they do form the water-shed between the Wye and the Lathkill. The site occurs on the rounded hill called Stoney Low, on its S.E. facing slope (SK 174674). Here a small outcrop of limestone fringes a damp flat, known locally as Will-o-Shallows. From the hill top there are fine views of the whole of the Lathkill and Wye valleys and the hills beyond.

The hill has prehistoric remains all around it, especially the neolithic barrows of Bole Hill to the east and Ringham Low to the south, but there has been no suggestion of any earlier remains in the area. Consequently, the excavation of a small but earlier closed group of flints and bones from Stoney Low is a significant contribution to the study of local prehistory.

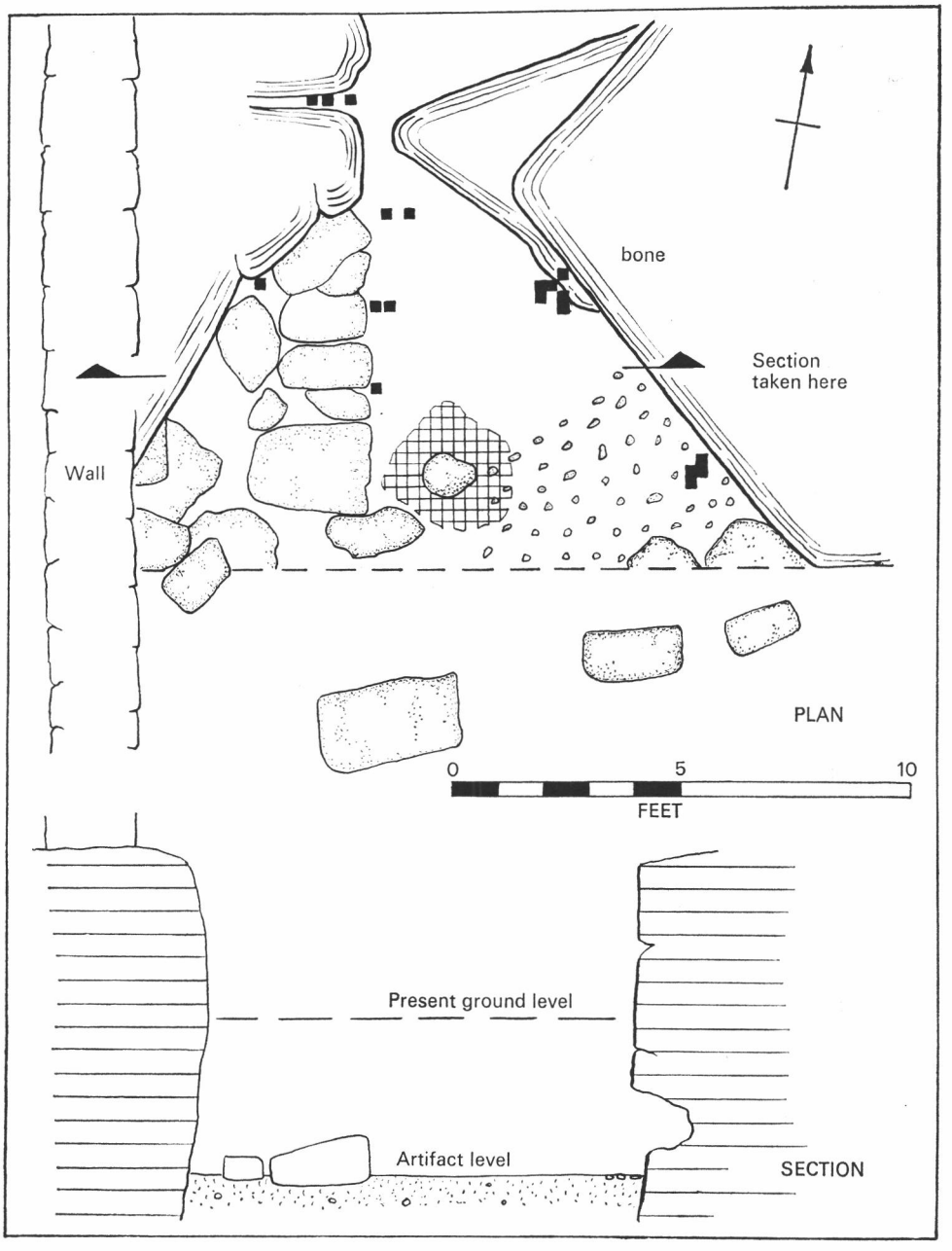

FIG. 1. Plan and section.
Cross hatching indicates the concentration of flints.

