

The Burins of Vogelherd Aurignacian (Germany) and those of the French Aurignacian: a Comparison

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Vogelherd Cave is situated in Württemberg, in the Lone Valley, not far from Heidenheim (north of Ulm). It was excavated in 1931 by Prof. G. Riek, who found the following stratigraphy (Riek, 1933): layer 1 – Neolithic; layers 2 and 3 – Magdalenian; layers 4, 5 and 6 – Aurignacian; layer 7 – Mousterian, and finally layer 8 – with Late Acheulean, or Mousterian of Acheulean tradition.

The rich lithic material of the Aurignacian layers 4 and 5 (6 being too poor) were the object of a comparative study by D. de Sonneville-Bordes (1965), pointing to the following traits: both layers are very similar to each other. They are characterized by the abundance of retouched blades, among which there are many with Aurignacian retouch. Scrapers, including only a few steep specimens, outnumber burins.

In the group of burins, those on truncature are very numerous, largely outnumbering the dihedrals. Among the dihedrals many are made on broken blanks.

The only significant qualitative differences between the lower and the upper layers (5 and 4) are better workmanship in the lower layer and the presence here of the split-based bone point. Statistically, the transition between the layers results in an increase in scrapers and a decrease in burins – a trend inverse to that observed in the evolution of the French Aurignacian, as shown by D. de Sonneville-Bordes (1960).

Thus, concludes D. de Sonneville-Bordes, while the different elements constituting the industry of layers 5 and 4 of Vogelherd are by themselves typically Aurignacian, here they are combined in an original pattern, different from that in France: the numerous Aurignacian blades and the split-based bone point are characteristic of the French Aurignacian I phase, while the low ratio of steep scrapers characterizes the later French Aurignacian.

It is worthwhile to extend the above comparison further, based this time on a detailed study of the burins, one of the best criteria for differentiating and seriating Aurignacian industries (Ronen 1966).

The principle of our method of study of burins (Ronen 1963) is based both upon the technique used in the manufacture of the working-edge and upon its form.

Three main techniques are used in the manufacture of burins, designated according to the nature of the surface opposed to the burin blow (or blows): dihedral, when this surface is also made by burin blow(s); truncature, when the surface has a steep retouch; and burin on a natural surface (in most cases it is a break, but it might be the basal platform, or any other convenient but unprepared surface). Busquoid burins, though technically dihedrals, are counted apart because of their typological and chronological significance.

The working tip has been classed into five forms: rectangular, the commonest (fig. 1, no. 1); rounded (fig. 1, no. 2); triangular (fig. 1, no. 3); semi-rounded (fig. 1, nos. 4, 5); and the oblique (fig. 1, no. 6, in an acute angle relation either to the width or the length axes of the blank).

Burins with a broken working-edge can still be classified according to their technique of manufacture; if this, too, is unrecognisable, it is counted as "miscellaneous". Our method necessitates the counting of every burin-edge, thus separating multiple burins and composite tools. Whether these technical and formal features are purely functional, or compound functional and stylistic traits, is irrelevant to the present study¹. The fact remains that the seriation of these characteristics proved valid in our experience, and

¹ See: Sackett 1968, Semenov 1964, Bordes 1965. For general discussion of burins, see Movius et al. 1968.

that seriating others tends to match upon the same general lines (Collins 1965; Hodson 1969); the discrepancies are certainly affected by the nature of the data, partly provided by old excavations.

