CONTINENTAL DRIFT

As long ago as 1596 the Flemish map-maker Abraham Ortelius noted how South America seemed to fit into Africa like pieces of a puzzle, and suggested that the Americas had been "torn away[1] from Europe and Africa... by earthquakes and floods". Others observed it too, including the famous Elizabethan scholar Francis Bacon. But not until the mid-19th century a French geographer, Antonio Snider-Pellegrini, pointed out[2] a further coincidence: fossils of the same plants appeared on both sides of the Atlantic; and so did many geological formations such as coal deposits. Snider-Pellegrini concluded that America, Africa and Europe had once been joined together in a vast continent.

GLOSSARY

1 separated
2 underlined
3 rows of mountains
4 data
5 liquid
6 widening
7 large number
8 boundary
9 move slowly

In 1908 the American geologist Frank Taylor pointed out that collisions between land masses could explain the origin of mountain ranges[3] such as the Himalayas and the Alps. In 1912 the German meteorologist Alfred Wegener explained his theory of continental drift. He had noted many similarities in the fossil and geological record[4] of America, Asia and Australia and this evidence suggested simultaneous Ice Ages in all these regions around 290 million years ago.

Wegener decided the continents had once formed part of a supercontinent he named Pangaea (from the Greek for 'All Land') that split up around 200 million years ago.

In 1927 the British geologist Arthur Holmes put forward the theory of continental drift. By then scientists had discovered that uranium and other elements trapped in the Earth were responsible for keeping its interior molten,[5] and that this molten rock below the surface was able to move continents.

During the 1950s, studies on the Atlantic Ocean revealed features suggesting that sea-floor spreading[6] had taken place. By the late 1960s, the evidence for continental drift became unquestionable. Geologists began to speak of 'plate tectonic', the processes that take place where two plates meet. A titanic collision between India and the Asian plate around 45 million years ago explained the origin of the Himalayas, while the plethora[7] of volcanoes around the Pacific Rim, the so-called 'Ring of Fire', bears witness to the destructive forces at work at the edge[8] of the Pacific plate. High-risk earthquake zones such as the San Andreas fault of California proved to be regions where two plates slide[9] against each other.

The Earth's surface is now known to comprise around nine major plates and fourteen smaller ones, ranging from 50 km thick beneath the oceans to up to 250 km thick below continents.

Satellite lasers and **GPS** also prove that the plates are on the move, at up to 15 cm a year; North America and Europe are at present separating at a speed of around 2 cm a year.

(Adapted from *Focus*)

By **GPS** (Global Positioning System) we mean a network of 24 satellites in geostationary orbit that can be used to define your position to an accuracy of around 10 metres. In-car devices already use GPS in conjunction with mapping software. They help you plan journeys and often route guidance. Future mobile phones will combine GPS and network information so that you can easily find your way around an unfamiliar area. GPS is also largely used in the field of topography. Thanks to this new system you can get control points without triangulating.

READING COMPREHENSION

ACTIVITIES

● *What are the milestones in the discovery of the continental drift? Fill in the chart below.*

WHEN?	WHO?	WHAT?
1596	Abraham Ortelius	

VOCABULARY

● *Using your own words explain the meaning of the following terms and expressions.*

1. fossil: .....
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2. fault: .....
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3. continental drift: .....
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4. sea-floor spreading: .....
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5. geologist: .....
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6. satellite: .....
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