THE RISE OF MODERN HUMANS

Evidence from fossils, ancient artifacts and genetic analyses combine to tell a compelling story

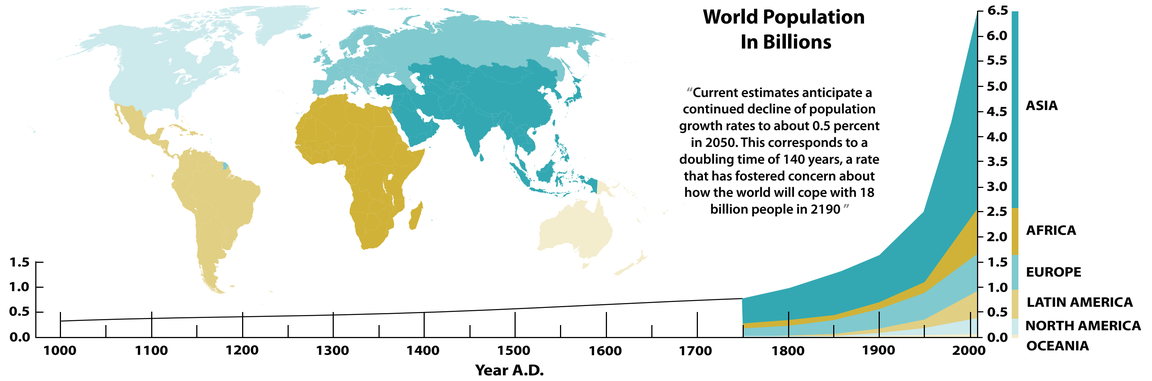
Two routes jump out as prime candidates for the human exodus out of Africa. A northern route would have taken our ancestors from their base in eastern sub-Saharan Africa across the Sahara desert, then through Sinai and into the Levant. An alternative southern route may have charted a path from Djibouti or Eritrea in the Horn of Africa across the Bab el-Mandeb strait and into Yemen and around the Arabian Peninsula. The plausibility of these two routes as gateways out of Africa has been studied as part of the UK's Natural Environment Research Council's programme "Environmental Factors in the Chronology of Human Evolution & Dispersal" (EFCHED).

During the last ice age, from about 80000 to 11000 years ago, sea levels dropped as ice sheets grew, exposing large swathes of land now submerged under water and connecting regions now separated by the sea. By reconstructing ancient shorelines, the EFCHED team found that the Bab el-Mandeb strait, now around 30 kilometers wide and one of the world's busiest shipping lanes, was then a narrow, shallow channel.

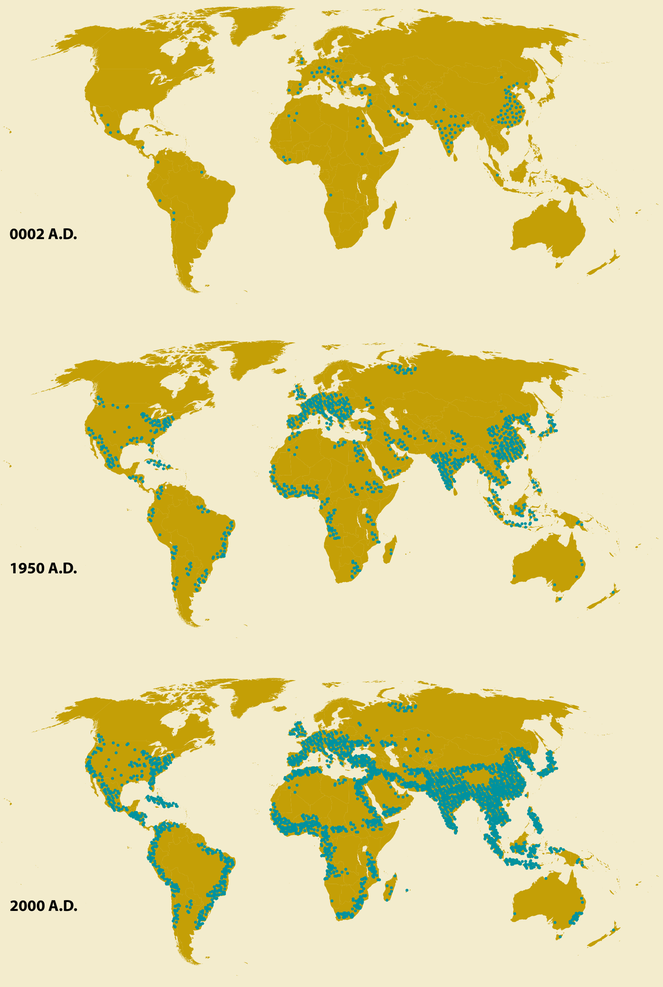
Early humans may have taken this southern route out of Africa. The northern route appears easier, especially given the team's finding that the Suez basin was dry during the last ice age. But crossing the Sahara desert is no small matter. EFCHED scientist Simon Armitage of the Royal Holloway University of London has found some clues as to how this might have been possible. During the past 150000 years, North Africa has experienced abrupt switches between dry, arid conditions and a humid climate. During the longer wetter periods huge lakes existed in both Chad and Libya, which would have provided a "humid corridor" across the Sahara.

Armitage has discovered that these lakes were present around 10000 years ago, when there is abundant evidence for human occupation of the Sahara, as well as around 115000 years ago, when our ancestors first made forays into Israel. It is unknown whether another humid corridor appeared between about 65000 and 50000 years ago, the most likely time frame for the human exodus. Moreover, accumulating evidence is pointing to the southern route as the most likely jumping-off point.

