constrasts which seem so important. If there really are no vast
spreads of material in this area, then here we have a most
interesting distinction from other regions which have been
studied in depth. It is difficult to say more from the text but
the table suggests that this distinction may be genuine.
Although Late Neolithic domestic sites in the region include
more tool-types than earlier assemblages, as has been
demonstrated elsewhere, the range is nowhere as wide as it is
in any of the areas mentioned above and tool variability
amongst individual collections is unusually low. This is a point
which urgently needs further consideration.

I regret to say that I think Dr Holgate, despite the great
deal of work he has obviously put into his research, has been
unable to see the wood for the trees. This report does not do
justice to the amount and importance of the data he has
collected and whilst it may go some way towards
reconstructing settlement patterns in the Thames Basin, it does little to aid
our understanding of them. The economic model is interesting,
but a closer look at evidence from within the British Isles
would have provided a much more relevant and focused background
to the region than many of the continental cultures referred to.

Once upon a time BARAs were cheap and one could afford to
buy volumes such as this for the catalogue and the better bits.
At £24 my advice would be to borrow this one from a library.

Julie Gardiner, January 1989

Stone Axe Studies Volume 2, the Petrology of Prehistoric Stone
Implement from the British Isles, edited by T.H. McK. Clough
figs, 23 maps, 40 tables, price £35.

and

Stone Axe Morphology and Distribution in Neolithic Britain, by
Sylvia Chappell. B.A.R. 177, 1987, 2 vols, 66 + xvi pp., 126
figs, 49 tables, price £35.

Almost half of Stone Axe Studies 2 is made up of a list of
the available petrological identifications of prehistoric or
apparently prehistoric implements from Britain, accompanied
by nationwide distribution maps of implements of each petrological
group. This pulling-together of information either previously
unpublished or dispersed among many sources is one of the
volume's most useful features now, and will ensure that it
remains a valued work of reference for many years to come.
A major achievement of the volume is that it presents information
from Scotland, Cumbria and Northumberland for the first time.
Congratulations are due to the editors, the C.B.A. and the Royal
Commission on the Historical Monuments of England, whose
computerised record of identifications, will, one hopes, be
systematically maintained.

These data are preceded by an admirable introduction by
Clough, and by the following papers:

1. Fenton, M.B., and Travis, R.J.A., 'A method for taking
petrological samples from stone implements'

identification of stone implements from south-west England:
sixth report'

logical identification of stone implements from south-east
England'

identification of stone implements from east midlands'

5. Green, B., 'The petrological identification of stone imple-
ments from East Anglia: second report'

tification of stone implements from the south-east Midlands'

identification of stone implements from the east Midlands: third
report'

8. Shotton, F.W., 'The petrological identification of stone
implements from the west Midlands: third report'

identification of stone implements from Yorkshire: second
report'

10. Coope, G.R., Robinson, D.J., and Roe, F.E.S., 'The petro-
logical identification of stone implements from Lancashire and
Cheshire'

11. Coope, G.R., and Garrard, L.S., 'The petrological identifi-
cation of stone implements from the Isle of Man'

12. Fell, C.I., and Davis, R.V., 'The petrological identifi-
cation of stone implements from Cumbria'

13. Cummins, W.A., and Harding, A.F., 'The petrological identi-
fication of stone implements from Cumbria'

cation of stone implements from north-east England'

15. Fenton, M.B., 'The petrological identification of stone
axes from Scotland'

implements from Wales'

17. Francis, E.L., Francis, P.J., and Preston, J., 'The petro-
logical identification of stone implements from Ireland'

All the authors have suffered equally from the volume's
long period of gestation. The papers are inevitably uneven
quality. The nadir is hit by Houlder's almost exclusive concern
with typological definitions which are not only inherently
barren but reflect unfamiliarity with the literature of the
last twenty years.

21
The limitations of some other papers are those of the date, not of the authors, and fill the valuable function of highlighting work which needs to be done. Clough's and Cummins' terse and depressing account of the evidence from London and Middlesex reveals the capital as a petrological black hole, a situation which surely persist, especially as the richess and significance of prehistoric occupation along the lower Thames becomes more apparent with every passing year. Francis, Fraser and Preston emphasize the need for further fieldwork and petrological investigation in Ireland, a point brought forcefully home by the list of Irish identifications, in which Group IX (Tievebulliagh and Rathlin Island Porcellanite), which forms 57% of all the axes examined, is the only grouped rock to figure in any quantity.

