Hominin mobility and the evolution of general cognition

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The archaeological record bears witness to improvements over time in the capacity of hominins to survive an increased diversity of physical and social environments through a range of innovative technologies. Cognitive evolution broadly coincides with the successful mobility of *Homo erectus* over distant and diverse lands. Such an obviously adaptive behavior is generally considered to be the result of the emergence of "general intelligence" by natural selection. The factors at play in this evolutionary phenomenon are the object of on-going debates (e.g., Burkart et al. forthcoming, for a review of the relevant literature). The purpose of this paper is to propose a hypothesis that links hominin mobility with the natural selection of cumulative cognitive competencies ultimately leading to "general intelligence", that is, the ability to solve novel problems. Starting with a review of the circumstances which may have prompted the first migrations, the paper argues that mobility entails exposures to an open-ended array of environmental challenges (geographic, climatic, floral, and faunal, as well as consequential changes in the diet, e.g., Previc 2011, social structures, e.g., Migliano et al. 2017). All these factors necessarily select for adaptability with respect to unpredictable challenges rather than the relative stability of the affordances of a niche. In conclusion, a comparison is tentatively made with a similar phenomenon (*mutatis mutandis*) in the invertebrates (cephalopods) among which some species of octopuses have evolved a well-established range of general cognitive competencies that includes a relatively high level of adaptability and innovativeness. This cognitive features correlate with a mode of hunting and foraging which select for engagement with novel objects and territories (Mather and Scheel 2014; Darmaillacq et al.2014; Godfrey-Smith 2016).

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