The site at Stoney Low

Fig. 1 shows the site adjacent to the wall on the east side of the plantation on Stoney Low. Here a V-shaped recess in the limestone had a level floor, and the outcropping rock was 3-4 ft. high, with some rough walling across the back of the recess. The soil proved to be a fine brown-yellow clay up to 3 ft. deep. All the artifacts were confined to a zone 9-19 in. deep, at the bottom of which was a roughly cobbled area, undoubtedly the ground-level at the time of occupation. Activity on the higher ground behind the recess no doubt led to a steady soil-wash which ultimately sealed the remains. The only subsequent disturbance has been by natural agencies and rabbits.

When the recess had been excavated to a depth of about 19 in., the plan (fig. 1) was drawn. The recess proved to be 15 ft. across and 10 ft. from back to front. A portion of the front was not excavated owing to circumstances beyond the excavator's control, but four large stones protrude through the turf to give the probable line of the front of the inhabited area. The rocks forming the sides of the recess proved to converge below the turf to form a definite alcove standing about 5 ft. high at the sides and 7 ft. at the rear. No post-holes were observed but presumably this alcove was covered with a roof, perhaps of timber and turf to form a virtually natural hut.

The cultural remains

		Flint	Chert	Total
Waste:	Struck debris	116	303	419
	,, roughly struck	—	75	75
	Large blade	1	—	1
	Other blades	5	3	8
	Cores	2	6	8
	Core trimmings	3	8	11
	Microburin	—	1	1
	Burnt pieces	5	9	14
Tools:	Microliths	4	1	5
	Backed blades	4	—	4
	Scrapers—short end	3	6	9
	double end	1	—	1
	other	1	3	4
	Burin	1	—	1
	Knives	2	3	5
	Awls	—	3	3
	Worked pieces	6	7	13
	Notched—once	—	3	3
	twice	—	3	3
	Total	154	434	588

The interior, if it may be so called, had three features of interest. The eastern part of the floor, about 5 ft. square, was roughly cobbled with small limestone rocks. The western part was covered by a zone of rocks, not flaggy, but from 5 to 14 in. thick. These terminate in an artificially straight line, suggesting that they may have been confined by a tree trunk or a board. Six stones preserve a line exceeding 7 ft., but what the purpose of this was cannot be decided. The few charcoal remains recovered were from the foot of the west wall, but there were not enough to suggest a hearth, and the stones may have represented the base of a raised sleeping platform. Finally, in the centre of the structure there was an isolated upright stone set 5 in. in the floor and standing 8 in. above it, which appears to have been either an anvil stone or a seat where stone tools were prepared. The majority of all the struck and worked pieces of flint and chert encircled this stone which gives as good a proof for the anvil or seat idea as is possible.

The most important tools typologically are those flakes and blades which appear to have been prepared as points, and these fall into two groups. In fig. 2, 1 and 2 are clearly microliths and 3 and 4 are fragments of microliths. These alone would place the assemblage in the mesolithic, but the other points, 6-8, appear to be battered back blades and may be typologically different from the microliths. These three tools, and a broken fourth, 5, at first glance appear to be similar to Creswellian forms. Each has a steeply worked edge; 8 may be unfinished; 6 has the curved edge frequently found in Tjongerian/Creswellian assemblages; and 7 may be unfinished or a broken shouldered point of comparable age to the last. The assemblage is unfortunately too small to draw extensive correlations, but there is a further complication.

Experimental use of an illuminated X20 binocular microscope has yielded interesting, and to a certain extent disconcerting, results. Fig. 2, 8 shows patches of wear on the steepened part and on the opposite apparently unused edge, suggesting that this is a finished tool, perhaps a knife, and not an unfinished projectile point. Fig. 2, 6 is also worn on both edges, and the steepened part of 7 is worn and abraded. The microliths also appear to have been rubbed against an abrasive, creating an even edge as distinct from what might be expected from natural abrasion in the soil. Similar wear occurs on one side of 9.