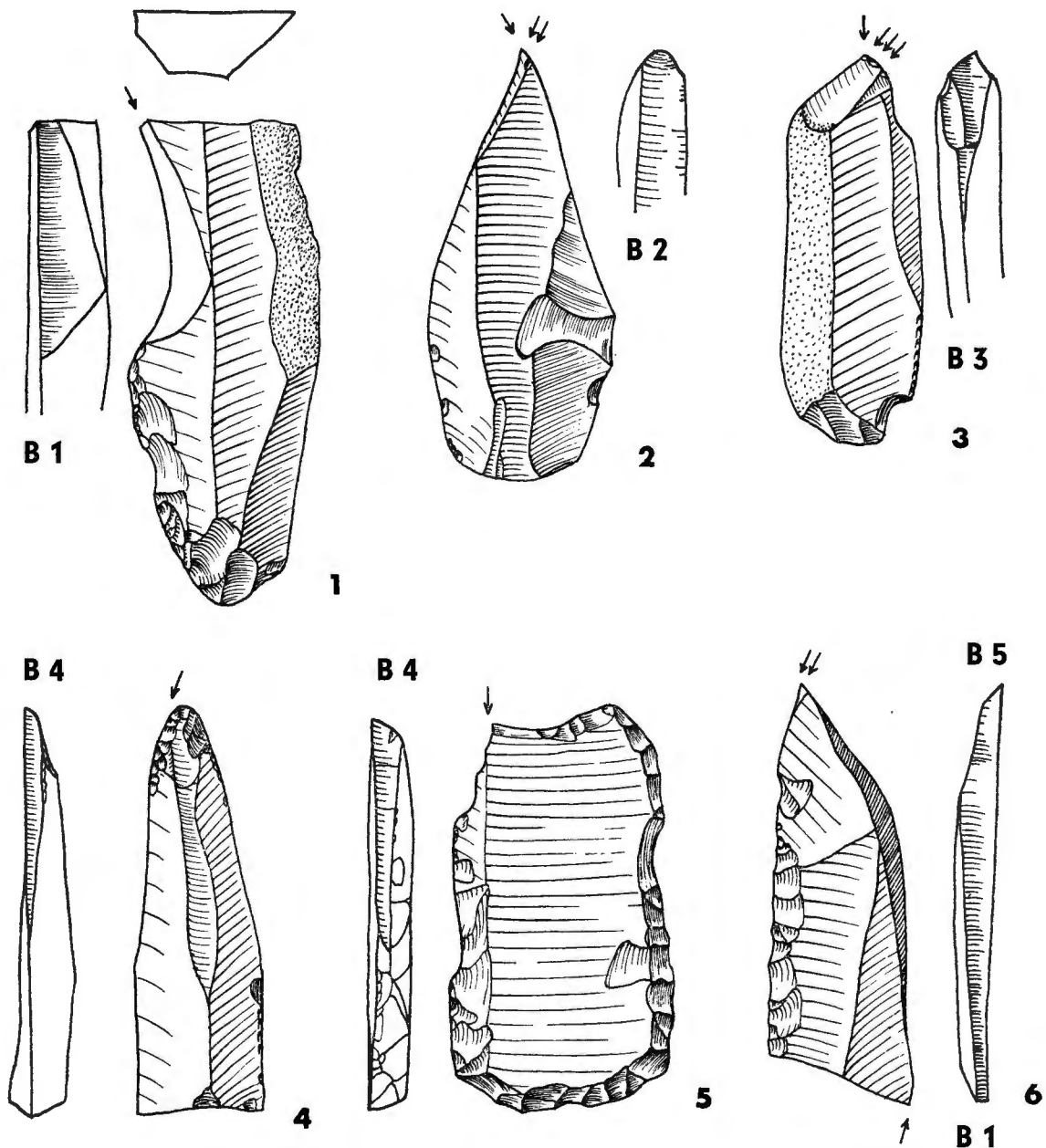


Fig. 1. Forms of working edge.

No. 1 rectangular edge, burin on natural surface; no. 2 round edge, dihedral; no. 3 triangular edge, dihedral; no. 4 semi-round edge, truncature burin; no. 5 semi-round edge, truncature; no. 6 top, oblique edge, burin on natural surface (the burin blow struck from the bottom); no. 6 bottom, rectangular edge, on natural surface.

No. 1 Castanet layer C; no. 2 La Faurélie; no. 3 Cellier layer C; nos. 4 and 6 Vogelherd layer 5; no. 5 Vogelherd layer 4. 1:1.

The Burins of the Vogelherd Aurignacian

Our study is based upon 224 burins of layer 5, the lower, and 381 of layer 4. It was carried out at Tübingen in April 1963, with Prof. G. Riek's very kind permission and warm welcome².

