

g20 Reversing Atlantic ocean seafloor spreading < pre-Jurassic supercontinent >

‘Six parts hast thou dried up,’ declared the prophet Esdras (II Esd. 6:42). Among the orthodox it had become axiomatic that the surface of our planet was six-sevenths dry land and only one-seventh water. —Daniel J. Boorstin, *The Discoverers*.¹

The zebra-stripe pattern in maps of high and low magnetic anomalies parallel oceanic ridges is a record in the oceanic crust of geomagnetic reversals. In the seafloor spreading model, the stripes delineate strips of oceanic crust along which seafloor-age is constant. The strip containing the ridge is the youngest. To either side of this, strips date progressively older with distance from the ridge. The age of the oceanic crust at any place must also be the age of oldest seafloor sediments there. Corroboration comes from deepsea drill-core samples of these that have been dated.

Maps have been drawn to show the strips of oceanic crust that accord in age to the periods and epochs of the geologic column.

The opening of the Atlantic (excluding the Caribbean sea) occurred without seafloor anywhere in it being lost to the mantle by subduction. Before the Atlantic ocean opened and separated them, Old and New Worlds were one. That paleogeography can be reconstructed by reversing the seafloor spreading (**Figure g20.1**).² □

Figure g 20.1 Reversing seafloor spreading ³

The continents that the Atlantic and the Caribbean separate today did not exist before the Late Jurassic, when did a single supercontinent. **Key.** Seafloor of Cretaceous age (pale gray) and of Jurassic age (black). Mid-ocean ridge (white stripe with black outline). Transform faults (short black lines).

75 million years ago

Then and before, no Norwegian sea (northernmost Atlantic) or Labrador sea existed.

Before the end Cretaceous, Europe, Greenland and North America were one.

144 million years ago

Then and before, no South Atlantic existed.

Before the beginning Cretaceous, Africa and South America were one.

180 million years ago

Then and before, no Atlantic existed.

Before the middle Jurassic, a single supercontinent, called *Pangea*, existed.

