

## *Shape of the Earth and Magellan*

With his discovery of the New World, Christopher Columbus started a new era in the history of mankind: the Modern Age begins in year 1492.

Nevertheless, a more important person was the Portuguese captain, **Ferdinand Magellan** (1480-1521). One of his close friends who was on a journey to Moluccas wrote to him, describing the journey and the island of Ternat. Those letters had great influence on Magellan's decision to travel around the world. Best maps available convinced him that the path south of Southern America to Moluccas is shorter than the one around Africa and across the Indian Ocean. He asked the king of Portugal for support, but he didn't get it. However, he managed to convince the king of Spain to support his journey. Preparations for the expedition took over a year.

Magellan's journey began on 20th September, 1519, from southern Spain. His crew consisted of 241 men and a fleet of five ships: Concepción, San Antonio, Santiago, Trinidad and Victoria. The journey wasn't easy at all, for there were discontents, even a few mutinies, among crew members, mostly Portuguese and Spaniards. Magellan sailed across the Atlantic Ocean to Brazil. Then he followed South America's coast. He travelled south in search of a passage to the Pacific Ocean. That passage has been known as the *Magellan Passage* since then. On that occasion, Magellan entitled the Pacific Ocean, because it seemed pacific in comparison to the stormy Atlantic Ocean. He and his crew were the first Europeans who sailed across the Pacific Ocean. Some members of the crew died before they reached Guam where they partially renewed food and water supplies for a journey to the Philippines. They stayed there for a couple of weeks, but Magellan got involved in a fight between two

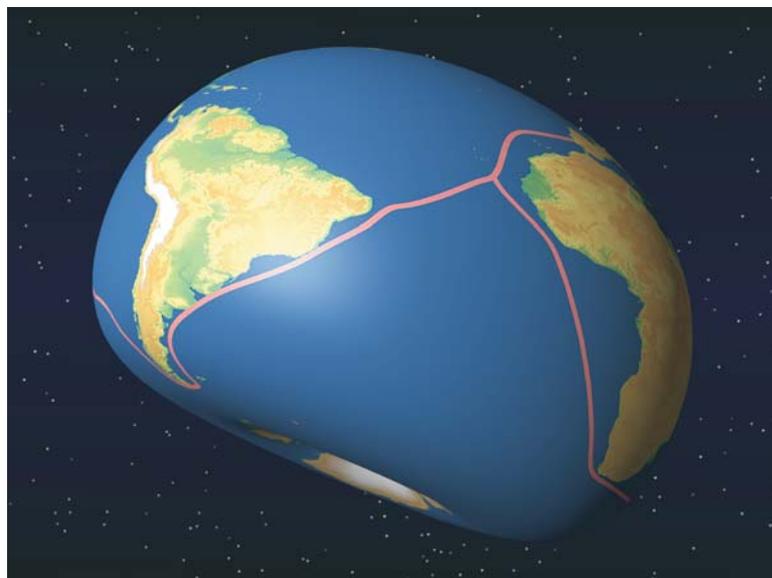
groups of Filipinos and died on the island of Mactan on 27th of October, year 1521.

The expedition continued with the journey towards Moluccas without Magellan. From there ships loaded with spices sailed toward Spain. Almost three years after beginning the journey, on 6th September, 1522, only one ship, Victoria, came back to southern Spain with its captain Juan Sebastián del Cano and 17 members of the crew who survived.

Although Magellan didn't survive to the end of the journey, the journey he began is an important step in proving that the Earth's shape is round. His competent planning and brave operating made the whole expedition possible. Many scientists consider it the greatest nautical campaign in history. Although he didn't manage to find a short way to Moluccas, his journey greatly contributed to knowledge about the Earth. Beside that, the discovery of the *Magellan Passage* led to future searching expeditions of the huge Pacific Ocean.

In many school geography books in which there are parts about Earth's shape, it is alleged that the Magellan's sailing around the world is the first irrefutable evidence that the Earth is round. That statement is not correct, because for that kind of evidence one should sail the Earth in all directions and, in doing so, cross paths of the same length. The alleged fact is illustrated by following images of Magellan's journey across the apple-like Earth or pear-like Earth. Also, take a look at matching animations on Internet pages of the Croatian Cartographic Society (<http://www.kartografija.hr>) in section Education, Basic Terms.