The very close resemblance of both layers at Vogelherd is clearly visible from Table 1.

Table 1. Vogelherd, Main Classes of Burins (percentage).






	technique			form of edge				
	dihedrals	on natural surface	on truncature	B1	B2	B3	B4	B5
Layer 4	15,5	19,6	63,7	47,5	9,4	6,3	6,3	27,0
Layer 5	10,2	23,6	65,1	45,0	6,7	3,5	8,0	27,2

As regards the technique of manufacture, in both layers the truncature burins are predominant, with practically the same percentages, while the dihedrals form the smallest part. The transition between the layers results in an increase of 5% of the dihedrals, with a counter decrease of burins on natural surface. These trends are similar to the normal evolution within French Aurignacian, described below.

As for the form of the working-edge, the rectangulars predominate, as is always the case. The oblique form (B5) is very abundant, relatively to French Aurignacian series (Table 3), and identical in both Vogelherd series. There are only minor changes in the edge-forms between the two layers of Vogelherd, mainly an increase in the percentage of the round and triangular tips.

Let us now examine the repartition of the forms of the working-edge within each of the techniques of burin manufacture (Table 2), and we see that among burins on natural surface there is practically no difference between both layers. The edge-forms differ somewhat among the truncature burins, in that types B2 and B3 (round and triangular) increase from the lower to the upper layer. The most pronounced change is noted in the dihedral group, where the rectangular working-edge increases from a third of the dihedrals in layer 5 to a half in layer 4. This trend is accompanied by a slight increase in the round and triangular working-edges. The increase with time of the rectangular working-edge within the dihedrals is a noteworthy feature at Vogelherd.

Table 2. Vogelherd, Types of Burins.

	 B1	 B2	 B3	 B4	 B5	Broken	Total
Dihedral burins	8 3.56	3 1.33	3 1.33	2 0.89	3 1.33	4 1.78	23 10.25
On natural surface	33 14.73	0	3 1.33	0	11 4.91	6 2.67	53 23.66
Truncature burins	60 26.78	12 5.35	2 0.89	16 7.14	47 20.98	9 4.01	146 65.17
Miscellaneous						2 0.89	2 0.89
Total	101 45.08	15 6.69	8 3.57	18 8.03	61 27.23	21 9.36	224 100.00

Layer 5

² This study was supported by the Centre National de la Recherche Scientifique. A small part of the collection, in the Stuttgart Museum, has not been included in this study.

	B1	B2	B3	B4	B5	Broken	Total
Dihedral burins	28 7.34	11 2.88	9 2.36	3 0.78	7 1.83	1 0.26	59 15.48
On natural surface	50 13.12	1 0.26	5 1.31	1 0.26	18 4.72	0	75 19.68
Truncature burins	103 27.03	24 6.29	10 2.62	20 5.25	78 20.47	8 2.09	243 63.77
Miscellaneous						4 1.04	4 1.04
Total	181 47.50	36 9.44	24 6.29	24 6.29	103 27.03	13 3.41	381 100.00

Layer 4

Main Characteristics of Dordogne Aurignacian Burins

(Table 3 and figs. 2, 3)

These characteristics will be described only in relevance to comparison with Vogelherd³, and only for series with more than 100 burins.

As a rule, Aurignacian I series show a predominance of truncature burins over dihedrals (Bt values 26–46 %, Bd 18–35 %). The only exception is La Ferrassie I, with an inverse relationship.

A significant change appears in Aurignacian II series where dihedrals (between 34–56 %) outnumber the truncature burins (between 11–34 %). This situation prevails till the end of the Aurignacian, with Aurignacian V having the extreme differences. Again, there is one exception: La Ferrassie IV, with truncature-dihedral relationship as in Aurignacian I series. Thus the site of La Ferrassie shows an evolutive pattern different from that of the bulk of Dordogne Aurignacian⁴.

The evolution of working-edge forms is mainly expressed in the relative importance of the rectangular (B1) and round (B2) types.

