14 The World Image in Maps – From the Old Ages to Mercator

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Abstract

Studying the Australian aborigines' 'dreamtime' maps or engravings from Dutch cartographers of the 16th century, one can lose oneself in their beauty. Casually, cartography is a kind of art. Visualization techniques, precision and compliance with reality are of main interest. The centuries of great expeditions led to today's view and mapping of the world. This chapter gives an overview on the milestones in the history of cartography, from the old ages to Mercator's map collections. Each map presented is a work of art, which acts as a substitute for its era, allowing us to re-live the circumstances at that time.

14.1 Introduction

Long before people were able to write, maps have been used to visualise reality or fantasy. Their content influenced how people saw the world. From studying maps conclusions can be drawn about how visualized regions are experienced, imagined, or meant to be perceived. Often this is influenced by social and political objectives. Cartography is an essential instrument in mapping and therefore preserving cultural heritage.

Map contents are expressed by means of graphical language. Only techniques changed – from cuneiform writing to modern digital techniques. From the beginnings of cartography until now, this language remained similar: clearly perceptible graphics that represented real world objects.

The chapter features the brief and concise history of the appearance and development of topographic representations from Mercator's time (1512–1594), which was an important period for the development of cartography.

14.2 A Walk Through the History of Cartographic Representations

Activities such as surveying the Earth's surface, mapping gathered data and the production of cartographic representations (in analogous and digital form), as well as defining the coordinates of an arbitrary location anywhere on the surface of the Earth belong to current day cartography. But, historically, the determination of coordinates was the utopia of many astronomers, geographers and cartographers, and it was accompanied by much speculation, delusion and ingenious inventions. The next sections outline these historical events.

14.2.1 From the Stone Age to the Greek Antique Period

From the Stone Age there are no preserved traces, which could be related to attempts of representing an area. Later graphic representations of important elements of culture were engraved in caves, etched in wood, stone, bones, leather or horns (Leithäuser 1958).

The oldest preserved old-Babylonian map of the world from the 6th century B.C. was carved into a clay plate *(Figure 14.1,* British Museum, London). The world was represented schematically as a circle – the Babylon Empire, is surrounded by

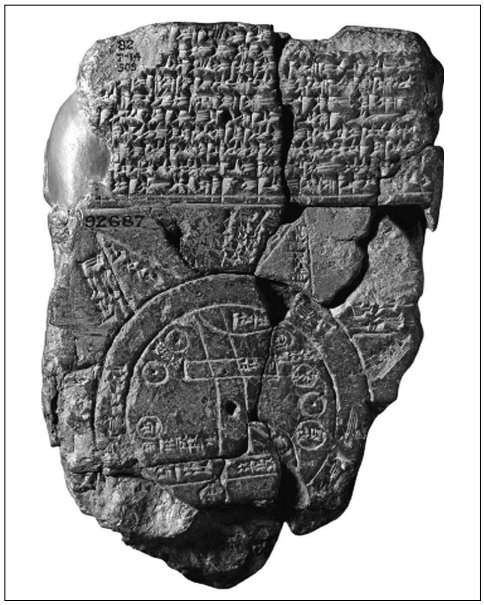

Fig. 14.1. The whole world on an old-Babylonian clay plate

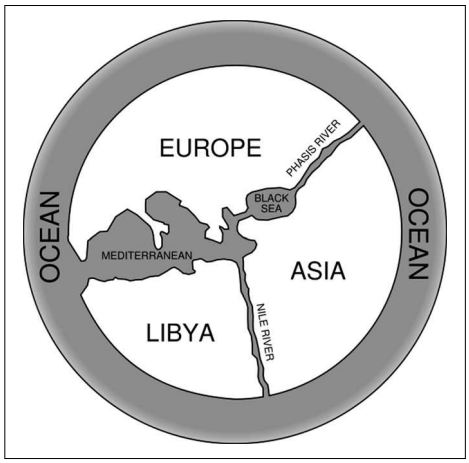

Fig. 14.2. Possible rendering of Anaximander's world map

an ocean. The river Euphrates is of central importance, flowing through the city of Babylon and into the Persian Gulf.

Geography and Cartography became scientific disciplines during the Greek Antique period. The philosopher, astronomer and astrophysicist Anaximander of Miletus (611–546 B.C.) gave a representation of the position of known land and sea of that time in the first known map of the world *(Figure 14.2).* The original of his map of the world is not preserved, only the author's descriptions in his work *Philosophical Cosmology* (Leithäuser 1958, see also "Possible rendering of Anaximander's world map" in Robinson 1968).

14.2.2 Claudius Ptolemy

Several centuries later, the scientist Eratosthenes of Alexandria (276–195 B.C.) introduced geography as a scientific discipline to scholarly circles, associating it closely with mathematics. He determined the circumference of the Earth using astronomic measurements. Measuring the distance from Alexandria to Aswan (Assuan) in an ingenious way, he reached a result which is very similar to the currently determined one. He believed that measuring only the length of a single degree (out of total 360 degrees in a sphere) would be sufficient.