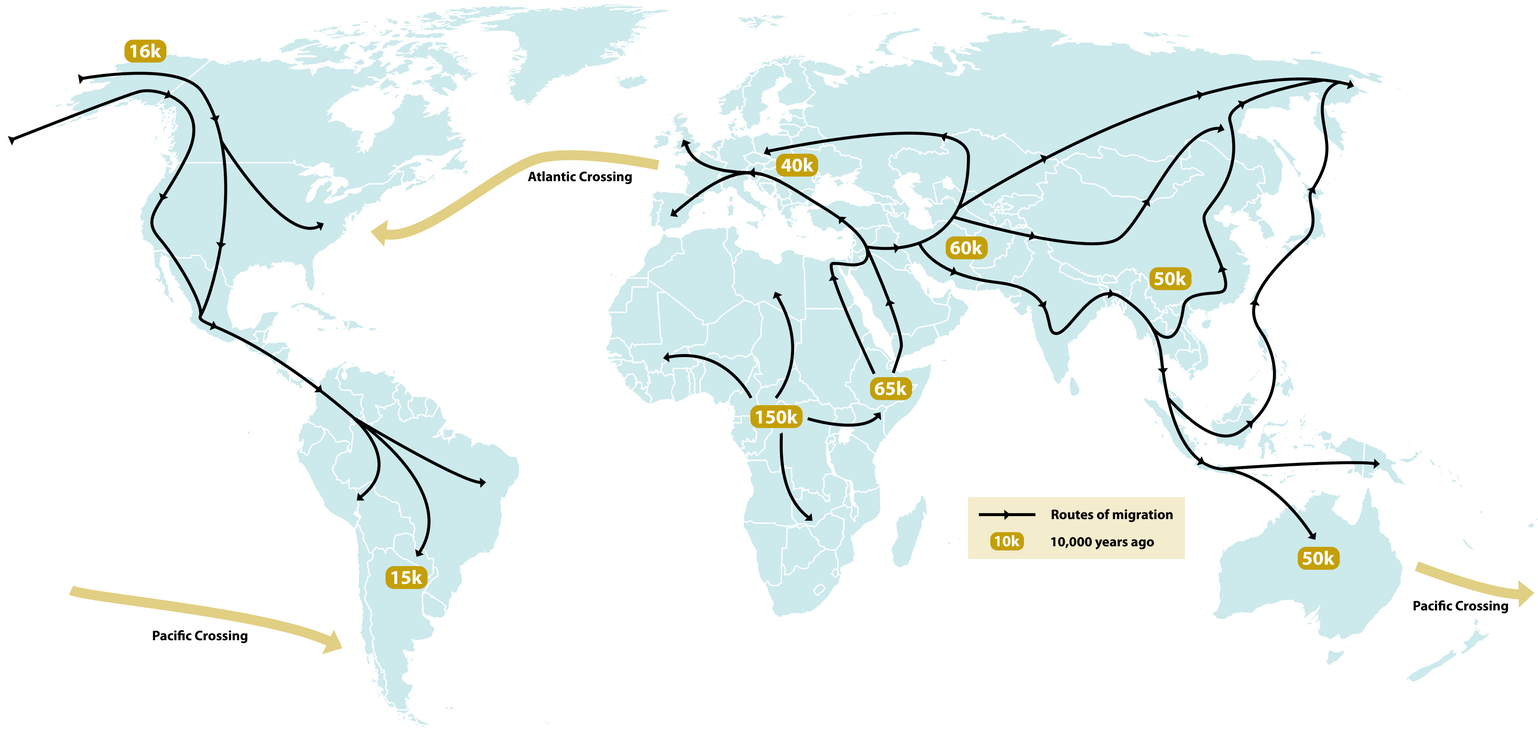
Excerpt: http://triplespeak.org/



Population Density



Migration Routes



History of World Population Growth

The world's population grew very slowly until about 1750. There was a long period of stationary growth (no growth) until 1000 B.C.E., when the world's population was approximately 300 million; this was followed by a period of slow growth from 1000 B.C.E. to approximately 1750, at which time global population was an estimated 800 million. Until this time, the world's population was kept in check by high death rates, which were due to the combined effects of plagues, famines, unsanitary living conditions, and general poverty. After 1750, the world's population grew substantially; by 1950 it had tripled to around 2.5 billion. In this 200-year period, the doubling time was 122 years. Growth from 1950 to 1985 was even more dramatic; by 1985, the human population was 5 billion. World population had doubled in thirty-five years. By 2000 global population was 6 billion and is projected to be 9 billion in 2050.

Population growth did not become exponential until around 1750. Before that, high mortality counterbalanced the high fertility needed by agrarian parents. Death rates were high and life expectancy was low; life expectancy at birth was in the range of twenty to forty years (most likely around thirty years) until the middle of the eighteenth century. This high mortality was a function of several factors, including poor nutrition, which led directly to deaths through starvation and indirectly through increasing susceptibility to disease; epidemics; and, quite possibly, infanticide and geronticide, especially during times of food shortage.

Starting in the middle of the eighteenth century, the mortality rate began to decline in the West, the first place in the world where the natural balance between births and deaths was altered by humans. This decline in deaths occurred not because of major medical breakthroughs (e.g., penicillin was first used only in the 1940s) but rather because of improvements in food availability, housing, water cleanliness, personal hygiene, and public sanitation. Later, in the twentieth century, medical advances, particularly vaccinations against infectious diseases, accelerated mortality decline.

As a result, the world witnessed unprecedented rapid population growth between 1950 and 1985, owing, in large part, to third world increases.

Excerpt: Gee, Ellen M. "Population Growth." Encyclopedia of Death and Dying. 2006. Advameg Inc. <http://www.deathreference.com/>