Many have particular strengths of points of interest. Cummins and Moore and Woodcock, Kelly and Waudby score highly by presenting their regional papers with clear and helpful fieldwork and petrological introductions. Similar provision would have smoothed the paths of readers through other territories unfamiliar to them. Phillips, Cummins, and Keen perform the tour de force of defining petrological Group XXVI (north-east Yorkshire carbonate mudstone) and exposing it as the material of a suite of nineteenth-century fakes in the space of three pages. But how does their necessarily section get away with so intractably loaded a term as 'rubbish pits' or so quaintly old-fashioned an expression as 'overhanging rim urn'?

Newly-published associated finds confirm the chronological framework set out by Smith in 1979, except for a fragment of Group I axe from an Earlier Neolithic context on Hambledon Hill which suggests that the long-distance dispersal of Group I axes began earlier than previously thought (Davis, Howard and Smith). It should be pointed out that a fragmenat chasMehead (N217) from Redgate Hill, Knaresborough, North Yorkshire, is of great interest because its pecking, possibly by a pit containing Grooved Ware (Green), but of a post-hole of a structure of so far uncertain date.

Themes which recur through the volume might profitably have been summarised in a concluding chapter. The essential and inescapable need for knowledge and unguilted gift for synthesis which would have made her an ideal author. In the absence of such a contribution, a few salient points may be singled out:

A. The numerical paramountcy, now that many more identifications are available, of Group VI (Great Langdale and Scafell tuff), which forms 39.3% of identified grouped implements (Clough).

B. The significance of implements of (so far) ungrouped rocks for understanding the overall nature and extent of the distribution of material from major source areas such as the Lake District and Cornwall (Clough; Davis, Howard and Smith; Green; Feli and Davis).

Reiteration of the importance of Carn Brea, even of enclosures farther east, in the distribution of Cornish products by Davis, Howard and Smith makes one wonder why the Cumbrian stone circles and the multifarious communal monuments of the Yorkshire Wolds did not figure equally significantly in the distribution of Group VI products.

C. An inverse relation between the frequency of apparently imported implements in a region and the local supply of suitable stone, seen in the low proportion of foreign implements in Cumberland, where only four implements (1% of the total sectioned) can definitely be shown to be imports (Fell and Davis), and in Fenton's suggestion of the very rare long-distance transport of Scottish battle-axes and axe-hammers, attributed to the widespread availability of suitable rock types.

D. An acknowledgement that the distribution and use of stone implements might be more comprehensible if viewed together with other finds, including axes.

E. A fuller realisation that petrologically identical specimens may come from different, sometimes distant, sources (Fell and Davis; Fenton).

F. An increasingly realistic and balanced view of the manner and scale of the use of glacial erratics as raw material for stone implements (Fenton).

The possibility is ignored by most of the authors, perhaps because of the overwhelming bulk of the data which might be unleashed upon them if they acknowledged it.

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I. An increasingly realistic and balanced view of the manner and scale of the use of glacial erratics as raw material for stone implements (Fenton).

J. An increasingly realistic and balanced view of the manner and scale of the use of glacial erratics as raw material for stone implements (Fenton).
To these the writer would add a final topic, largely avoided in the volume: a consideration of the extra-functional significance of at least some stone implements. Axes of materials so soft that they could never have been used are mentioned by Woodcock, Kelly and Woolley. Miniature battle-axes are illustrated by Fenton. Contexts of deposition recorded by these and other authors include causeways and enclosures or burials, and hoards. Many of the concentrations of stone implements shown on the distribution maps focus on major complexes of monuments, as in the Arbor Low and Rudston areas, and, even when they do not, as on the lower Thames or the south-eastern edge of the Fens, form part of larger concentrations of elaborately worked artefacts in other materials. On the evidence of the volume itself, not to mention the path which British prehistory has taken over the last decade, these objects should surely be seen as more than tools and weapons.