Claudius Ptolemy (87–150), one of the greatest scientists of the Greek Antique period, presented in his lifetime work *Megale syntaxis* the Earth in the center of the planetary system, relying on the theory by Plato and Aristotle. In his work *Geographia* (eight volumes), Ptolemy provided a list of all known settlements, their positions defined using geographic coordinates, *Map of the World* as well as

maps of various areas. The first printed edition of Ptolemy's work without maps was published in Venice in 1475, the first printed editions with maps were done in Bologna (Italy) in 1477, and the prettiest one in Ulm (Germany) in 1482 (see "First edition of Ptolemy's *Map of the World* Ulm 1482", in Clark and Black 2005, p. 181) (note that the Cape of Good Hope is not presented). Unfortunately, only copies, no originals of Ptolemy's maps were preserved *(Figure 14.3,* National Digital Library of Poland*).*

From Ptolemy and Marin of Tyre sprang the revolutionary idea (around the year 100) of introducing a geographical grid into cartographic representations, as well as the notion about how important mapping is adjusted to scale. His *Map of the World* was the first attempt to project the surface of a sphere onto a plane – the mantle of a cone. The projection grid consisted of meridians which cut the equator into equal segments and converged towards the North Pole. Parallels were depicted as circles of varying circumferences, which had a mutual center in the same pole. By changing the direction of the meridians in the southern hemisphere, the author attempted to represent the equator. He drew three continents: Asia, Europe and Libya to the best of his knowledge about geography at that time, within this grid, using auxiliary lines. Furthermore, the Indian Ocean, Mediterranean and Caspian Sea are also shown.

Ptolemy's scientific works affected cartographic activities authoritatively for centuries. Namely, in the lack of knowledge and the verification of mathematical

Fig. 14.3. Nicolaus Germanius: Copy of Ptolemy's *Map of the World (Geographia* 1st/2nd century A.D.) from 1467, size: 25.3 x 34.5 cm

sources and computing technique the author did not used the correct value of the Earth's circumference, which was already provided in the Greek Antique period from the geographer and historian Eratosthenes. However, Ptolemy employed the measurement and computation results of the voyager, geographer and historian Strabo of Amaseia (60–20 B.C.). Ptolemy's degree was shorter by almost a third. Consequently, his world image was therefore a third shorter in a north-south direction and the equator was drawn too far north. Due to the incorrect length of the Mediterranean Sea (62 instead of 42 degrees) and stretching of Asia to the east (50 degrees more than its true value) there was not enough space left between western European coast and the Asian eastern coast. This would later deceive Columbus (1451–1506) in his conclusions that he could reach Asia relatively quickly by sea, sailing in a westerly direction from Europe.

There is no doubt that Ptolomy's work advanced cartography, however his assumptions inhibited its further development. Up until the end of the Middle Ages, geographers and cartographers overlooked his fatal error.

14.2.3 Roman Antique Age

The further development of the mathematical foundations of maps stagnated during the Roman period. Emperor Augustus (63 B.C.–14 A.D.) was satisfied with approximate map geometry, but he was especially interested in a detailed survey of all objects, roads and paths of his empire. Marcus Vipsanius Agrippa (64 B.C.–12 A.D.) was in charge of the survey and started producing the general map of the world *Orbis terrarum,* which encompassed the Mediterranean area. It was unfortunately thought for a long time that Agrippa's large map of the world was the template for the well known map *Tabula Peutingeriana (Figure 14.4,* Austrian National Library, Vienna).

The Viennese humanist Conradus Celtis (1459–1508) discovered it in the library of a Benedictine abbey in Tegernsee (Germany) at end of 15th century (1494) and gave it as a gift to his colleague Konrad Peutinger (1465–1547) who collected old maps and manuscripts (Clark and Black 2005). After carefully considering this unique record of the past, it was concluded that the original map was produced around the year 250 (Leithäuser 1958, Clark and Black 2005) and that it was most likely one of the copies of a detailed road map of the Roman Empire from the first century.

Tabula Peutingeriana consists of 11 maps, which are assembled to form a strap (680 cm x 43 cm). Therefore, the whole painted area is stretched west to east. This map of the world is exceptionally important for geography and not so much for cartography, because its geometry of rivers, road networks, settlements and the most important mountain chains do not reflect reality. Its special value lies in the 3,500 toponyms on the map which describe the world of that time.

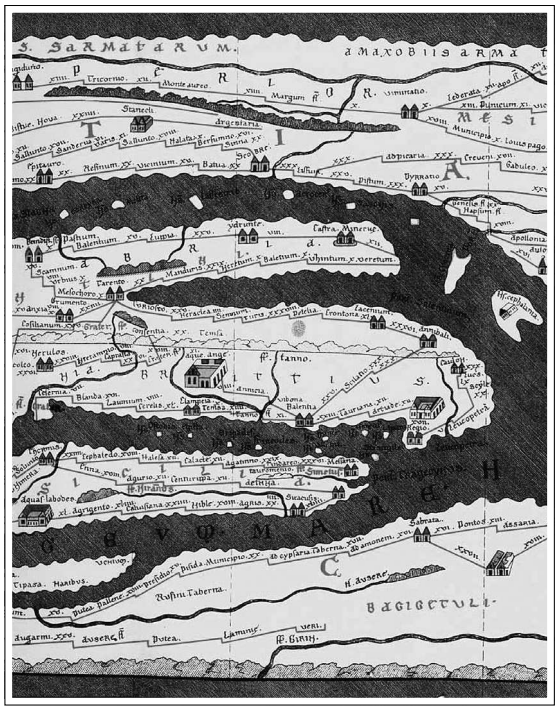

Fig. 14.4. Part of the section VII of the map *Tabula Peuntingerina*

14.2.4 The Middle Ages

During the Middle Ages, cartographic issues were addressed in particular by the Arabs who directed Christian scientists to Aristotle's works. In the 9th century they calculated the circumference of the Earth more precisely than Eratosthenes. They required good maps, and produced quite a large number of them in order to successfully expand the Arabian Empire and trade. The humanist, geographer and cartographer Abu Abdallah Mohammad al-Sharif al-Idrisi (1100–1172) contributed to the development of cartography with his works. His greatest work was a globe illustrating the newest geographical knowledge of that time, engraved into a 400 kg heavy silver ball. All seven continents are represented, as well as a river and lake network, important settlements and trade routes (Clark and Black 2005). Unfortunately, the globe wasn't preserved. However, its detailed description is featured in the work *Tabula Rogeriana* by Al-Idrisi, whose collection also contains a *Map of the World* from 1154 *(Figure 14.5)*.

