MATTERS ARISING

Allez Neanderthal

APSIMON[1] concluded that Lévêque and Vandermeersch's discovery of a Neanderthal specimen at Saint-Césaire associated with Châtelperronian denies a Neanderthal ancestry for modern Europeans. In reality, taking account of other evidence a completely different conclusion may be drawn from this critical discovery.

The following points are relevant. (1) Robust but modern (although not European) populations are associated with Mousterian (Middle Palaeolithic) industries in the Levant[2,3]. (2) Neanderthal (or Neanderthal-like) remains are associated with Aurignacian (Upper Palaeolithic) in Croatia[4–6]. (3) Evolutionary trends in the European Neanderthals themselves (*contra*[7]) are clearly in the direction of modern Europeans[6,8]. (4) The earliest modern Europeans (earlier than Cro-Magnon) are distinctly Neanderthal-like in their morphology[5,8–10].

The evolutionary hypothesis is supported by the backward extension of trends in the modern Europeans (the samples become distinctly more Neanderthal-like earlier in time) and the forward extension of trends in the Neanderthals of Europe (they become distinctly more like modern Europeans later in time). In this regard, Saint-Césaire specifically resembles the late (more modern) Neanderthals from Vindija cave[4–6] and thus provides important support for the observed trends within the Neanderthal sample.

The *average* changes between late Neanderthals and early modern Europeans should not be confused with the comparison of La Chapelle and the Cro-Magnon male. Such changes could happen fairly quickly, responding to changes in skeletal stress during growth[11] and changes in selection[5]. If migration played an important role, the origin of the migrating populations with their distinctive European features remains unknown. If the Levant is considered to be the place of origin, in spite of the lack of morphological relations, the resulting juxtapositions of hominids and industries makes nonsense of virtually every previous hypothesis of archaeological or morphological sequence.

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1. ApSimon, A. M. *Nature* **287**, 271–272 (1980).
2. McCown, T. D. & Keith, A. *The Stone Age of Mount Carmel* 2 (Clarendon, Oxford, 1939).
3. Vandermeersch, B. in *The Origin of Homo sapiens* 49 (ed. Bordes, F.) (UNESCO, Paris, 1972).
4. Malez, M. *et al. Curr. Anthrop.* **21**, 365 (1980).
5. Wolpoff, M. H. *Palaeoanthropology* (Knopf, New York, 1980).
6. Wolpoff, M. H. *et al. Am. J. phys. Anthrop.* (in the press).
7. Stringer, C. B. *J. archaeol. Sci.* **1**, 317 (1974).
8. Frayer, D. W. *Evolution of the Dentition in Upper Palaeolithic and Mesolithic Europe* (University of Kansas, Lawrence, 1978).
9. Szombathy, J. *Die Eiszeit* **2**(1), 73 (1925).
10. Schwalbe, G. *Studien zur Vorgeschichte des Menschen* (Schweizerbartsche, Stuttgart, 1906).
11. Brothwell, D. R. *J. archaeol. Sci.* **2**, 161 (1975).

APSIMON REPLIES TO WOLPOFF—We are in agreement about point (1). Concerning point (2): The relevant hominid finds (from Vindija, layer G_1) are described as 'non-diagnostic morphologically' and could be Neanderthal or early *sapiens*, the lithic artefacts from the layer are not diagnostic, but the single split-based bone point is consistent with 'Aurignacian'. There is, however, no intrinsic improbability about Neanderthal—Aurignacian association. I agree with points (3) and (4). Analyses which bring together in one sample all classic European Neanderthal crania and in another sample all European Upper Palaeolithic crania (including some specimens now considered to be Mesolithic) obscure this. The recently described Neanderthal frontal bone from Hahnöfersand near Hamburg[1], dated to ~36,000 BP, which has been considered as indicating hybridization with *sapiens*, might equally well be cited as a further example of this evolutionary trend.

In general, the hypotheses presented by Wolpoff provide an explanation of the Neanderthal–*sapiens* transition in Europe which can be far more easily harmonized with current interpretation of the archaeological evidence than can the hypotheses presented by Stringer *et al.* However, if the archaeologist must pick his way with care through the differing interpretations offered by anthropologists, the latter would be well advised to remember that 'Upper' and 'Middle Palaeolithic', 'Mousterian', 'Aurignacian' and such are artificial constructions, that attempts to attribute artefactual assemblages to one or other category may create impressions of discontinuity where none exists, and that the most useful information to be obtained from artefacts relates to patterns of activity.

1. Bräuer, G. *Archäöl. Korresp.* **10**, 1 (1980).

WE are in broad agreement with ApSimon[1] regarding the significance of the Saint-Césaire discovery from France[2], although it must be emphasized that our comments are preliminary in the absence of detailed descriptions of the archaeology and fossil human material. An effect of this discovery will be to focus the 'Neanderthal problem' in Europe to a consideration of events in the period between ~35,000 and 30,000 yr b.p.

The discovery of early Upper Palaeolithic tools in association with a Neanderthal skeleton at Saint-Césaire has apparently confirmed the prediction that the technological transition to the Châtelperronian was accomplished by indigenous populations[3]. It is now plausible that the same kind of association between Neanderthal hominids and industries termed 'early Upper Palaeolithic' applies for other areas in Europe (for example, for the 'leaf-point' industries of northern and central Europe and for the Uluzzian of Italy)[4]. Furthermore, the cultural continuity of these industries (for example, the Châtelperronian) with later Upper Palaeolithic industries (the later Perigordian [Gravettian] for example) has by no means been established because consideration of the subsequent development of these early Upper Palaeolithic industries often reveals the intervening presence of Aurignacian assemblages which are typologically not locally derived. In France there are occurrences of both Châtelperronian and Aurignacian, but during the subsequent Arcy interstadial (~32,000–31,000 yr b.p.) the Châtelperronian disappears[5,6].

ApSimon's claim that there is no reliable evidence for the existence of the Aurignacian complex in central Europe earlier than it occurs in France needs qualification. Although the Tŭrnovo province of Bulgaria is not geographically central in Europe, recent work there at the Bacho Kiro cave is highly germane to a discussion concerning the origin of the Aurignacian in Europe. For this site there is now an internally consistent series of radiocarbon dates which supports the existence of a well defined Aurignacian industry at about 43,000 yr b.p. (Ly-1102, GrN-7569, 7545, 7570) which has no local antecedents. It is claimed that the same stratum is associated with 'primitive' but anatomically modern human remains[7,8]. If we accept these dates from Bacho Kiro it raises the possibility that the Aurignacian there is ancestral to that of central and western Europe. However a postulated east–west diffusion of Aurignacian populations and/or techniques cannot yet be demonstrated with the present precision of the radiocarbon method.

In south-west Asia the critical time period available for an evolutionary transformation or replacement of Neanderthal populations is probably before 40,000 yr b.p., perhaps well before[9]. Thus the Saint-Césaire find apparently demonstrates for the first time that

0028–0836/81/090823—02$01.00