Sylvia Chappell's Stone Axe Morphology and Distribution in Neolithic Britain acknowledges non-functional considerations, but asserts them by uncritical recourse to ethnographic parallel rather than demonstrates them by analysis of the data. Specific contexts of deposition, which are summarised for each group, should serve to clarify the appropriateness of the analogy, but are presented uninformatively. Axes from communal monuments, burials, hoards and river finds, especially from the Thames, are listed without comment. Sedentary settlement contexts are not quite what they seem. The text makes it clear (e.g. pp. 274-5) that many axes included in this category are stray finds from settled areas.

At 5p per page rather than the 12p of Stone Axe Studies II the work might appear to offer better value for money. It does not. The main body of text occupies the first volume, is printed in double line spacing, which greatly increases the reader's burden, financial and physical.

It appears to be an unmodified version of a Ph.D. thesis submitted to the University of Michigan in 1986. It is therefore based on fewer petrological identifications than those assembled in Stone Axe Studies II, and the distributional analysis is necessarily sketchy at the northern borders of Yorkshire and Lancashire. This does not radically affect the author's conclusions for most of the groups studied, with the important exceptions of Group VB and XV. The data gathered in Britain and analysed and written up in the United States, with the unsurprising but regrettable consequence that the framework of which the analysis is set consists of a sketchy and out-of-date outline of contemporary prehistory. It is not surprising to find that British society was primarily egalitarian throughout the Neolithic (p. 104). Grime's Graves is assigned an abundant source of a number of forms and the work of the last decade, especially by Saville, has shown that axes are unlikely to have been a major product of the site. There is no consideration of the possibility of plural or secondary sources for rocks of some groups.

The most lamentable consequence of long-range study such as this is that the original objects would be lost to banks on their universal accuracy.

The method adopted is (1) to predict axe size variation and distribution in different social and economic circumstances, on the basis of the ethnographic record, the author's overview of British prehistory, and previous studies of ancient stone axe distribution; (2) to analyse size and shape variation in relation to source location for each petrological group, employing scatter diagrams, counts of the frequency of different dimension ranges, and other means including, for the more numerous groups, principal components analysis and cluster analysis, and (3) to interpret the results, evaluating the predictions against them.

Groups are ordered by region, then examined one at a time. The author offers countless opportunities for critical repetition, few of which are missed. One reads that exceptionally large axes are likely to have been non-utilitarian in respect of groups I (pp. 176, 181), VI (pp. 265, 267), VIII (p. 218), XVI (p. 146), XX (p. 315), and XXIII (p. 212) and stone axes in general (p. 337-8). Variations in intensity of prehistoric activity and of recent collecting are almost equally often invoked to explain away aspects of the data which do not conform so favourably models. Description of statistical analyses would have benefitted from editing. Information clearly readable from tables, plots and diagrams is repeated relentlessly in the text. This is perhaps due to the facts that no exceptions made even for variables subsequently declared redundant (pp. 268-9). Such errors, which, if the sample size is so small, as in the case of eleven complete examples of group XXIII, to place a question mark over the whole work. One can only hope that this is due to the right statistical package is employed, there is felt to be little need for critical thought.

The approach works best for the large groups. It is argued convincingly that the nature of the fall-off in size with distance from their presumed Cornish source of Group I axes is more compatible with multi-directional distribution by coastal estuary routes and transport involving groups in a number of coastal locations, than with the bulk transport to the Thames estuary previously suggested by Cummins. Similarly, metrical and distributional data for group VI axes are interpreted as reflecting group-to-group exchange, with particularly large axes rare in peripheral areas, rather than bulk transport to Humberside or any other secondary centre of distribution.

But these are the main conclusions. The author's application of the multiple sources gravity model to groups I and VI, published in the Proceedings of the Prehistoric Society from the same source, is an abundant source of data of the vacuum in which it was written, scarcely marked by human considerations as distant from statistical ones. It has lessons for the future: the same research might have been better spoken through. Recent research in the Group VI source area might, for example, have been complemented by first-hand study of its dispersed products and accurate documentation of the contexts in which they have occurred.

Frances Healy, May 1989