The application of circular parallels was a great novelty in cartography of that time. Al-Idrisi measured the topographic information of object positions, altitude

Fig. 14.5. Muhammad al-Idrisi: *Map of the World* from 1154. Note that south is at the top of the map.

and included new geographical information from Spanish travelers or navigators. Ptolemy's (87–150) influence in his work is undoubted. (In the 9th century Ptolemy's works were translated to Arabic.)

In the Western culture it was primarily the work of monks in monasteries, which dealt with cartography during this time. This resulted in maps of high artistic value, like so-called T-O sketch-maps (1). *Map of the World* from Sallust's manuscript from the 14th century (see also *"Map of the World from Sallust's manuscript from the 14th century",* in Leithäuser 1958, p. 63) dated from that period. The Mediterranean Sea and the Don and Nile rivers are represented in the form of the letter *T*, which divided the known world at that time in three continents. As the largest one, Asia lies in the north, Europe and Africa are west and east from the *T.* The *O* shape symbolizes the border of the known geography of the Earth, enclosed by the ocean.

Geographically and cartographically, works produced during this period do not possess great value.

14.2.5 Centuries of Great Discoveries and the Development of Cartography

The survival of the Christian image of the world became doubtful due to the information being added by explorers about newly discovered lands and the new natural-scientific understandings in the 15th and 16th centuries. Sailors believed the Earth had the shape of a ball and they often used globes for orientation in absence of good maritime charts (Leithäuser 1958).

14.2.5.1 Martin Behaim

After the Castilian King Alfons the 10th (1221–1284) wrote about how and which materials were needed to produce a globe, many scientists tried to model the known world in that form (Leithäuser 1958). In 1475, Pope Sixto the 4th entrusted Martin Behaim, a renowned cartographer and astronomer, to produce a globe-shaped model of the Earth. The so-called *Behaim's Apple* (German Museum, Munich, Germany), i.e. a globe of the Earth features the then-known inhabited world – Eurasia, which, he thought, stretches over 234 degrees of longitude (see *"Behaim's Apple, globe from 1492",* in Muris and Saarmann 1961, p. 48). The real value is only 131 degrees. This error, caused by Ptolemy's (87–150) influence, would later deceive Columbus (1451–1506), who died believing he discovered a nautical way to eastern Asia.

But back to Martin Behaim. Behaim, a sailor himself, gathered his information by sailing a third of the world known at that time. He acquired all other content he needed for representing the Earth by means of a globe by inspecting books of various geographers and scientists, such as Ptolemy, as well as the Venetian world traveler and writer Marco Polo (1254–1324). The circumference of the globe at the equator is 159.5 cm, diameter 50.7 cm, and scale 1:25.2 mil. The poles are connected with a metal bar which is a sign that people of that time thought the Earth rotated around its axis. To represent unknown areas, Behaim didn't use empty surfaces or write 'unexplored area' like other globe manufacturers. He filled those areas with emblems and characters from fairy tales, stories and legends.

Behaim's Globe is a unique and surpassingly valuable historical and cultural document, the oldest document representing the Earth as a globe and also the last globe produced before America was discovered.

14.2.5.2 Portolan Charts

The late 14th as well as the 15th and 16th century was the time of great discoveries. Sailors, surveyors and scientists (astronomers, geographers, cartographers and humanists) sailed and investigated the unknown areas of the Earth, exposing themselves and their crew to unbelievable strain, as they wished to explore the newly discovered parts of the world and record and bring back exotic objects. Income

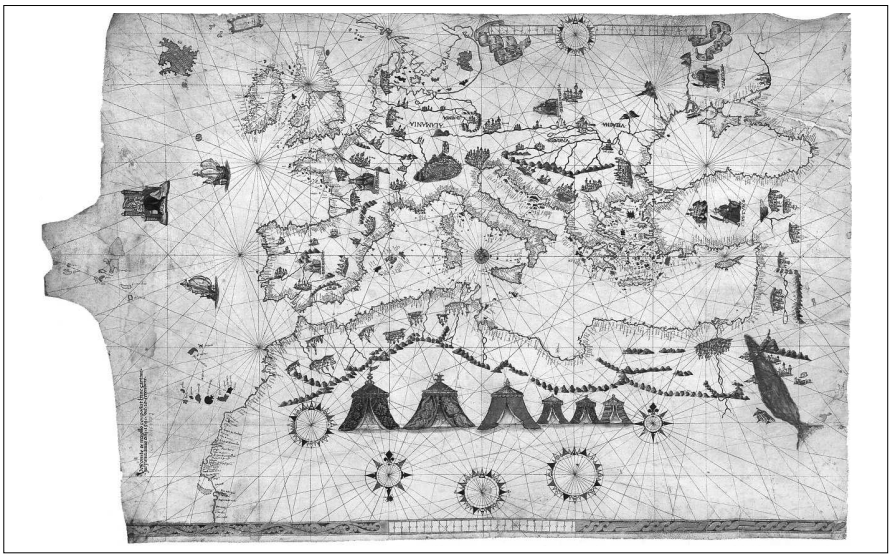

Fig. 14.6. Vesconte Maggiolo: *Portolan chart* from 1541

was not high for filling the 'white areas' on existing, so-called *Portolan charts (Figure 14.6,* Maps department of the Berlin State Library).

