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Human Palaeontology and Prehistory

# First hominin settlements out of Africa. Tempo and dispersal mode: Review and perspectives

*Les premières occupations d'homininés hors du continent Africain.  
Tempo et modalités de dispersion : bilan et perspectives*

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### ABSTRACT

Current discussions generally focus on “when” the first ‘Out of Africa’ hominin settlements occurred. We propose a short review of some of the assumptions underlying the ‘Out of Africa’ dispersal scenarios and their reappraisal in the light of the palaeoanthropological and archaeological records. Globally, these scenarios are still hypotheses; however, some of them can be outlined in more concrete terms, based on the discoveries in the Levant, the Caucasus and Eastern Asia. Dispersals from Africa were multidirectional, with many successive discontinuous occupations and episodes of turning back. Hominins displayed strong adaptive capacities to new environmental conditions, linked to the notion of versatility, which is already present in Early Pleistocene hominins. Factors often proposed to explain the first ‘Out of Africa’ settlements, such as climatic change, new cultural behavior, and increase in body size and brain size do not seem to be relevant according to the fossil and archaeological records.

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### RÉSUMÉ

Les discussions relatives aux premières occupations d'homininés en dehors du continent Africain se concentrent généralement sur le « quand ». Nous proposons un aperçu des hypothèses sous-jacentes aux scénarios de cette première dispersion, à la lumière des données paléanthropologiques et archéologiques. Bien que ces scénarios restent hypothétiques, certains d'entre eux peuvent être décrits en termes plus concrets, sur la base des découvertes du Levant, du Caucase et de l'Asie orientale. La dispersion a été multidirectionnelle, avec plusieurs occupations discontinues successives et des épisodes en sens opposé. Les homininés présentent de fortes capacités d'adaptation à de nouvelles conditions environnementales, liées à la notion de versatilité, que possédaient déjà les homininés du Pléistocène inférieur ancien. Les facteurs souvent liés aux premiers peuplements hors d'Afrique, tels que les changements climatiques, de comportement technique, une augmentation de la taille corporelle et de la taille cérébrale, ne semblent pas être validés par le registre fossile.

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## 1. Introduction

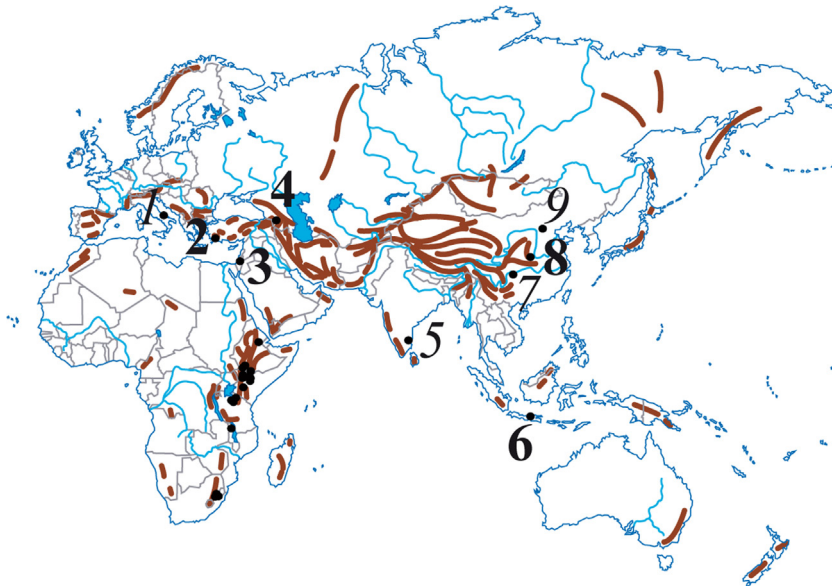
In 1871, Charles Darwin proposed in *The Descent of Man* that the cradle of humankind should be sought in Africa. After more than a century of palaeoanthropological research in Eurasia and Africa, this conviction is still relevant and discoveries made since the middle of the 1990s have amply confirmed this hypothesis. The palaeoanthropological remains found in Ethiopia dated to 2.8 Ma (Villmoare et al., 2015) and the 2.3–2.4 Ma discoveries in Ethiopia (Howell et al., 1987; Kimbel et al., 1996), Malawi (Schrenk et al., 1993) and Kenya (Hill et al., 1992; Prat et al., 2005), for example, show that the *Homo* genus is about 2.8 million years old (Ma), although it is not useful to recognize the genus *Homo* before 1.9 Ma. Indeed, the specimens before 2 Ma are scarce and highly fragmentary (two mandibles, one maxilla, one frontal bone and few teeth). Furthermore, morphological comparisons have to be undertaken in more detailed to define the genus *Homo* (e.g., Schwartz and Tattersall, 2015; Wood and Collard, 1999) and to define the number of species within the early *Homo* hypodigm (e.g., Hublin, 2015; Prat, 2004, 2005; Spoor et al., 2015). The evolutionary history of hominins now resembles a bushy tree, where it is difficult to understand the processes of speciation and expansion.

