



PART 3

Read the text below and answer questions 27–40.

THE HOMININ DISPERSAL FROM AFRICA: A COMPLEX PUZZLE

A

For much of the twentieth century, “Out of Africa” was told like a tidy plot: one decisive departure followed by a steady expansion into the rest of the world. That narrative has steadily fractured. Archaeology, palaeoenvironmental science, and population genetics now point to dispersal as a biogeographical problem unfolding over hundreds of thousands of years, not as a single migration episode. Routes opened and closed, populations advanced and retreated, and some excursions may have ended without leaving living descendants. Rather than a clean replacement, the emerging view is of episodic movement shaped by climate, geography, and interaction among hominin groups. In this framework, the key question is not simply “when did humans leave Africa?” but “how often, under what conditions, and with what demographic consequences did different Homo populations move across a fluctuating landscape?”

B

Environmental drivers provide the most widely accepted mechanism for this episodic pattern. North Africa and Arabia did not remain uniformly desert-like during the Pleistocene. Periodic strengthening of monsoons could produce a “Green Arabia” phase: expanded grasslands, transient lakes, and river networks that transformed arid barriers into passable corridors. Such shifts created windows of opportunity during which small groups could move between refugia, exploit new resources, and maintain water access along inland routes. Conversely, aridification could rapidly sever these pathways, compressing populations into ecological pockets and limiting contact. This “pulsed” model helps explain why evidence appears in discontinuous bursts: dispersal is expected to be clustered around favourable climatic intervals rather than distributed evenly through time.

C

A second hypothesis proposes that coastlines acted as migration highways, particularly during periods when marine resources could support sustained travel. Coastal movement is plausible because shorelines can offer predictable food and relatively flat terrain, and because water availability is less variable near the sea. Yet the strongest limitation is geological: sea levels have risen and fallen dramatically since the Pleistocene, and large tracts of ancient coastline are now submerged. As a result, the archaeological record is biased toward inland areas that remained above water. This creates a recurring



interpretive trap—absence of evidence. The lack of coastal sites may mean the route was less important than imagined, or it may simply reflect that the most relevant landscapes are underwater and difficult to sample. The coastal hypothesis therefore remains attractive but underdetermined by present evidence.

D

Even when sites are found, assigning them to a particular hominin group is often a methodological minefield. Fossils outside Africa are rare, fragmentary, and unevenly distributed, while stone tools—our most common evidence—do not come stamped with a species label. Lithic assemblages can show innovation or continuity, but tool similarity across regions does not necessarily indicate shared ancestry or a single migrating population. Different groups facing similar tasks can converge on similar designs, and local raw materials constrain what can be made. A sharp-edged flake, for instance, may reflect a shared tradition—or simply the physics of fracture and the availability of suitable stone. This convergence means that archaeology cannot safely infer dispersal routes from artefacts alone without supporting evidence from dating, fossils, and environmental context.

E

Genetics has transformed the debate, but it has not simplified it. Ancient DNA and comparative genomics show that modern humans carry segments inherited from Neanderthals and Denisovans, indicating admixture and introgression after dispersal into Eurasia. This alone undermines any picture of a single, isolated expansion. Yet genetic timelines are model-dependent: they rely on assumptions about mutation rates, population structure, and how gene flow occurred over time. Moreover, ancient DNA is available from only a limited set of regions and periods, partly because preservation is poor in many climates. Crucially, missing DNA evidence is not evidence of missing migrations; it may reflect sampling gaps or the fact that some dispersals left little genetic trace in present-day populations.

F

Recent models therefore emphasise dispersal as a network rather than a wave. Small pioneer groups may have moved along river systems, oases, or patchy resource corridors, interacting with neighbouring communities through exchange, intermarriage, and occasional conflict. Such connectivity produces mosaics: a region may show mixed cultural signatures and genetic contributions rather than a clean sequence of replacement. Scale also matters. Some episodes may have been exploratory pulses—brief occupations that left thin archaeological layers—while others were larger demographic expansions capable of reshaping regional gene pools. The picture is further blurred by



plausible back-migrations into Africa, which could reintroduce genes and technologies and complicate any simple directional story of “leaving” and never returning.

G

Because each evidence stream is incomplete, dispersal research faces the problem of the archaeological palimpsest: traces from different times and populations can be overlaid, erased, or selectively preserved. A single site may represent repeated occupations, each leaving partial signatures that are difficult to separate. Conversely, a “first arrival” date might reflect nothing more than the earliest surviving trace, not the true beginning of presence. The most robust conclusions therefore come from triangulation—linking independent lines of evidence such as securely dated fossils, diagnostic lithic patterns, palaeoclimate reconstructions, and genetic signals—while treating any one dataset as provisional. The broad direction is clear: dispersal was plural, episodic, and interactive. The remaining challenge is to map that complexity without forcing the data back into a single neat narrative.

Questions 27–31

Select the correct answer.

27 What does the passage suggest about early “Out of Africa” movements?

- A** They occurred only once and produced a single descendant line.
- B** They were continuous and unaffected by climate.
- C** They likely happened in repeated episodes shaped by changing conditions.
- D** They followed a single coastal route that is well documented.

28 What does the passage indicate about the routes used in early dispersals?

- A** They remained permanently accessible once populations began using them.
- B** They could become available or inaccessible as conditions changed.
- C** They were restricted entirely to coastal regions.
- D** They were unaffected by environmental change.

29 What difficulty is mentioned in attributing early sites to a species?

- A** Skeletal remains are rare and stone tools are hard to assign.
- B** Stone tools are never found outside Africa.
- C** DNA is available for every region and time period.
- D** Climate models cannot be used in archaeology.

30 What does the passage say about genetic dates?



- A** They are universally accepted and independent of assumptions.
- B** They prove that no back-migration occurred into Africa.
- C** They show that interbreeding never happened after dispersal.
- D** They depend on assumptions and are limited by sample availability.

31 What do recent network models suggest about hominin dispersal?

- A** Populations always moved in one direction and never returned to Africa.
- B** Pioneer groups avoided contact with neighbouring communities.
- C** Small groups moved through resource corridors, interacted with other communities, and sometimes migrated back into Africa.
- D** Every movement was a large expansion that permanently transformed regional gene pools.

Questions 32–36

Choose **TRUE** if the statement agrees with the information given in the text, choose **FALSE** if the statement contradicts the information, or choose **NOT GIVEN** if there is no information on this.

32 The passage suggests that migration corridors in North Africa and Arabia could sometimes be closed by arid conditions.

33 The passage states that coastal migration routes are thoroughly documented by archaeological sites.

34 The passage suggests that modern humans contain inherited DNA from Neanderthals and Denisovans.

35 The passage claims that the absence of ancient DNA evidence proves no migration occurred.

36 The passage provides exact numbers for the size of dispersing groups.

Questions 37–40

Complete the summary below. Choose **NO MORE THAN THREE WORDS** from the text for each answer.

Evidence for episodic dispersal

Environmental reconstructions suggest that stronger monsoons could **37** a “Green Arabia” phase. These favourable conditions created **38** during which small groups could move between refugia. Genetic evidence also shows that modern humans carry inherited segments from **39** and Denisovans. The writer concludes



that the strongest inferences depend on **40** across several kinds of evidence, including fossils, tools, genetics, and climate data.

Answer Key

27. C

28. B

29. A

30. D

31. C

32. TRUE

33. FALSE

34. TRUE

35. FALSE

36. NOT GIVEN

37. produce

38. windows of opportunity

39. Neanderthals

40. triangulation