The scrapers (fig. 2, 12-15) are conventional end scrapers made from flint and chert, one being a double-end scraper. Under the microscope, all are quite worn and smooth rather than abraded. The other tools are a typical burin, awls and knives, and amongst the other pieces showing secondary working there are six single-notched and six double-notched pieces. The two flint cores were worked into flat faces, and neither was capable of producing the biggest blades found on the site.

Associated with the stone tools were numerous fragments of bones. The bones fall into a bleached and an unbleached group, the former probably equating with the original occupation and comprising the remains

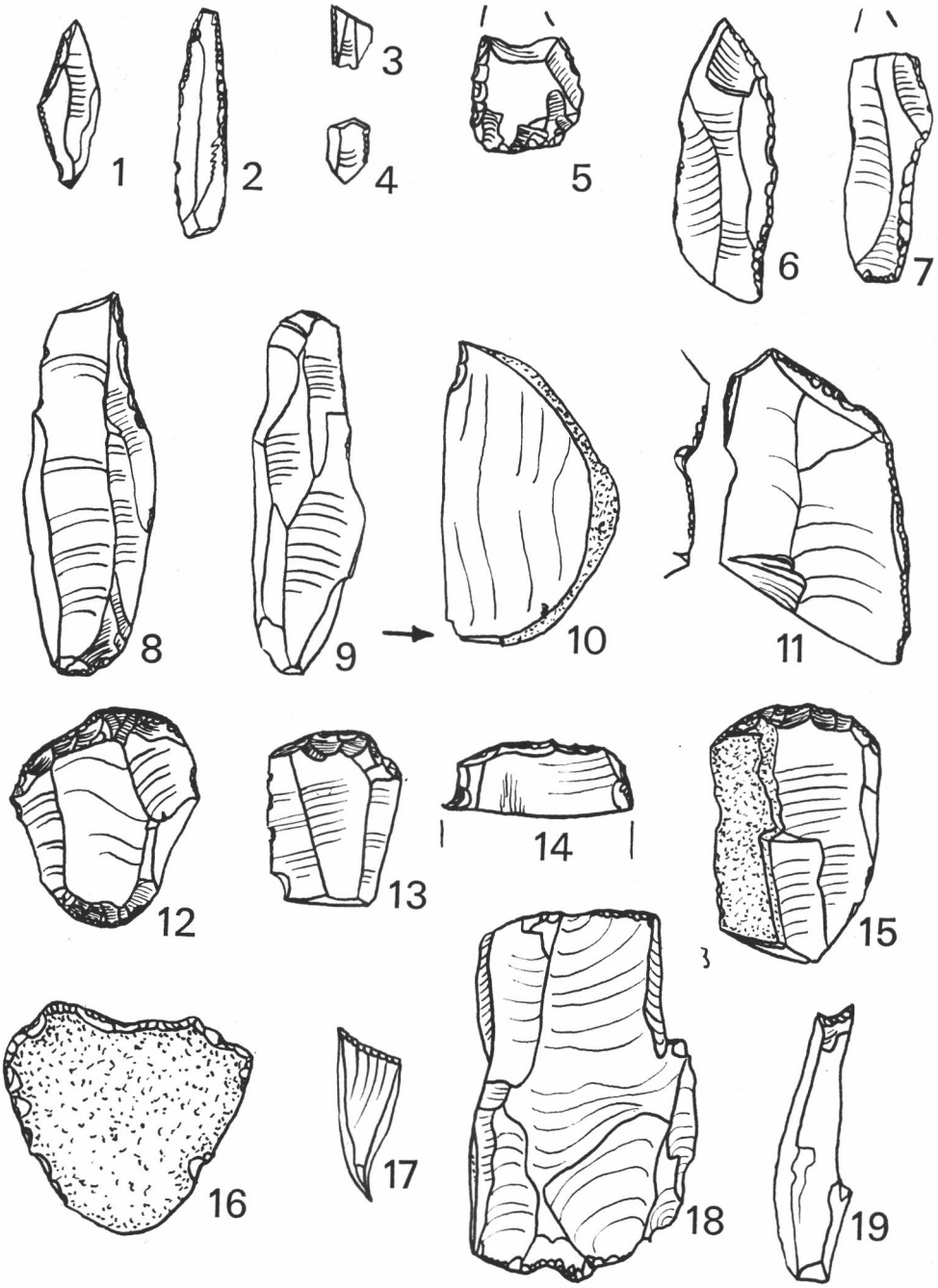

FIG. 2. Flints (1-18) and chert (19) from Stoney Low, Sheldon (1/1).

of horse and red deer (see appendix II). Finally, there was also a flat, reddened river-worn pebble of micaceous sandstone, a whetstone 10 cm. long worn concave on its opposing faces, two pieces of gritstone and a large quartzite pebble.