As well as noting compasses bearings (which were known already in 12th century) they also included written navigation descriptions. A grid of compass directions was first drawn onto a sheep or goat skin (vellum). Capes and bays, especially important objects for navigation, are disproportionably large in relation to the coastline. Names are positioned clockwise on the land and perpendicular to the coastline. Map geometry resulted from measuring lengths and directions obtained from astronomic observations. The map was decorated with emblems, compass roses and stylized paintings of known cities.

14.2.5.3 Christopher Columbus

The Spanish and the Portuguese shared and continued to conquer the world of that time. They were very interested in itineraries, records, surveys and, especially, maps. Christopher Columbus (1451–1506), an eminent sailor who discovered America, and his brother Bartholomew Columbus (1460–1514), also a sailor and cartographer, employed their own measurements for their maps, but also discoveries, itineraries, reports and fantasies of other sailors. For example Marco Polo (1254–1324) annotated information about unheard and unseen valuables of Asia and China (silver, gold, precious stones, temples, palaces, ...).

In 1487–1488 Bartolomeo Diaz (1450–1500), a Portuguese sailor, was the first to sail the south of the African continent – The Cape of Good Hope. Those discoveries

enabled the inclusion of new geographical content in the maps, but they still refuted the theory and authority of Ptolemy (87–150) *(Figure 14.7,* British Library).

Back to Christopher Columbus: In August 1492, he set sail with his Spanish fleet west to the Atlantic, seeking a sea route to (magically described) India. In the same year he discovered a land in the far west – the Bahamas *(Figure 14.8).* He thought that it was just an island before the Indian coast was reached. Thus Columbus was the first Spaniard to step on American soil. He set sail for the third time in 1498, sailing around the Caribbean Islands and following the eastern coast of South America.

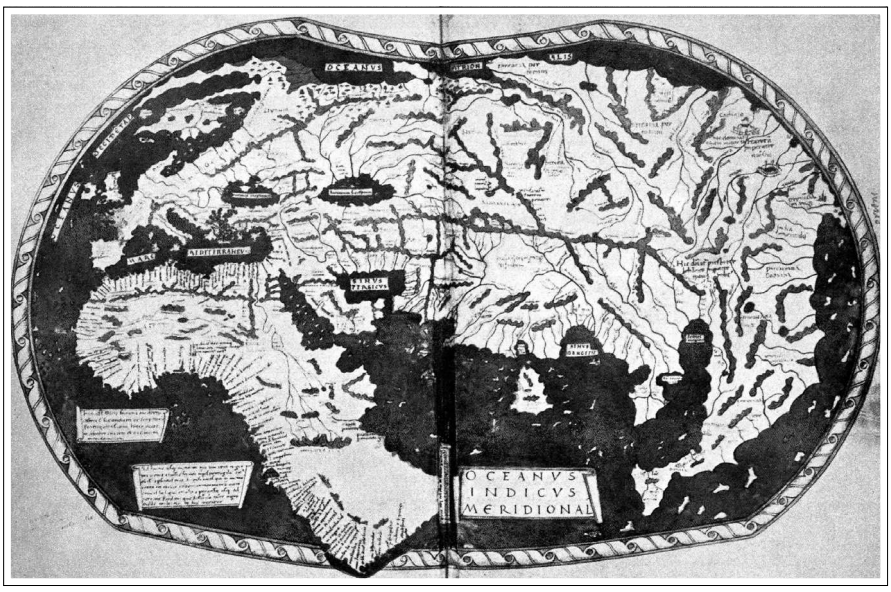

Fig. 14.7. Henricus Martellus Germanus: *Map of the world* from 1489

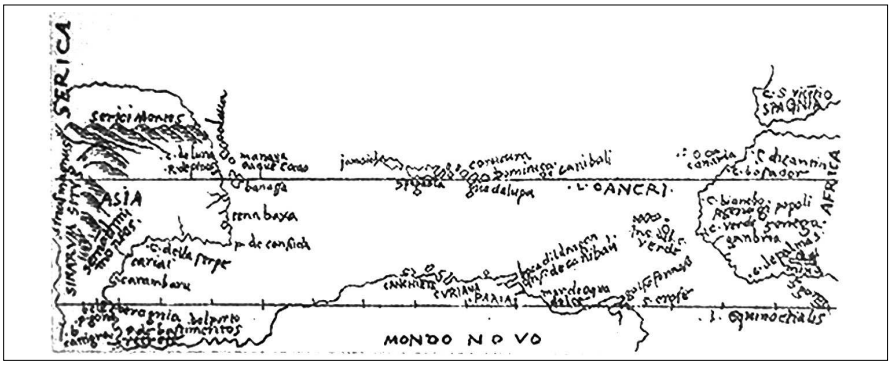

Fig. 14.8. Bartholomew Columbus (Christopher's brother): *Sketch of the Atlantic and coast of America* from 1503

14.2.5.4 Quarta Orbis Pars

Vasco da Gama (1469–1524), a Portuguese sailor and captain, discovered a sea route to India in 1497–1498 by sailing around the Cape of Good Hope. He discovered and explored the last part of the route to the spices of India. When the Italian sailor Amerigo Vespucci (1451–1512) returned from the west in 1504, he wrote that Columbus' discovery wasn't related to India and Asia, which were already known continents, but to a new continent.

