RARE EARTHLY AND CELESTIAL SPHERES AT ZIRC

"How magnificent a good map is – said Samuel van Hoogstraten[1] in his treatise on art –, thanks to the art of drawing, you see the world in it as if looking at it from another world."[2]

As late as in the 17th century, making a spatial model (sphere) representing our earth and the universe as seen from our planet had a special significance. These cartographic models were manifestations of our spatial knowledge, symbols carrying very special content and, at the same time, they were truly vulnerable creations. Thus it is no surprise that old globes are highly valued treasures of libraries and other collections the way they are in the famous Cistercian library of Zirc, which possesses two pairs of globes and celestial globes of 68 centimeters in diameter, made in the 17th century Amsterdam workshop of Willem Janszoon Blaeu. We assume that these two "gems" were purchased by Hungarian chief justice Nádasdy Ferenc, who was later sentenced to death and lost all his property. Thus the objects were transferred into the ownership of the Cistercian Order. The ravages of time and the Second World War, however, caused heavy damage to both of these rare treasures, which have since been reconstructed by skillful restorers.

WILLEM JANSZOON BLAEU: CELESTIAL GLOBE. AMSTERDAM. CA. 1630?

The special feature of Willem Janszoon Blaeu's celestial globes[3], as opposed to those of Gerard Mercator[4], was that they were the first to show new stars, and people living in the northern hemisphere could get to know the constellations of the southern hemisphere. Europeans' world view was reformed by the discovery of supernovas as dramatically as
our image of the Earth had been transformed by the geographic discoveries that Christopher Columbus had once hallmarked. The tenet that the sky is unchangeable and incorruptible had been proposed by Aristotle in the 4th century BC. He claimed that the world was made up of three parts: the world under the Moon (mundus sublunare); the world of planets and the world of fixed stars, where stars were attached to a crystal vault (coelum sidereum); which is surrounded by a fiery sky (coelum empyreum) inhabited by gods.[5] Nevertheless, in antiquity Aristotle was not regarded as such an unquestionable authority as he was some two thousand years later. Based on their observations, his contemporaries did not think that the sky was unchangeable. Pliny the Elder[6] reports that "…Hipparkhos[7], whom we cannot praise enough… had discovered a star that was born in his time and was shining bright by day." There are records of several "new stars", although according to the present-day interpretation of those descriptions, they are most likely to have been comets rather than stars, or were simply mistaken observations. Early church fathers (e.g. Origen and Saint Augustine) had similar views. By way of example, Saint John of Damascus is quoted: "It is obvious that the Sun and the Moon and the stars are complex and according to the laws of their nature they are susceptible to deterioration." The reason for his opposition to Aristotle may have been the fact that his works were unknown. In the early Middle Ages they were unknown (lost). Astronomy was mostly studied from the books of Isidore of Seville[8] or

1 Samuel van Hoogstraten (1627–1678) was a painter, Rembrand van Rijn's disciple.
2 Cited by Svetlana Alpers: *Hű képet alkotni. Holland művészet a XVII. században. [Creating a faithful image. Dutch art in the 17th century.]* Budapest, 2000, 165.
3 The dimensions of the Blaeu-spheres D: 13,5 cm. (1606), D: 23 cm (1601), D: 34 cm (1603), D: 68 cm (1630).
4 Gerardus Mercator (1512–1594) was a distinguished cartographer in the period.
5 Aristotelis Operum, quotquot extant, Latina editio, ex optimorum quorumque interpretum versione concinnata. Tomus Physicus, In quo Physicae auscultationis, De coelo, De generatione et corruptione (...) Francofurti, apud Andreae Wecheli heredes, Claudium Marnium, et Io[annem] Aubrium. 1593. p. 417.
6 Caius Plinius Secundus (late 23 or early 24–79) was the author of Naturalis Historia.
7 Hipparkhos, (160–125 B.C.) was a Greek astronomer. He excels among contemporary astronomers through his rigorous methods of work and discoveries. He was the first to state that the Earth is not located in the focus of the virtual circle around the Sun. He was the first to define the annual procession (towards the west), of the equinox, and he had the almost "ungodly" experiment that all fixed stars should be listed. For his research and observations he used the equipment that he invented and perfected (astrolabe or astrolubion and the dioptra), which stayed in use up to the emergence of the telescope.
8 Saint Isidors of Seville, whose Latin form is Isidorus Hispalensis (560-636 AD). Early Christian author and philosopher.

Blaeu's great Globe in the grand hall of the Zirc Cistercian abbey's library

Martianus Capella[9] Only in the 12th-13th century was Aristotle's *De caelo*[10] translated into Latin, in which he exposed his theories about the sky. His impact was tremendous. He gained such popularity that bishops tried to ban his books from universities, but with little success. Eventually, after 1277 they managed to reconcile Aristotle and the Bible, a co-operation that up to the end of the 16th century proved very convenient for everyone. At that time, however, certain phenomena were observed in the sky that destroyed this beautiful "symbiosis". The discovery of new stars posed major problems to scholastic philosophers: If the sky is unchangeable, then what is a new star? To scholastics' misfortune, the role of the comet[11] seen from 1st November 1577 to 26th January 1578 had further significance for astronomers, because this was what helped Tycho Brahe establish that it is further away than the Moon and is orbiting the Sun. How come the comet crossed the "crystal spheres holding the planets"? With this large celestial sphere, not only did Blaeu communicate a new scientific approach to his readers but also suggested the possibility that the sky might not be permanence itself!