Neolithic remains

The excavation yielded a few unpatinated flints and a small flake from a volcanic stone axe which, together with unbleached bones of pig and ox, have been washed into the excavated area from above. Somewhere in the near vicinity there was a settlement in neolithic times, and land clearance and usage presumably stimulated some of the soil-wash which covered the excavated remains. Other evidence of this neolithic occupation found in fields adjacent to the excavation includes parts of four greenstone axes, one sherd of pottery, hundreds of unpatinated flints, at least three petit-tranchet derivative arrowheads, at least twenty-two flint scrapers, and half of a perforated stone macehead.

THE RAW MATERIALS AND THE USE OF CHERT IN THE SOUTHERN PENNINES

a. *Stoney Low*

It is frequently noted that it is impossible to measure the rate of patination of flints, but on the limestone of Derbyshire it is probably a valid generalization that neolithic and bronze age flints are normally unpatinated, save in special conditions such as flints excavated from some barrows. Normally, the few artifacts which are known to be pre-neolithic (such as the cave material from Thor's fissure) have a deep white patina. Virtually all the 150 flints from the Stoney Low excavation are patinated, and this may be one of the evidences of their age. Some of the flints retain worn natural surfaces, indicating a coastal or glacial source.

The bulk of the utilized stone on the site is black chert. Excluding all pieces lacking any signs of being struck, there are still over 400 pieces which were struck or used in some way. In addition there are a few pieces of shiny banded chert, and one or two pieces of white chert. Clearly, the people who occupied the site knew that chert derived from the local limestone had its uses, even though it was in some respects inferior to flint. Several good tools were made including nine scrapers, three awls and six notched pieces. Although there are six cores only three blades were found. A microburin shows that microliths were probably made from chert. Chert has been found on numerous sites in the Pennines so it is proposed to describe some of the kinds of chert which have been used and the distribution of the sites involved.

b. *The Southern Pennines*

There are at least five kinds of chert available for use in the Pennine limestone, based on texture and colour (not necessarily very reliable traits).

1. *Black chert.* This occurs in lenticular or tabular form in many places. It may grade into grey or blue-grey often with darker bands, and oxidizes into an off-white. This black chert at its best is almost as good as good flint, and is capable of being worked into long blades and most tool forms. In Derbyshire, one of the best sources of black chert is to be found on the north-facing slopes of the Wye valley north of Sheldon, and about a mile from Stoney Low. Another source is in the Manifold valley near Wetton.

2. *Shiny grey chert.* This is less tractable than the black chert but sometimes forms the sole material on a site. It is usually a banded pale grey material, usually shiny and sometimes translucent enough to be called "flinty-chert" and "cherty-flint". Sometimes it has a yellowish or brown hue, but is inferior to ordinary flint. Source not known, but perhaps from Upper Wharfedale.

3. *White chert.* This is very inferior chert, and rarely used. The white, grading into grey or black chert, and sometimes pink or pale yellow, often contains fossils. It is found in most limestone areas. Mottled chalcedonic varieties occur in the Bakewell-Lathkill Dale area in beds up to 9 ft. thick.

4. *Brown vessicular chert.* This occurs as the occasional flake or core on several sites, and is distinctive in that this brown chert does not appear to be native to the Peak District and presumably comes from the Central Pennines. It is characterized by numerous holes and looks like a poor quality toffee. Source not known.

5. *Banded brown chert.* This occurs in the Yorkshire Dales as a very dense brown chert with darker bands. Sources in Nidderdale, and perhaps in the Peak District, since at least one form of brown chert occurs on Crich Hill in a 6-ft. thick bed.

Most of the stone artifacts so far found in the Peak District are either made of flint or volcanic stone, and only the occasional piece of struck chert or a microlith has been found, for example, a flake at Pike Hall and a microlith from Fox Hole Cave. This is in part due to the difficulty in separating the worked from the natural chert when making surface collections or excavating.

On non-limestone areas, however, it is as easy to identify chert as flint, and most of the sites on fig. 3 are either on shale, sandstone or grit. Appendix I lists 33 sites where chert has been found, and special notice may be made of a few of these.

