

Volgens Breuil en Lantier (1959) zijn deze afslagen tamelijk smal en lang, ze hebben geen of nauwelijks ontwikkelde slagbulten, en vlakke niet gebogen splijtvlakken. De resterende processen zijn nauwelijks van belang. Het betreft hier o.a. 'podolieten' (ontstaan onder wegen, dier-paden, etc.); windkanters, en dergelijke. Ze spelen een te geringe rol om ze hier te bespreken.

Mej. J. C. van Dijk typte het manuscript, de heren J. Klein en H. R. Roelink verzorgden de technische afwerking van de illustraties, waarvoor mijn hartelijke dank.

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Spontaneous Retouch

M. H. Newcomer

ABSTRACT

Archaeologists define retouch as the trace left by chipping a flint flake into a specific form. Retouch may also be produced unintentionally, either by heavy utilisation of a flake, or during the original detachment of the flake from its core. This last form of retouch - 'spontaneous retouch' - is examined in this paper, and the problem of distinguishing deliberate retouch, utilisation, and spontaneous retouch is discussed.

This paper concerns the technology and archaeological significance of a kind of retouch discovered on experimentally made flakes, which resembles deliberate retouch or utilisation but in fact occurs accidentally during the striking of the flake. I intend first to define retouch, go on to examine the way this accidental retouch is made and the forms it may take, and conclude with some notes on the possible significance of this discovery for archaeologists studying stone tools.

Retouch

Retouch may be defined as the modification of a flake, blade or bladelet (hereafter 'flake' will be used as an abbreviation for 'flake, blade, bladelet') by the striking or pressing off of tiny chips on the edges of the flake. Retouch may be deliberate, having as its aim the production of one of a standard repertoire of shapes or forms of tools, or it may be unintentional, as when a flake is subjected to trampling, rolling in water, frost heaving, or when it is used for cutting or scraping hard materials (see Newcomer 1974, plate 4 c and d). It is not always easy to distinguish deliberate retouch from heavy utilisation or natural rolling, crushing or trampling, and we have now to consider a new kind of retouch which has been discovered through flaking experiments, and which I propose to call 'spontaneous retouch'.

Technology

Spontaneous retouch results in the fraction of a second when a flake is struck from a core and is prevented from falling clear of the core by whatever part of the knapper's anatomy is supporting the core - usually his hand, foot or padded thigh. The force which detached the flake pulls the proximal end of the flake away from the core, while the knapper's hand, foot or thigh acts as a pivot forcing the other end of the flake against the core. This pressure is often strong enough to detach a row of tiny chips or 'spontaneous retouch' (figure 1).

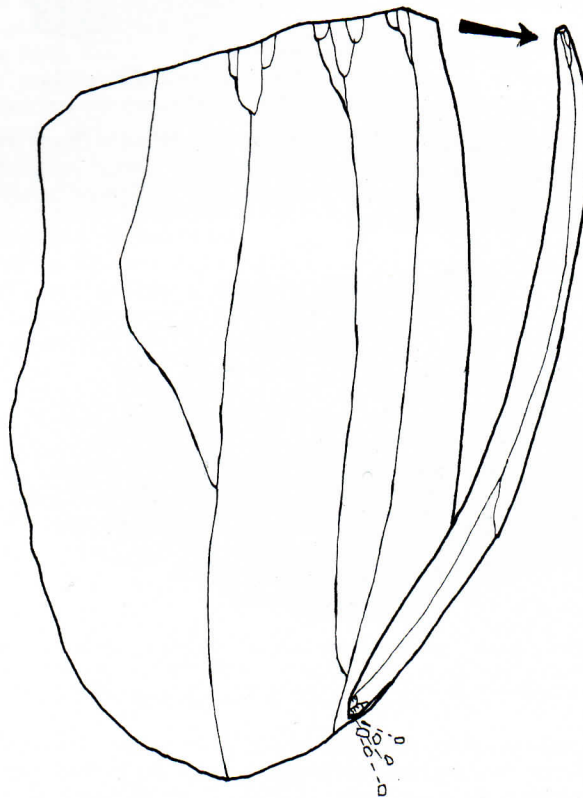
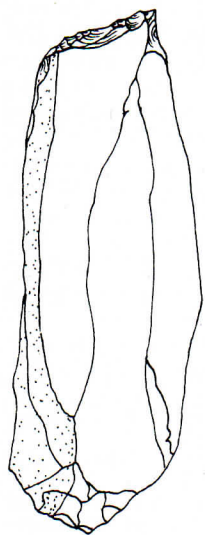


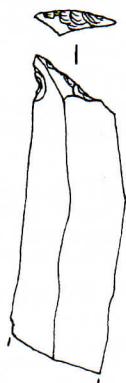
Fig. 1. Sketch showing how spontaneous retouch can form while making blades by direct percussion.