In 1507, the cartographer Martin Waldseemüller (1470–1518) published a *Map of the World* from 1507 in his work *Cosmographiae Universalis Introductio* (Library of Congress, Washington, *Figure 14.9).* Presenting the fourth continent, he named it *America sive Americi terra,* celebrating Vespucci's discovery.

That image of the world lasts for a long time. The beginning of the 16th century brought great contradictions, which also affected maps. Vespucci's image of the world was again overshadowed by Ptolemy's influence. Thus America was not a new continent anymore but only *Terra Nova* – a newly discovered part of Asia (see *"Map of the World* by Hieronymus Marini from 1512", in Leithäuser 1958, p. 227. *India Nova* and *Brasil* represent the fact that America was discovered already).

The image of the world changed again when the Pacific was discovered. This was contributed to by discoveries by the Portuguese sailor Ferdinand Magellan (1480–1521). He sailed around South America, proving that 'beyond the horizon' there is another new ocean not included in maps of that time, and that the Earth was round. He also proved that *Terra Nova, Terra Incognita* or *Brasil* wasn't a part of Asia, but indeed a new continent, *America.* This gave true meaning to Columbus' discovery in 1492.

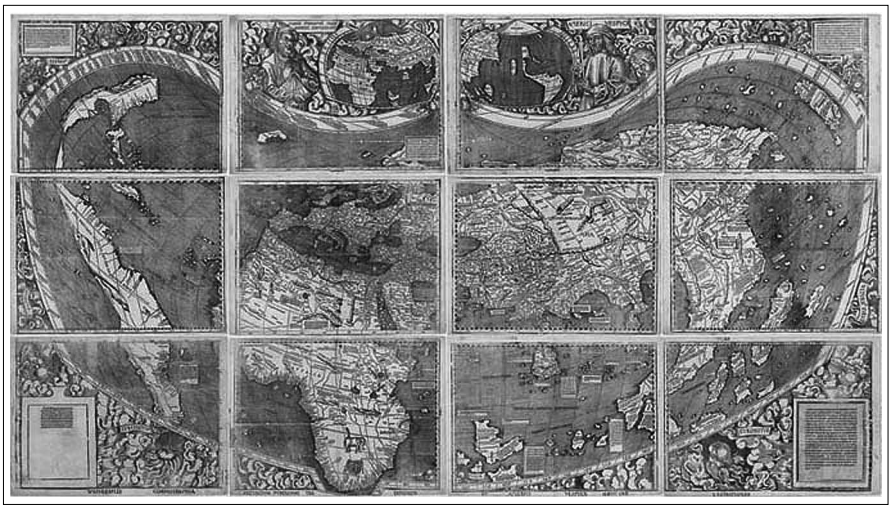

Fig. 14.9. Martin Waldseemüller: *Map of the World* from 1507

In the next year, 1523, Johannes Schöner (1477–1547), a professor of mathematics at the University of Nuremberg engraved a map into copper for the world globe (see *"Globe-map of the world* by Johannes Schöner from 1523", in Leithäuser 1958, p. 232) with travel routes shown and parts of Ferdinand Magellan's newly-discovered world. Schöner's *Map of the World* represents the turning point in the history of cartography. The map features the whole world known at that time, and the eastern Indian archipelago drawn on the left and right sides of the map. A full line gave America the shape of a continent, and the size of the Pacific became evident.

Thus, in only a few years, the mapped world doubled in size and lost its old borders. The need for correct and detailed survey grew daily. Cartography was disentangled from the model of Ptolemy, whose theory and cartographic representations of the world had deceived cartographers for centuries. Captains requested more complete and accurate maps for their journeys and surveyors wanted new and more efficient measuring instruments. During this period, a young scientist, humanist, astronomer and cartographer appeared, desiring knowledge and full of new ideas that revolutionized cartography as science. His name was Gerhard Mercator.

14.3 Gerhard Mercator – Ingenious Cartographer

Gerhard Mercator (actually Gerhard Kremer) was born in the small town of Rupelmonde in Belgium in 1512. At the age of 20 he completed a Master of Philosophy degree. He quickly changed his profession, wanting to work on map production, globe construction and building of astronomical instruments for surveying the Earth, applying his great knowledge of mathematics. Mercator was a cartographer, drawer and copper engraver, penman, publisher, printer of his maps, constructor of his own globes of the Earth and the celestial sphere and a precise machinist in production of measuring instruments. His lifetime opus and deserved fame of a great cartography reformer resulted from the combination of practical experience and ingenious mathematical talent.

14.3.1 Lifetime Opus of Gerhard Mercator

In 1538, under the influence of Frisius' school and his work *Cosmography*, Mercator published his first *Map of the World* in a very complex "heart-like projection" (see *"Map of the World* from 1538 by Gerhard Mercator", in Leithäuser 1958, p. 280), dividing the whole world at the equator into two heart-like forms. The representation and name of South and North America are historically important. The area of the South Pole contains textual annotations indicating that there are certainly many lands in that area, but it is not defined which lands and where their borders were.

Shortly after he published a book (in Antwerp) about map lettering, entitled *Lettering Booklet.* This revolutionized cartographic lettering, suggesting the use of very fine, small and legible italic lettering, which takes less space on maps, instead of using the so-called fractured lettering.