The majority of sites present concentrations of surface finds, but excavations have been made at 22 of the 33 sites. Most noteworthy is the frequency with which sites have up to 10% chert, normally black chert. Occasionally the amount exceeds 40%, and at Broomhead sites 5 and 10 the assemblages were 99%+ black chert, and smaller sites at Bull Stones and Arnfield Flat had 100% black chert. Presumably most of this black chert derives from the Peak District. Further north, all the raw material from the sites at Windy Hill and Brushes Moor was black chert.[1]

The shiny grey-banded chert fragments occur in ones or twos on several sites, but at Boar Flat represented 400/437, and probably 100% at Saltersbrook. Near Marsden, this kind of "cherty-flint" was used at Warcock Hill and Badger Slack.

The inferior white chert can be found in small quantities on several sites, but is difficult to separate from oxidized grey and black chert. The brown cherts are rare in the area being described but occur from time to time, as a core and three flakes on a site near Deepcar and a few flakes from Ormes Moor and West End Moss.

The collection and analysis of chert assemblages is still in its early stages, but it is already clear that in the mesolithic the dependence on flint is not as great as it was in late palaeolithic times, and that chert assumes considerable significance on many sites, particularly on the non-calcareous areas of the Pennines. Chert may have been brought there from further afield, for example, from the Trough of Bowland or Flintshire, and it is therefore useful to have a site such as Stoney Low with its large chert component actually situated in very close proximity to what was probably an important source of black chert. The distribution of black chert-using sites suggests a well-developed knowledge of local resources for at least part of the mesolithic, and it seems that with the advent of the neolithic, the large-scale use of chert declined, but this comment is based on only a limited number of recent neolithic assemblages.

Conclusion

At Stoney Low, a small site in an alcove of rock was sealed beneath a soil layer in which neolithic remains were found. The assemblage provides evidence of the hunting of red deer and horse, the preparation of skins and probably bone-working. Local and imported raw materials were used, and the small amount of tool debris suggests an occupation limited to one season or two at the most. The alcove provided an almost natural hut which was almost certainly roofed. In the hut was a slightly raised sleeping area and the site of the tool manufacture. The hut overlooked a naturally damp hollow, which may have been an attraction to the animals hunted.

The volume of artifacts is so small that it is difficult to give a date and cultural affinity to them. The battered-back points and the microliths

[1] Petch, J. A., *Early Man in the Huddersfield District*, 1924, 19.

together do not fit the general pattern of Pennine mesolithic remains, and on this alone it is tempting to place the assemblage in an early context. To call the assemblage Creswellian, i.e. *c.* 9000 B.C., does not help since the Creswell sites themselves are in need of re-evaluation. A little black chert occurs with the Mother Grundy's Parlour assemblage at Creswell, but its relationship to the main industry is uncertain. It seems, however, reasonable to suggest that the Stoney Low site is closer to that body of upper palaeolithic material from France and the Low Countries rather than to the Maglemosian and Sauveterrian industries, suggesting a date of *c.* 8,000-6,000 B.C. Bearing in mind the abrasion on the battered-back points, the emphasis on them as diagnostic tools may be misplaced. If they are knives rather than parts of missiles, there would be no reason to doubt an ordinary mesolithic origin. More information is clearly required, particularly from sites yielding battered-back points or knives, before the argument can be taken further.