The rectangular tip is especially high in the first stage of the Aurignacian (Aurignacian I), with values ranging from 47 to 66 %, while round working-edges count for 4 to 17 % (in most sites not exceeding 10 %). In the next stage (Aurignacian II and III of Peyrony), the rectangular form decreases (34–46 %), while round working-edges strongly increase (between 11 and 20 %, in most sites more than 15 %) ⁵. In the last Aurignacian stage (Aurignacian V, La Ferrassie IV and the uppermost layer at Caminade, D2s) there is a reverse movement: the rectangular edges increase (between 50–58 %), as against a decrease of the rounded-edges (8–12 %), thus bringing this stage back to Aurignacian I norms of working-edges.

³ Therefore busquoids, absent from Vogelherd, will not be dealt with here.

⁴ It is interesting to note that in Hodson's (1969) Principal Components Analysis, too, La Ferrassie stands as a special group.

⁵ Where busquoids are present, most of the growth in the rounded edges goes on their account. That this criteria is clearly chronological, is shown by the fact that a similar growth takes place also in series with no busquoids.

Table 3. Main Types of Aurignacian Burins (percentage).

SITE	Technique				Edge form				
	Dihe- dral	Natur. surf.	Trunca- ture	Busq- uoide	B1	B2	B3	B4	B5
Vogelherd 5	10,2	23,6	65,1		45,0	6,7	3,5	8,0	27,2
Vogelherd 4	15,5	19,6	63,7		47,5	9,4	6,3	6,3	27,0
Castanet I	26	35	31	1,3	66	8	4	5	12
Castanet II	25	34	34	2,1	57	10	17	2	8
La Ferrassie I	44	19	30	5	53	9	9	8	14
La Ferrassie II	42	9	29	16	46	18	11	9	9
La Ferrassie III	50	11	27	11	34	19	9	24	5
La Ferrassie IV	28	14	38	14	52	12	8	22	3
Laugerie Haute Ouest, Aurignacien V	56	26	17		58	8	9	10	11
Cellier I	30	17	35	5,4	47	13	7	9	11
Cellier II	41	17	34	7,5	42	18	18	9	9
Les Rois B	13	35	48	3,1	52	9	6	11	19
Les Rois A2	19	28	27	26	38	19	10	10	20
Les Rois A1	30	13	19	37	43	19	17	8	12
Bassaler Nord	18	31	48		51	3	5	4	30

Comparison and Discussion

In comparing the data presented above, Vogelherd emerges as having several original features of burin type-distribution: first, its extremely high percentage of burins on truncature is unmatched in any other Aurignacian series that we know of in Dordogne or elsewhere. At the same time, the Vogelherd values for dihedrals are the lowest among the Dordogne Aurignacian. This high predominance of truncature burins upon dihedrals makes of Vogelherd's both series, from a purely typological point of view, an ultra French Aurignacian I series, in spite of the absence of the split-based bone point in the upper layer⁶.

In addition, the oblique working-edge (B5), 27% at both Vogelherd layers, exceeds by far all equivalent Dordogne Aurignacian values (ranging from 3-14%).

Along with the above-mentioned singularities, Vogelherd does resemble Dordogne Aurignacian in its general repartition of working-edge types, which is that observed in both the first and last stages in Dordogne (I and IV-V): the rectangular form B1 high, the rounded B2 low. But it must, obviously, be related to the first stage.

The evolutive pattern that emerges between Vogelherd layers 5 and 4 – however slight – is the same as that between stages I-II of the Dordogne Aurignacian, in the increase of round and triangular edge types. It differs, however, in the increase of the rectangular edge.

Finally, it should be stressed that the greatest statistical resemblances exist between the burins of Vogelherd and those of the Aurignacian outside of the Dordogne: mainly Bassaler-Nord (Couchard et Sonneville-Bordes 1960) in the Corrèze, and, to a lesser degree, Les Rois in Charente (Mouton et Joffroy 1958).

⁶ Same situation as for Castanet, in the Dordogne, where both Aurignacian layers belong to stage I, but the split-based bone point exists only in the lower layer.