In 1541 Mercator constructed the largest globe at that time (diameter of 41 cm). Its 12 segments and 2 polar spherical caps were engraved in copper and printed by Mercator personally, with unprecedented precision (see *"Globe of the Earth* from 1541 by Gerhard Mercator" (The National Library in Vienna, Austria), in Muris and Saarmann 1961, p. 105). The circumference at the equator was 130 cm, which is a scale of 1:30,000,000. The geographic grid was especially precise. Mercator's globes differ from all previous ones because they represent rhumb lines – lines, which cut all meridians at the same angle, and are thus extremely important for navigation. Mercator had a vision that lines of geographic grid as well as rhumb lines could be mapped like straight lines on a map plane (Vermeulen 2006). At that time, Mercator also produced globes of the celestial sphere. Trading books with the publisher Plantin (1520–1589) showed that the author produced globes in pairs and gave him 24 to sell (Clark and Black 2005).

In 1554 he published his first *Map of Europe* (wall map consisting of fifteen sheets), the first ever to deserve that name (2). He had been working on it since 1538, precisely drawing positions of cities according to his calculations, carefully correcting incorrect positions that were attributed to Ptolemy, which were still present on maps.

In 1569, he finished working on his great *Map of the World* (wall map consisting of eighteen sheets) – *"ad usum navigantium" (Figures 14.10 and 14.11),* produced in the normal aspect of a cylindrical conformal projection – *Mercator's projection.* This started another new period in cartography, the period of mathematically correct maps, which formed the foundations of *new cartography.*

Mercator's cylindrical conformal projection is represented by a grid of meridians and parallels that intersect at an angle of 90°. The distance between the parallels gets larger, the closer they are to the poles. Therefore the represented area becomes more and more deformed. The poles can't be mapped. This projection was the first one that could be used to connect two points on the surface of the Earth by a straight line on the map – rhumb lines. A rhumb line cuts all meridians at the same angle. It is not difficult to imagine what kind of help that was in navigation. Even today, maritime and navigation charts are produced using this projection. But almost a hundred years had to pass until Mercator's projection gained the required credibility.

In the *Map of the World,* Mercator inserted the newest continent border geometry with accurate verification, detail and precision (the coasts of seas and oceans). For its production, he employed all his past works, for example his and not Ptolemy's geometry of the *Map of Europe,* and therefore the Mediterranean. He also included a huge, imaginary south continent *Continens australis.* The map is 1.31 m x 2.08 m

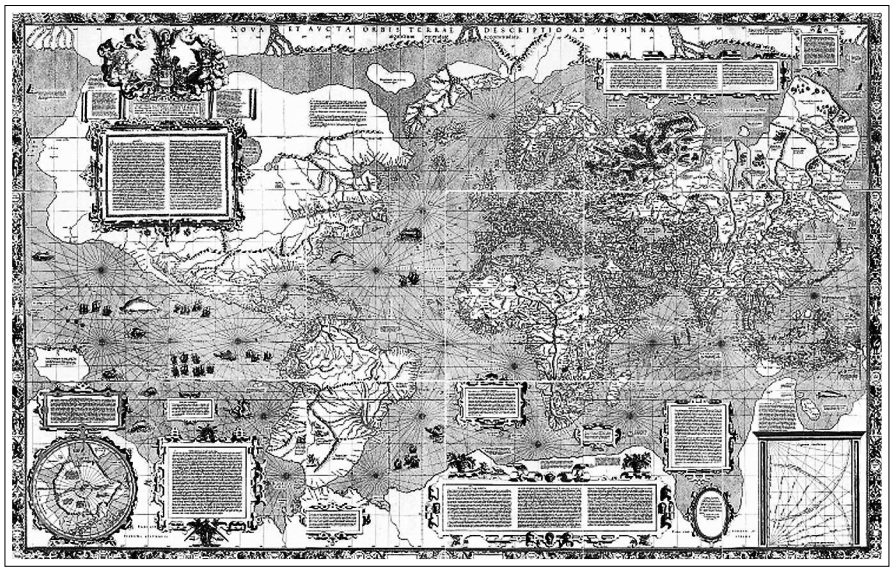

Fig. 14.10. Gerhard Mercator: *Map of the World* from 1569

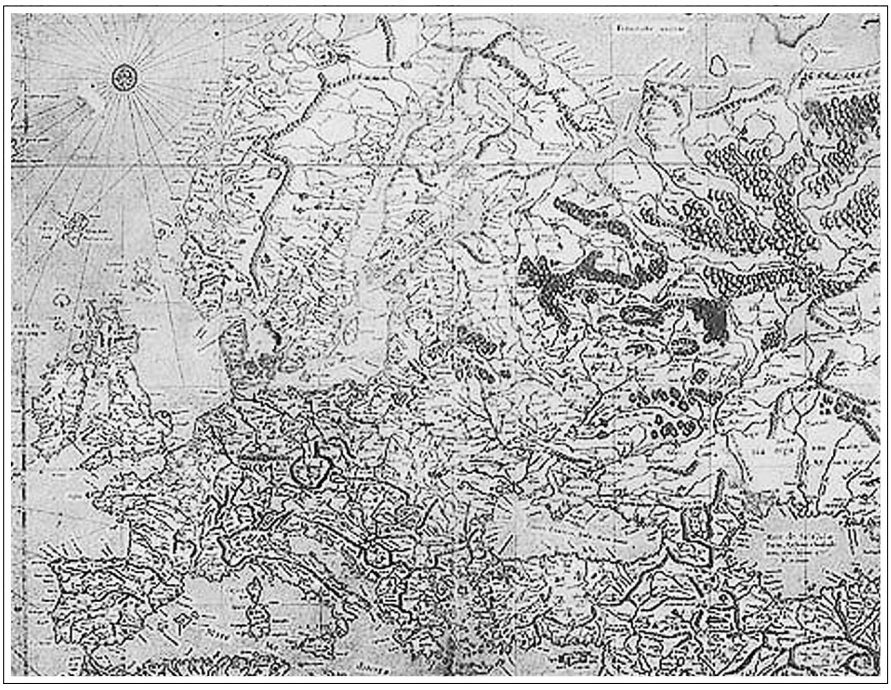

Fig. 14.11. *Europe*, as a part of the Mercator's wall map – *Map of the World* from 1569 (Scandinavia is disproportionately large)

in size and consists of 18 relatively large sheets, an unpractical format for sailors. An unknown sailor prepared three maps of Mercator reducing them to 29 sheets for his route (Leithäuser 1958). This opened the way for the first printed maritime atlas in a book.

