INTRODUCTION

A globe is a mirror of its time. Wether a paper globe, handmade by Gerard Mercator in the sixteenth century, or a plastic globe, made in the twentieth century by a machine, each tells a unique story that reflects the state of technology, economy, politics, art, and science at the moment of its creation.

Globe scholars often draw a sharp line between the traditional handmade globes produced until the mid-nineteenth century, and the modernist mass-produced globes of the twentieth century. However, the journey of the globe is an uninterrupted narrative of human history, a history that continued throughout the twentieth century, up to the present day. Plenty of books and articles can be found on antique globes, but little research exists on the globes of the past hundred years. One reason may be that the scarce antique globes are sold at classy auctions for the price of a sports car, while twentieth-century globes exist in vast numbers and are sold on eBay for the price of a parking ticket.

Meanwhile, interest in twentieth-century globes surges in the slipstream of vintage mid-century modern design, the highly sought-after modernist furniture. After more than two decades living in the twenty-first century, we can take sufficient distance and look back at these vintage globes, which reflect so well the turbulent times of seventy years ago. This book is a chronicle of the twentieth century and its radical changes, eloquently told by these wondrous round objects.

In 1914, at the outbreak of the First World War, the nineteenth century finally came to an end. This cruel event shattered the joyful bourgeois lifestyle of the Belle Epoque. Empires were broken up, and a new world order emerged. It was a time of political revolutions, social changes, and disruptive technologies, such as the car, the airplane, and electricity. The middle class rose to dominance, and the possession of a globe, once a scarce object for the privileged few, became aspirational for a broad section of the population. The globe makers of the 1920s redesigned the globes to make them fit for middle-class interiors. *"A globe in every house!"* was the slogan in Europe as well as in America. The young and ambitious globe makers radically chose the future, by developing new methods to mass-produce globes in high numbers, at great speed, and at low costs, while pushing traditional globe makers out of the market.

In the same period, arts and architecture broke with the historical styles of the past. New styles such as art nouveau, art deco, and modernism emerged and rapidly succeeded each other. The role of globes transformed from scientific instruments to decorative objects, and globe makers swiftly adapted their designs to align with the latest fashion trends. To meet contemporary tastes, they redesigned the cartography, colored the oceans silver or black, and streamlined the metal stands, all to please the eye of the client.

The interwar period was a time of heroic explorations, such as the first flights by airplane across the Atlantic or Zeppelins above the North Pole. The exceptional events, closely followed on the radio, the new communication medium, fueled the excitement of the general public. Globe makers kept up with the heartbeat of the time and published new models with adapted cartography to incorporate these endeavors. In those years, globes were densely packed with information. Every aspect of society and economy was represented, from radio-stations, shipping lines, air-routes to even caravan trails, all depicted with lines and icons.

Another factor that transformed globes during the twentieth century was the progress in science and education. Radical laws aimed at combatting illiteracy required children to attend school longer and promoted new pedagogical methods. Geography became a compulsory subject in the school curriculum, and globes became a mandatory fixture in

Soviet workers assembling the globe that is integrated in the facade of the Central Telegraph building / *Moscow, 1928*

PAPER GLOBES

Assembly Line

Henry Ford (1863-1947) the American entrepreneur, inspired by the mechanized slaughterhouses of Chicago, introduced the assembly line in his Detroit car factory in the 1910s. He optimized the production process of a car by splitting it into separate actions. Instead of a group of mechanics constructing a car together at fixed point, the car would move on a conveyor belt from worker to worker, with each one adding a specific piece to the car in a sequential process. In his movie *Modern Times*, film maker Charles Chaplin (1889-1977) criticized the stifling monotony of this repetitive labor. In the twentieth century, production of globes followed a similar path: the traditional craftsman's globe, once handmade in limited series as a luxury item for the wealthy, evolved into an industrial mass-produced commodity for the general public, conceived on an assembly line.

Orange Peels

The basis for traditional globes was a papier-mâché sphere, which was formed in a wooden mold. To smooth its surface, several gypsum layers were applied. Meanwhile, cartographic maps were engraved on copper plates, printed on paper, and cut into twelve sections resembling orange peels, known as map gores. Women meticulously hand glued the map gores onto the spheres, stretching them to fit the curvature. It was a precision work: one had to avoid any discontinuity in the map at the seam. A varnish was applied to protect the paper, and then the finished sphere was mounted on a wooden stand. Some globes had a metal meridian attached at the poles, allowing them to spin. However, the serial hand manufacturing was a slow process, resulting in globes being expensive objects. Around 1900, a large workshop could produce ten thousand globes a year at most.

Flower Petals

Innovative globe makers invested in steam presses to produce cardboard hemispheres. The smooth machine-made surfaces made the time-consuming addition of a plaster layer obsolete and allowed for accelerated production. Map application was also mechanized: circular maps, printed on cardboard, were machine cut into flower-petal sections and pressed together, forming ready-made hemispheres with a map surface. Two hemispheres slide together to form a globe, which then moves further along on the conveyor belt to be spray coated and hard baked. In the postwar period, output numbers surged, and production costs diminished. An industrial globe factory today can produce up to one million globes a year. As a result, twentieth-century globes transformed from luxury handmade objects into affordable machine-made mass products.

Assembly Line
Interior view of Replogle's industrial globe production plant / *Chicago, 2000s*

2
The George F. Cram Company from Indianapolis produced this ten-inch globe around 1939. It can easily be recognized as an American globe by the protruding tape on the equator, a common method used to fix two ready-pressed, map-covered hemispheres together and obscure the seam. The globe is spinning in a full meridian made from metal with a grade indication and mounted on a metal pin that sets the axis of the globe to the inclination of the Earth. The base, a four-toed wooden stand, seems inspired by the traditional American 1930s swivel office chair.