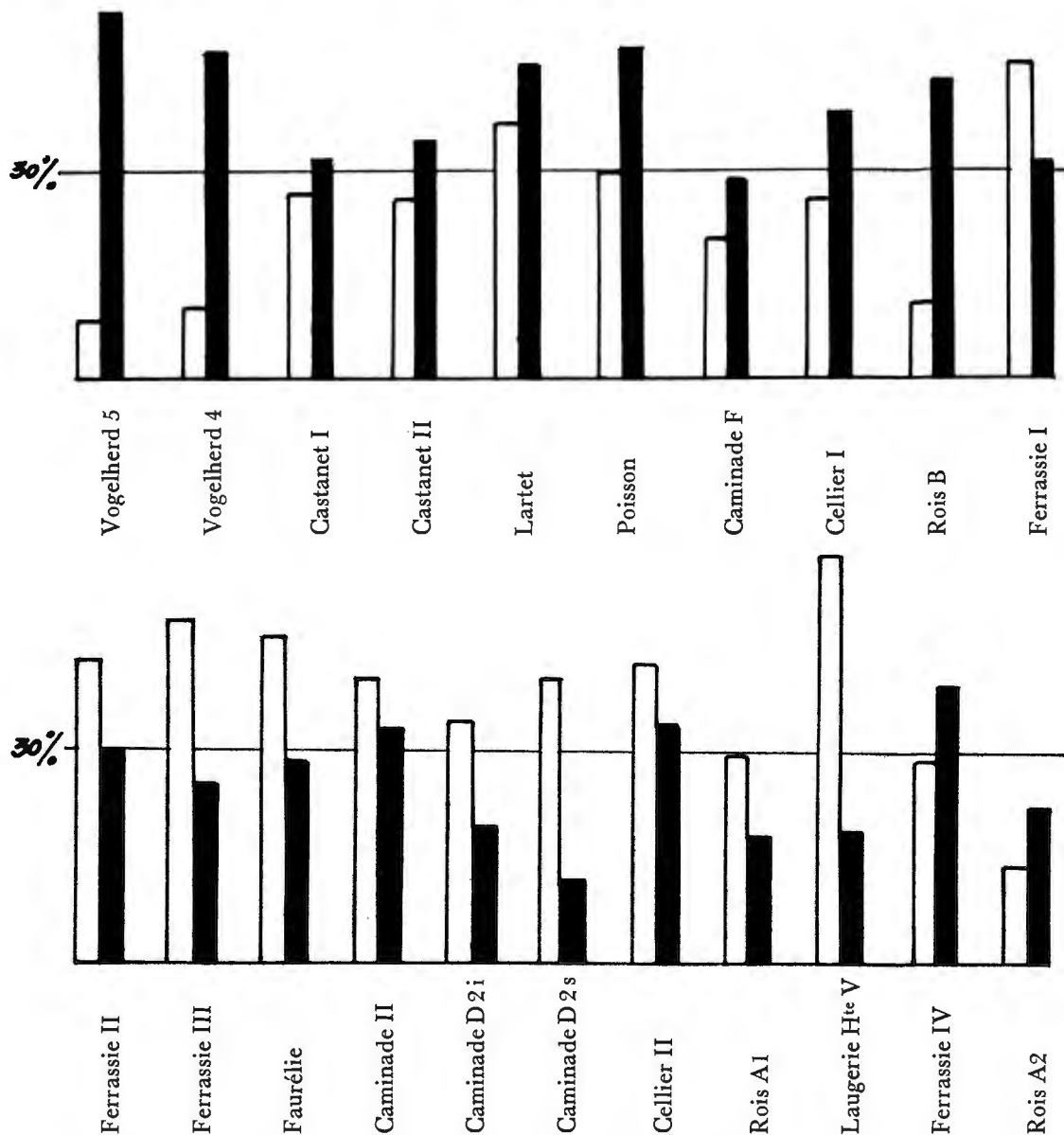


Fig. 2. Relation between dihedrals (white) and truncature burins (black) in the Aurignacian. Stage I – top row, stages II–V – bottom row.