Many cartographers adopted the idea. The first among them was Abraham Ortelius (1527–1598), Mercator's friend. His published atlas *Theatrum Orbis Terrarum* comprised 70 maps on 53 sheets *(Figure 14.12)*. This work continued to be updated even after the author's death.

For years, when Ortelius atlas continued to gain recognition, Mercator worked relentlessly and in much detail on his idea. He wanted to realize his lifetime idea, his *Opus magnum* in five parts (Leithäuser 1958, Monmonier 2004). In the first, he wanted to represent the creation of the world, in the second to describe the celestial sphere, in the third a representation of all countries and seas, in the fourth to represent the political history, and in the fifth to give a conclusive representation from the beginning of the world to his days.

The third part of his *Opus magnum,* he called *Tabula Geographicae.* He engraved a total of 102 new maps in copper, all in the same format. He controlled all astronomic calculations, determined geographic coordinates and distances between individual points, gathered newest geographic reports and transferred that data into his projection of 'increasing widths'. For the whole work, he chose the name *Atlas,* the name of the mythological Maori king Atlas, who was interested in astronomy

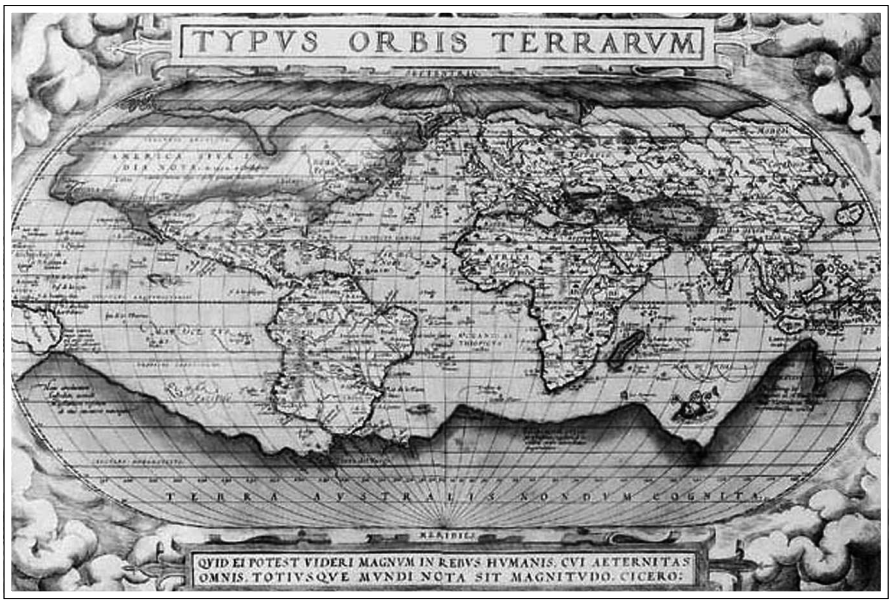

Fig. 14.12. Abraham Ortelius: *Map of the World* from his atlas *Theatrum Orbis Terrarum* from 1570

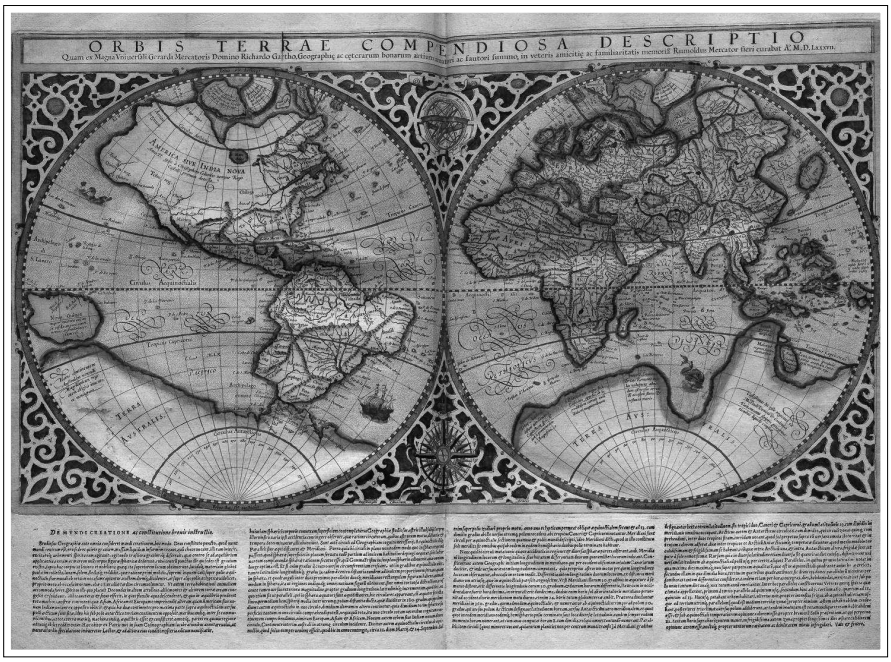

Fig. 14.13. Gerhard Mercator and Rumold Mercator: *Map of the World – Orbis terrae compendiosa descriptio quam ex magna universali Gerardi Mercatoris* from 1587

and allegedly produced the first celestial sphere globe (Leithäuser 1958). In reality, however, regardless of the model, the term 'atlas' as a collection of maps has its true source in Mercator's work (Monmonier 2004, Lechthaler and Stadler 2006).