As far as I am aware, the only published description of this phenomenon is that of Tixier (1963 p. 42; 1974 p. 18), who wrote of a special variety of accidental retouch present on microburins which had been mistaken for deliberate retouch or utilisation, but which was formed during the microburin break, as the microburin was pressed against its parent blade or bladelet.

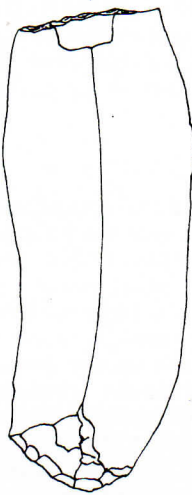
It would be helpful if we could link the formation of spontaneous retouch to one or even a limited range of flaking techniques, but unfortunately it occurs in any of a number of commonly used experimental techniques which may have been used in any archaeological period. Examples include direct percussion with hard or soft hammer,



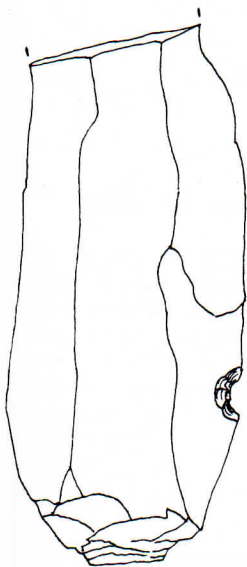
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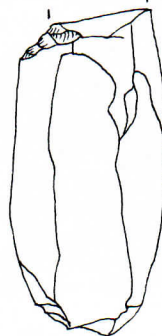
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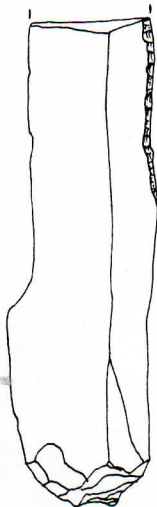
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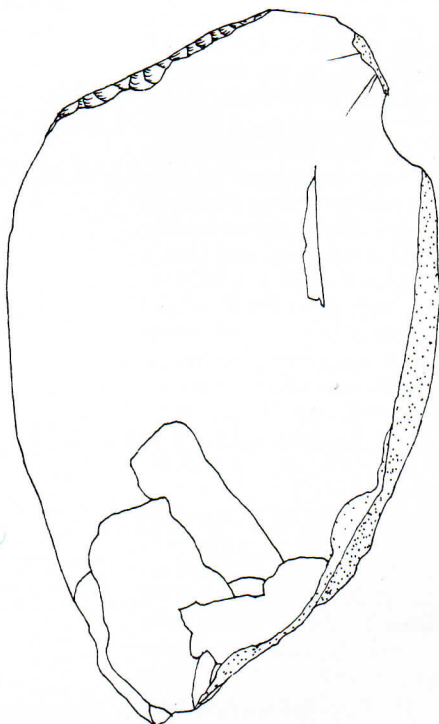
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Fig. 2. Experimentally made flakes, blades and bladelets with spontaneous retouch. Nos. 1, 2: beaked tools; no. 3: truncation; no. 4: notch; no. 5: denticulated bladelet; no. 6: partial truncation adjacent to a break; no. 7: blade with fine retouch; no. 8: flake with continuous abrupt retouch. Nos. 1-7 made while striking blades by direct percussion. No. 8 from a handaxe made on a leather thigh pad. All in English flint.



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the object being flaked held on a padded thigh, indirect percussion or punch technique in which the core is held between the feet, or direct percussion when the core is hand-held and the flakes or blades caught by the fingers. As this short list suggests, we might expect to find spontaneous retouch in archaeological contexts from the Acheulian to the Bronze Age, and on any shape of flake, blade or bladelet.