The characteristics that differentiate Bassaler-Nord from the bulk of the Dordogne Aurignacian are (Table 3), like at Vogelherd, a high ratio of truncature burins, low ration of dihedrals, and an extreme abundance of the oblique working-edge (B5): 30%. These, and the absence at Bassaler of busquoids, account for the great similarity between the graphs of the burins of Bassaler and Vogelherd⁷ (fig. 4).

⁷ It is worth noting that the Corrèze Aurignacian is characterised, among other things, by its relative abundance of Pièces Esquillées (Couchard et Sonnevillie-Bordes 1960), and the same is true for Vogelherd (Sonnevillie-Bordes 1965). Further, Hodson's clustering (1969, fig. 23) shows the Corrèze sites Bassaler and Chanlat as closest to Vogelherd.

The site of Les Rois with its three Aurignacian layers B, A₂, A₁, differs from the Dordogne Aurignacian both in its range of percentage distribution of several tool types and its evolutive pattern⁸. The reverse of the relation between dihedrals and truncature burins, characterizing the transition, in Dordogne, between Aurignacian I and II phases, occurs at Les Rois between layers A₂ and A₁, A₂ thus being the only case we know of a typical Aurignacian II phase with Aurignacian I norms of truncature burins outnumbering dihedrals. As regards the range of distribution of burin types, Les Rois layer B has many truncature burins as at Vogelherd, and the lowest dihedral ratio in France (13%, compared to 10 and 15% at

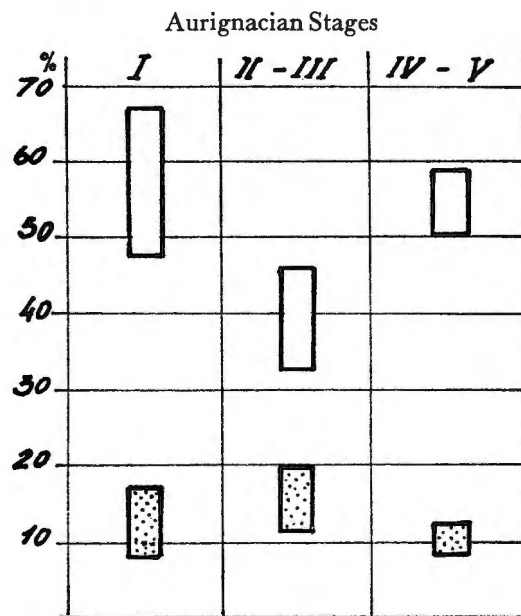


Fig. 3. Maximum and minimum values of the rectangular (B1) and round (B2) working edges of the Dordogne Aurignacian burins. White - B1, dotted - B2.

Vogelherd), together with many oblique form edges (B5, 19%)⁹. This makes the graphs of Les Rois B and Vogelherd resemble each other, in spite of the 3% busquoids at Les Rois B.

To sum up - the detailed study of the burins of Vogelherd confirms, on one hand, the singularity of the Aurignacian culture at this site, already indicated by D. de Sonneville-Bordes (1965). On the other hand, it evidences some statistical resemblances with the French Aurignacian - mainly with the "peripheric" one outside the Dordogne, and in particular with that of the Corrèze.

Addendum

After this article went to press, we saw Muller-Beck's discussion of the geological setting of Vogelherd (1968, H.-J. Muller-Beck. A possible source for the Vogelherd Aurignacian. Arctic Anthropology V. 1, pp. 48-61), in which a slightly earlier date is proposed for Vogelherd than the French "Aurignacien Classique". This confirms the typological traits shown above.

⁸ Ronen 1965, Tables IV and VI. In addition, layer B, the Aurignacian I of Les Rois, lacks the split-based bone point.

⁹ That this high percentage of B5 forms cannot be regarded as incidental is shown by layer A₂, with a corresponding high percentage - 20.