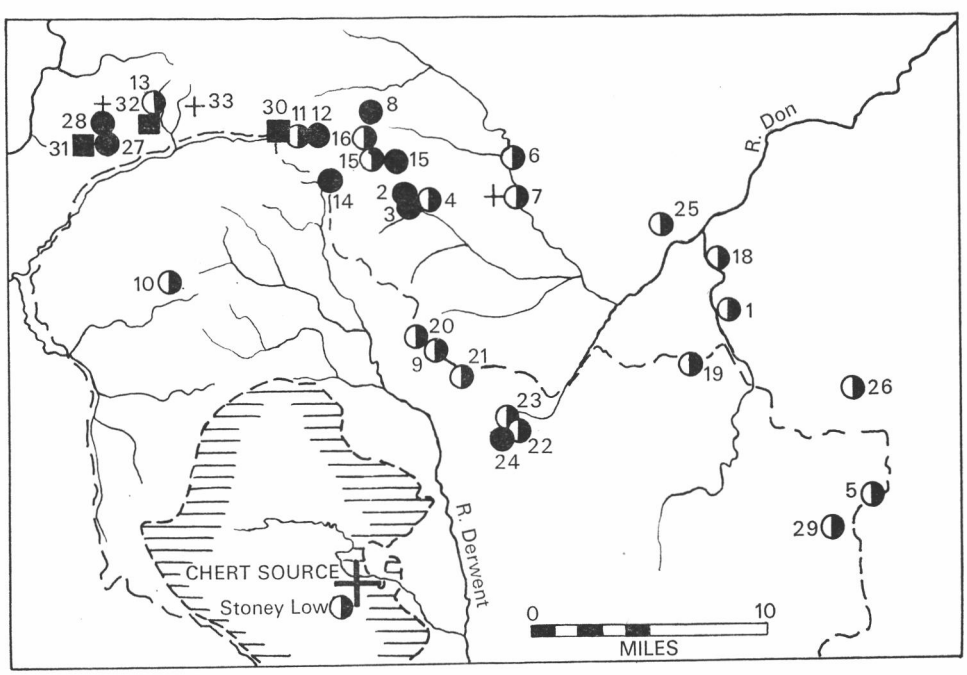

FIG. 3. Mesolithic sites yielding chert artifacts.
Black chert: ● over 90%; ◑ under 90%; Grey chert: ■ over 90%.
Brown chert: + a few pieces.
Horizontal shading indicates the limestone outcrop.

APPENDIX I

Some mesolithic sites in the Southern Pennines, with their chert component as a percentage. Numbers refer to the map (fig. 3).

		%
A.	*Black chert*	
1.	Aston, Hail Mary Hill	20
2.	Bradfield, Broomhead Moor, site 1	18
3.	site 5	99
4.	site 10	100
5.	Creswell, Mother Grundy's Parlour	0.5
6.	Deepcar, site 1	4
7.	site 2	3
8.	Dunford, Thurlstone Moor	100
9.	Hathersage, Upper Burbage Bridge	45
10.	Hayfield, William Clough	6
11.	Langsett, Fiddler's Green	33
12.	Little Don	30
13.	Longdendale, Red Ratcher	40
14.	Midhope, Bull Stones	100
15.	Fox Stones Edge	96
16.	Hingcliff Hill	30
17.	Mickleden Edge	5
18.	Rotherham, Canklow Hill	40
19.	Sheffield, Birley Spa	30
20.	Hallam Moors, Crow Chin	20
21.	Stanage	30
22.	Totley, site 1	80
23.	site 2	75
24.	site 10	100
25.	Wincobank Hill	9
26.	Thorpe Salvin	35
27.	Tintwhistle, Arnfield Moor	98
28.	Ormes Moor	100
29.	Whaley, site 2	10
B.	*Grey chert*	
30.	Dunford, Saltersbrook	100
31.	Hollingworth, Boar Flat	88
32.	Longdendale, Oakenclough	100
C.	*Brown chert*	
7.	Deepcar, site 2	3 pieces
28.	Tintwhistle, Ormes Moor	2 pieces
33.	Longdendale, West End Moss	1 piece

APPENDIX II

THE BONES FROM THE STONEY LOW EXCAVATION

By D. BRAMWELL

A small quantity of bones was found in the excavation, confined mainly to the periphery of the area. Several teeth and fragments of bones were identified as follows:

1. *Red deer.* Two molars with very bleached and eroded surfaces.
2. *Horse.* An upper molar with a very bleached and eroded surface, from a pony-sized animal as found with mesolithic remains at Fox Hole Cave, Derbyshire, and Star Carr, Yorkshire.
3. *Ox.* Several bones were recovered, and these are too small to be *Bos primigenius,* but equate well with the large domestic breed found on neolithic sites. An unworn and unbleached second lower molar suggests an animal of about 18 months.
4. *Pig.* A few unbleached scapula fragments.

The scarcity of bone on the site may mean that either some bones have been totally leached away where they occupied more exposed positions, or there is a hearth and other remains outside the limits of the excavation.

The bones from the excavation fall naturally into two groups: the bleached deer and horse remains, which probably belong to the main occupation, and the domestic ox and pig remains, altogether fresher in appearance, probably belong to the neolithic artifacts which have been found in the vicinity. The occurrence of rabbit bones suggests that there has been a certain amount of mixing in the soil.