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## Zemljin oblik i Magellan

Svojim otkrićem Novoga svijeta Kristofor Kolumbo je započeo novu eru u povijesti čovječanstva: 1492. počinje Novi vijek.

Ipak je još značajniji bio portugalski kapetan **Ferdinand Magellan** (1480–1521). Jedan od njegovih bliskih prijatelja koji je bio na putovanju do Začinskih otoka pisao mu je o svom putovanju i otoku Ternatu. Ta pisma imala su velik utjecaj na Magellanovu odluku da oplovi svijet. Najbolje karte koje su mu bile na raspolaganju uvjerile su ga da je put južno od Južne Amerike do Začinskih otoka kraći od onoga kad bi išao oko Afrike i preko Indijskog oceana. Molio je portugalskog kralja za podršku, no nije ju dobio. Međutim, uspio je uvjeriti španjolskog vladara da podrži njegovo putovanje. Pripreme za ekspediciju potrajale su više od godinu dana.

Magellanovo putovanje započelo je 20. rujna 1519. iz južne Španjolske. Njegova posada brojala je 241 čovjeka i flotu od pet brodova: Concepción, San Antonio, Santiago, Trinidad i Victoria. Putovanje nije bilo nimalo lako jer je bilo nezadovoljstva, čak i nekoliko pobuna, među članovima posade, većinom Portugalaca i Španjolaca. Magellan je plovio preko Atlantskog oceana do Brazila. Zatim je slijedio obalu Južne Amerike. Putovao je na jug u potrazi za prolazom u Tihom ocean. Taj prolaz je od tada poznat kao Magellanov prolaz. Tom prilikom Magellan je dao ime Tihom oceanu zato što se činio tihim u usporedbi s olujnim Atlantskim oceanom. On i njegova posada bili su prvi Europljani koji su preplovili Tihom ocean. Dio posade je umro prije nego što su stigli u Guam gdje su djelomično obnovili zalihe hrane i pitke vode za put

do Filipina. Tamo su ostali nekoliko tjedana, no Magellan se umiješao u borbu dvije skupine Filipinjana i poginuo na otoku Mactanu 27. travnja 1521.

Ekspedicija je nastavila putovanje prema Začinskim otocima bez Magellana. Tamo su brodovi nakrcani začinama krenuli prema Španjolskoj. Dana 6. rujna 1522. godine, gotovo tri godine nakon početka putovanja, u južnu Španjolsku vratio se samo jedan brod, Victoria, s kapetanom Juanom Sebastiánom del Canoom i 17 preživjelih članova posade.

Premda Magellan nije preživio do završetka putovanja, putovanje koje je započeo važan je korak u potvrdu da je Zemljin oblik kugla. Njegovo vrsno planiranje i hrabro rukovođenje omogućili su cijelu ekspediciju. Mnogi učenjaci smatraju je najvećim pomorskim pohodom u povijesti. Iako nije uspio pronaći kratki put do Začinskih otoka, njegovo putovanje uvelike je doprinijelo znanju o Zemlji. Osim toga, pronalazak Magellanovog prolaza vodio je do budućih ekspedicija za istraživanje ogromnog Tihog oceana.

U mnogim udžbenicima geografije u kojima se govori o Zemljinoj obliku navodi se da je Magellanova plovidba oko svijeta prvi nepobitan dokaz da je Zemlja kugla. Ta tvrdnja nije točna jer bi za takvu vrstu dokaza trebalo oploviti Zemlju u svim smjerovima i pritom prijeći putove jednake duljine. Navedenu činjenicu zorno ilustriraju sljedeće slike Magellanova putovanja po Zemlji-jabuci ili Zemlji-krušci. Vidjeti također odgovarajuće animacije na internetskim stranicama Hrvatskoga karto-grafskog društva (<http://www.kartografija.hr>) u rubrici Obrazovanje, Osnovni pojmovi.

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