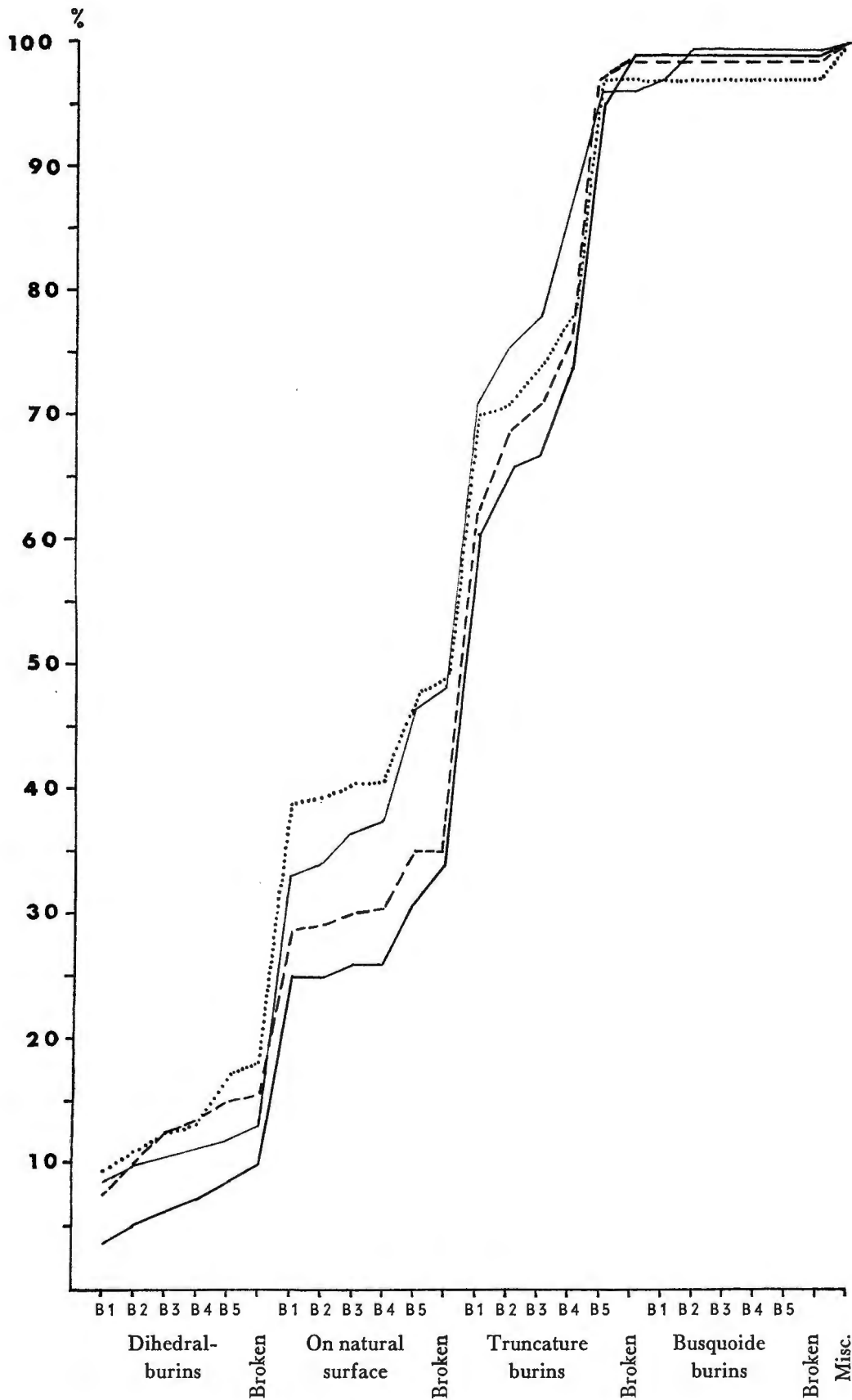


Fig. 4. Cumulative graphs of burins.

Nos. B 1-B 5 indicate the edge forms. Heavy line, Vogelherd layer 5; broken line, Vogelherd layer 4; thin line, Les Rois layer B; dotted line, Bassaler Nord layer 7.

Note the great resemblance between both layers of Vogelherd. The only notable difference between Vogelherd and the French sites is the higher percentage of burins on natural surface in the latter.

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