In 1585, he published 51 maps belonging to *Tabulae Geographicae* of western and middle Europe (France, Belgium and Germany). Four years later, he published the last group of 23 maps of *Tabulae Geographicae* (Italy and Greece) (Monmonier 2004). In 1590, weak and partially paralyzed after suffering a heart attack, he couldn't do work on maps any more.

He worked without pause from 1568 until his death on December 2, 1594. Unfortunately, his *Opus magnum* with 123 books wasn't completed.

In 1587 Mercator's son Rumold finished and published the *Map of the world*. The map was engraved in copper and colored by hand *(Figure 14.13)*.

In 1595 Rumold published the *Tabula Geographicae* as a complete work, with tied maps in the form of a book *(Figures 14.14 and 14.15)*. He titled it *Atlas sive Cosmographicae Meditationes de Fabrica Mundi et Fabricati Figura (Figure 14.16)*. Rumold stated that this was the title Mercator chose. At the beginning of the work he added a title sheet, genealogic table and a picture of god Atlas, who carries the entire celestial sphere on his back (Leithäuser 1958, Monmonier 2004).

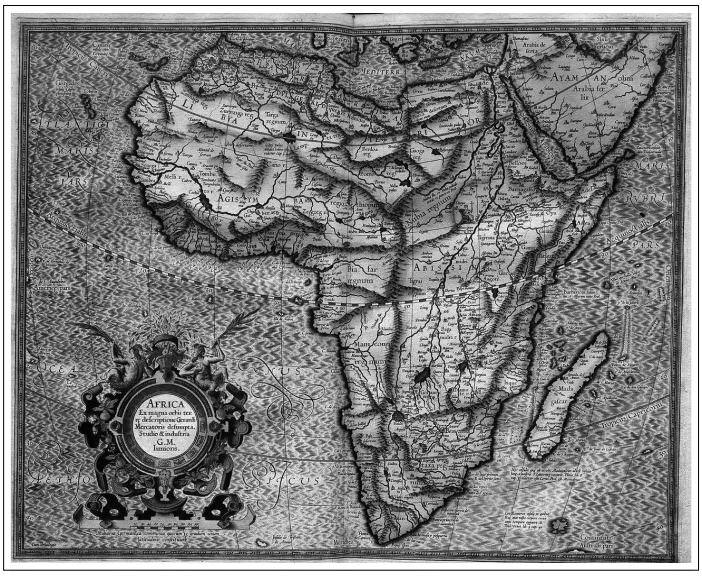

Fig. 14.14. Gerhard Mercator: Map of Africa from *Atlas sive Cosmographicae Meditationes de Fabrica Mundi et Fabricati Figura* from 1595

Fig. 14.15. Gerhard Mercator: Map of the North Pole *Septentrionalium Terrarum descriptio* from *Atlas sive Cosmographicae Meditationes de Fabrica Mundi et Fabricati Figura* from 1595

Fig. 14.16. Rumold Mercator: Title sheet of *Atlas sive Cosmographicae Meditationes de Fabrica Mundi et Fabricati Figura* from 1595

Fig. 14.17. Jodocus Hondius and Jan Janssonius: Gerardus Mercator from 1574

14.3.2 Mercator – The Greatest Cartographer

Because of the slow publishing progress as well as the development and use of Mercator's projection, which wasn't accepted at first, the *Atlas* didn't immediately gain the success it deserved. Neither Mercator himself nor his son Rumold got recognition during their lifetimes or learned the extraordinary work became famous and influencing the entire development of *modern cartography.* From 1595 to the present day, 31 editions of *Atlas Gerardi Mercatoris* have been published, translated to five languages, as well as the so called *Atlas minor* in a smaller format, which stayed at universities.

Undoubtedly, Gerhard Mercator *(Figure 14.17)* along with Marinus of Tyre and Claudius Ptolemy, can be considered as one of the greatest cartographers of all times (Mesenburg 2004). He was a cartographer who was more than a map drawer. Mercator was a teacher of the humankind and was the first who showed us by means of his globes and maps that the endless world could be so small.

14.4 Concluding Thoughts

Maps combine yesterday's, today's, and tomorrow's view of our world, other planets, and the whole universe – from the perspective of people, sciences, and the arts. The history of mapmaking (cartography) resembles the history of mankind. Long before people were able to write, maps were used to visualise human reality or fantasy. The centuries of great expeditions led to today's view and mapping of the world. One of the greatest cartographers of all times was undoubtedly Gerhard Mercator. His extraordinary life's work became famous and influenced the entire development of *new cartography*.

Casually, cartography is a kind of art. Each presented map is an artwork and a treasure chest for cultural heritage, acting as a substitute for its era making us relive the circumstances at that time.

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URL

1. http://commons.wikimedia.org/wiki/Category:T_and_O_map
   accessed 13 October 2008
2. http://www.bl.uk/onlinegallery/ttp/mercator/accessible/introduction.html
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15. http://commons.wikimedia.org/wiki/Image:Mer%D1%81ator_north_pole_1595.jpg
16. http://commons.wikimedia.org/wiki/Image:Mercator_-_Atlas_-_1595.png
17. http://commons.wikimedia.org/wiki/Image:GerhardMercator.jpg

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