Forms of Spontaneous Retouch

We can now look at some general features of spontaneous retouch which may help us to recognise it on experimental or archaeological artifacts. In my experience, spontaneous retouch is nearly always *direct*, being made by pressure against the ventral surface of the flake which detaches the retouch chips. For inverse retouch to be produced, the flake would have to turn itself upside down as it was struck, which is unlikely. Spontaneous retouch generally affects the *distal* part of the flake, since it is the distal end which is usually pressed against the core. Where the flake is allowed to roll sideways however, lateral retouch or notches may occur, sometimes near the proximal end. Spontaneous retouch is usually *abrupt*, forming a near right-angle with the flake's ventral surface, although in many cases only the very delicate edge of the flake is affected and the retouch would have to be described as 'fine'. In summary then spontaneous retouch is typically direct, distal and abrupt.

Despite these regularities, the amount of spontaneous retouch on a given flake may vary greatly, from one tiny flake scar to several dozen. Thus some of the examples shown in figure 2 would be overlooked or identified as minor utilisation by many archaeologists, while other pieces are so complex in form that no one would doubt that they were intentionally made tools. Examples of some of these 'tools' resulting from spontaneous retouch include truncations, scrapers, beaked tools or *becks*, notches, denticulates, etc. In the summer of 1973 I even observed a burin made accidentally by Professor Bordes while using punch technique to make blades and holding the core between his feet. However, I hasten to add that this is the only burin I know to have been made in this way, and I feel sure that most prehistoric burins were indeed intentionally made!

Archaeological Significance

In assessing the archaeological significance of spontaneous retouch, I think one has to look carefully at the pieces shown in figure 2 and decide whether they resemble archaeological artifacts thought to be products of either deliberate retouch or utilisation. There is no question in my mind about the similarity, but one must go further and inquire whether it is likely that the techniques responsible for these 'tools' could have been used by prehistoric man. I have argued elsewhere (Newcomer, *in press*) that it is difficult to relate specific experimentally discovered techniques to prehistoric evidence, and that a range of techniques will often produce similar artifacts. However, the flaking techniques which limit the free fall of a flake and can produce spontaneous retouch seem both natural to use and universal, both among independent modern experimenters (see Bordes and Crabtree 1969 fig. 5a, Crabtree and Gould 1970 fig. 4, Knowles 1944 fig. 1, Newcomer *in press* fig. 1, among many) and recent stone using peoples (see Roth 1904 figs. 23 and 24, McCarthy 1967 fig. 1, Bordaz 1969 p. 75 etc.)

Assuming for the moment that these kinds of techniques were used in prehistory, how often would spontaneous retouch occur? The results of several experimenters would be necessary to answer this question satisfactorily, but my own work on making blades by direct percussion and catching the blades in the fingers suggests that minor spontaneous retouch is very frequent with this technique, while the more elaborate 'tools' are produced spontaneously only about once per 100 blade removals.

In conclusion, I would note that the archaeologist can guard against being fooled by spontaneous retouch in two ways: firstly by experimenting, trying to replicate the artifacts which he is studying and noting the forms and frequency of spontaneous retouch. Secondly, he can be helped by the context of artifacts which he suspects of being unintentional. Thus a single flake with direct, distal and abrupt retouch found in a heap of waste flakes is more suspect than a similar piece found among obviously deliberately retouched tools or utilised pieces.

DEMONSTRATION

A short flint-knapping demonstration to illustrate the production of spontaneous retouch, supplemented by several small exhibits of prehistoric and experimental artifacts.

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Demonstratie van het bewerken van vuursteen

In een grote ruimte naast de aula scharen de deelnemers zich rond een aantal brokken vuursteen en kijken vol belangstelling naar drie 'prehistorische ambachtslieden'; Dr. M. Newcomer, F. Horbach en J. Janssens. Beide laatstgenoemden zijn leden van de Werkgroep Prehistorische Vuursteenmijnbouw. De demonstranten gaan ijverig aan het werk en na ruim 15 minuten wordt het eerste resultaat getoond: een fraaie vuist bijl. Applaus! Het duurt niet lang of meerdere enthousiaste deelnemers treden in het 'slagveld' om te pogen tot resultaten te komen. Een zeer geslaagde demonstratie.