As noted by Lewin and Foley (2004), in order to reconstruct human evolution, we must first ascertain and define its pattern (i.e., who, when and where), and then explain this pattern (i.e., how/why). Most of the discussions have focused on “when” the first dispersal occurred, some on their “frequency”, but very few on the “success” of this dispersal (Dennell, 2003).

The first point (who, when and where) seems to be less and less questioned. As regards the timing of expansion, the long or short chronology question has been widely debated in recent years (Dennell and Roebroeks, 1996, 2005). Until the beginning of the 1990s, the earliest expansion of hominins from Africa to other parts of the world was presumed to have occurred around one million years ago. However, several major discoveries have since contested this point of view (see below and Fig. 1).

A preamble to the corpus of data is necessary. Archaeological and palaeoanthropological occurrences are always fragmentary, and therefore only depict a partial picture of hominin settlements (see Figure 2-2, Prat, 2008), and as noted by Dennell (2010) our knowledge of hominin dispersal is plagued by uncertainty and speculation. Fossil discoveries depend on different taphonomic filters and biases (circumstances and environment of death, damage and transport by animal agents, fluvial damage and transport, damage during exposure and finally the context of the discovery itself and potential collector bias (White, 1988)). Several datasets provide information relating to hominin settlements: first, the hominin remains, which are often scarce; and second, indirect evidence such as cultural data or intentional cut marks. The link between the culture and tool maker is generally unequivocal if only one hominin species is present, but much less so for time periods during which several hominin species occur.

Sites (Fig. 1) with early *Homo* specimens in Africa between 2.8 and 1.5 Ma are located in Ethiopia, Kenya, Tanzania, Malawi, and the Republic of South Africa, with fewer than 50 specimens (with a majority of dental remains) before 1.8 Ma and more than 200 remains between 1.8 and 1.5 Ma. Concerning the Early Pleistocene sites



**Fig. 1.** Location of the sites between 2.8 and 1.5 Ma. Main Eurasian sites with *in situ* material (in bold: hominin remains; in italic, lithic assemblage): [1] Pirro Nord, [2] Kocabaş, [3] ‘Ubeydiya, [4] Dmanisi, [5] Attirampakkam, [6] Bapang (Sangiran), [7] Longuppo, [8] Gongwangling (Lantian), [9] Majuangou. **Fig. 1.** Localisation des sites entre 2,8 et 1,5 Ma. Principaux sites en Eurasie avec du matériel *in situ* (en gras, restes d’homininés; en italique, assemblage lithique): [1] Pirro nord, [2] Kocabaş, [3] ‘Ubeydiya, [4] Dmanisi, [5] Attirampakkam, [6] Bapang (Sangiran), [7] Longuppo, [8] Gongwangling (Lantian), [9] Majuangou.

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