WILLEM JANSZOON BLAEU–JOAN BLAEU[12] –CORNELIS BLAEU[13]: GLOBE M. CA 1:18 500 000. AMSTERDAM, CA. 1645/1648

The exact date of this globe is indicated by the fact that New Holland, or Australia, had already been discovered and represented in it.

However incredible it may be, the flourishing of the Dutch empire in the South Seas started in a Lisbon

9 Martinus Minneus Felix Capella (5th c.) was the founder of the trivium and quadrivium categories that structured Early Medieval education.

10 Here Aristotle offered a summary of his main tenets of cosmology.

11 The 1577 comet had a huge literature in its own day. It has no name of its own because it was spotted independently in many places of the world. Its official mark today is C/1577 V1. I owe the data to astronomer Lajos Bartha.

12 Joan Blaeu (1596-1673) was Willem Blaeu's son, who first obtained a doctor of law degree in 1620, then joined his father's business of editing and publishing maps, and finally he and his brother Cornelis developed the publishing house they inherited into a lucrative enterprise. After his father's death, he acted as the Dutch East India Company's (Vereenighde Oostindishe Compagnie) cartographer.

13 Cornelis Blaeu (1610-1648) and his brother took over their father's business. However, his short life stopped him from fully developing his skills of cartography.

prison where the Dutch sailor Cornelius Houtman[14] had been thrown for his debts. Portuguese sailors, his fellow inmates, revealed to him the sea route from Portugal to India and the Moluccas Islands. Released from captivity, in 1595 Houtman set out to round Africa and find the spices that were so expensive and important to Europeans. Amsterdam spice traders founded in 1594 the organisation *Compagnie van Verre*, or the Association of Distant Lands[15], and in 1602 the Dutch East India Company was established.[16] The security of their ships and the demand for new spices and other tradable goods spurred Dutch sailors to make exploratory voyages to the region of Java and New Guinea. Traders in the Dutch city of Hoorn intended to have a share in the highly lucrative spice trade, therefore were raising money for an expedition. This task was assigned to Isaac Le Maire[17], who equipped two vessels. He succeeded in employing Captain Willem Corneliszoon Schouten[18] as the leader of the voyage, as he had been to the southern ocean more than once, and put his own son, Jacob Le Maire[19] in charge of trade. The two ships set sail in 1615. Passing the eastern entry to the Strait of Magellan on 24th January 1616, they used a new route to reach the Pacific waters. As Schouten remembered, "here we encountered strong waves and light blue waters, which confirmed my conviction that we were in the Large Southern Sea (the Pacific Ocean). […] By the same evening (29th January) we caught sight of land in the northwest as well. This land was made up of nothing but snow-covered mountains and ended in a sharp projection, which we named Cape Horn."[20] Later Schouten called this route the Le Maire Strait.[21] Striving to find spices in the Moluccas Islands, Le Maire and Schouten must have reached southern latitude 15. When however their vessel arrived at the Moluccas Islands, sailors of the Dutch East India Company imprisoned them for breach of trade monopoly, and subsequently sent them to Holland on board the company's ship. Le Maire died en route; Schouten however was released in Holland. The diary of his expeditions saw nearly forty editions.

In the discovery of Australia, which they started to call New Holland in the 17th century, the need to find new regions to purchase spices, to mine gold and other precious minerals and to harvest Europeans' much-loved sea pearls was a significant driving force. As we know today, the part of Australia still called Land of the Eendragt was discovered in 1616 by the sailors of the vessel Eendragt owned by the Dutch East India Company. In exploring the region in 1619, the Dutch captains Frederick de Houtman and Jacob d'Edel earned lasting fame. They were obliged to communicate their findings to the company's cartographer, who would record the outcomes of their expeditions on maps. Later, Abel Tasman made two major expeditions to this region: his first voyage in 1642 led to the discovery of the island he called Van Diemen's Land (present-day Tasmania), and after a short voyage he landed at the southern island of New Zealand, at Cape Foulwind. He continued his journey northward, thus sailing past the western shores of New Zealand, touching several islands before returning to his starting point in Batavia (present-day Jakarta in Indonesia). In 1644 Abel Tasman already conducted an expedition with a fleet of three ships and mapped a coastline of nearly thirty-five thousand kilometers. His research proved that the land called New Holland was not part of the arctic continent, but was in fact, a long way away from it. First mate Frans Wisker's[22] map reached the director of the Dutch East India Company and through him, in turn, the company's cartographer, Joan Blaeu. Applying the discoverers' data, this globe featured New Holland as a new continent. However, there was still one important question left unanswered: Is New Holland one continuous terra firma or a gigantic archipelago?

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14 Cornelis de Houtman (1565-1599) was a sailor and the brother of Frederick de Houtman, to whom in the first half of the 17th century Europeans owed the discovery of Australia and the introduction of the stars in the southern hemisphere, which was invisible to them.
15 Compagnie van Verre
16 Vereenighde Oostindishe Compagnie
17 Isaac Le Maire (1558–1624) was a Dutch sailor.
18 Willem Cornelisz Schouten (1567?–1625) was a Dutch captain.
19 Jacob Le Maire (1585–1616) was a Dutch explorer.
20 I. P. Magidovics: *A földrajzi felfedezések története.[The history of geographical discoveries.]* Budapest, 1961. 396.
21 This route and discovery found its place on the globe as well.
22 I. P. Magidovics: *ibid.,* 400–406.