More Metal Globes

12
This small tin globe, made by Chad Valley, a Birmingham toy factory, also exists under the brand logo Reliable Series. The 1950s model was available in different variations. In this case, the vividly colored cartography on the ten-centimeters lithographed tin sphere makes a sharp contrast to the black-lacquered metal stand and folded metal meridian.

13
Replogle in Chicago made a line of globes for children, parallel to their more sophisticated globes. This model of the 1950s has a six-inch lithographed sphere with a detailed cartography, displaying the U.S. states in different colors. It is fixed to a graded meridian and a half-sphere base, both in stark red, an energizing contrast to the electric-blue oceans.

14
Ohio Art Company in Bryan, Ohio, made this children's globe in the 1930s. The six-inch metal sphere is fixed to a graded full meridian. The octagonal metal base is lithographed with a fake wood veneer print, zodiac signs and a calendar. The political map shows recent events, such as the flight routes of Lindbergh and the Graf Zeppelin.

More Inflatable Globes

15
URB Plastics in New York, produced swim rings, but also this eight-inch globe for Pan American Airlines in the 1940s. It is the first-known inflatable globe made of vinyl, in this case Koroseal, developed by F.B. Goodrich. The cutting pattern results in a flattened sphere. The pictorial cartography shows air distances, animals, flowers, and hurricanes.

16
"Fly Pan Am Jets Around the World" is the title on the cartouche of this 1950s inflatable advertisement globe, copyright of the General Graphics Corporation. The twelve-inch model has a detailed physical map, but no indication of air routes or exotic touristic features. It spins on its air valves in a demountable steel wire tripod.

17
Parisian globe maker Taride created this globe in the 1960s, in collaboration with rubber boat producer Sevylor. The model was used for advertising purposes by Air France. Twelve printed vinyl map gores are fused together to form a twenty-eight-centimeter sphere. The air valves at the poles enable the globe to spin on its steel wire stand.

MODERNIST FLOOR GLOBES

Architects and Centerfolds

Chicago copywriter Hugh Heffner (1926-2017) founded *Playboy Magazine* in 1953, the famous magazine for men that contributed to the transformation of postwar American culture. In this male-dominated period, it combined glossy pictures of naked women with short stories by famous writers and interviews with influential intellectuals. As a typical example, a 1961 article shows six men in suits and ties, in stark contrast to the nude female centerfold a few pages further on. The catchphrase reads: "*Unfretted by dogma, the creators of contemporary American furniture have a flair for combining functionalism with esthetic [sic] enjoyment.*" The six men are the American design avant-garde: George Nelson (1908-1986) Edward Wormley (1907-1995), Eero Saarinen (1910-1961), Harry Bertoia (1915-1978), Charles Eames (1907-1978), and Jens Risom (1916-2016).

Unfretted by Dogma
Avant-garde architects sitting on their own designs / *Playboy Magazine, July 1961*

Sober Elegance

The traditional model for a gentleman's study room was a heavy floor globe, a piece of decorated furniture, handmade by a skilled cabinet maker. In contrast, most modern globes were lightweight table models that could be placed on a school desk or a living room sideboard. However, the idea of a free-standing status-boosting globe did not completely disappear. During the mid-twentieth century, several furniture designers created luxury modernist floor globes. Danish-American architect Jens Risom (1916-2016), co-founder of Knoll Furniture in the 1940s before launching Jens Risom Design, created a modernist floor globe for Replogle. The wooden stand, supporting a blue ocean sphere, exudes the sober elegance of Scandinavian design: four tapered legs on wheels connected to a central cross that supports an open horizon ring.

Design Consultants

The introduction of an independent design consultant was a novelty. It resulted from the division of labor in the process of mass production, where the work of the traditional craftsman was distributed among various specialists and machines. The 'industrial designer' was brought in to coordinate the design and optimize the production by integrating commercial, technical and aesthetic aspects. One example is Edward Wormley (1907-1995), who modernized the Dunbar furniture collection in the 1930s to fit contemporary taste. Although not as avant-garde, he was famous for blending classical design principles with modernism. Wormley created an elegant floor globe for Dunbar called the Cosmopolitan. The illuminated sphere is mounted on a brass meridian, fixed to a tall walnut tripod floor stand that supports a horizon ring with three tapered arms.

31
Adrian Pearsall (1925-2011) was an American furniture designer whose company Craft Associates made modernist furniture in the 1950s and 1960s. He collaborated with Replogle to create this modernist floor globe, featuring four curved legs in dark walnut that embrace a brightly colored illuminated sphere. The sixteen-inch sphere is made of plastic, covered with paper map gores, and set in a brass full meridian. The globe evokes the feeling of the atomic age. The elegant composition, fit for a modernist interior, is reminiscent of the sculptures of Henry Moore (1898-1986).

BLACK SLATE GLOBES

Chalk-and-Talk

Scottish education reformer James Pillans (1778-1864) hung a large slate plate on the wall of his classroom to write on. His groundbreaking invention, the blackboard, was recognized as a classroom necessity by the British Council of Education as early as 1844. Chalk-and-Talk became the standard teaching method: the teacher addresses the students while visualizing the subject on the blackboard. The spherical blackboard followed in 1856 when German globe maker Joseph A. Brandegger (1797-1890) invented the Induktionsglobus, which allowed ideas to be induced onto the empty sphere. A year later, Forrest Shepherd (1800-1888) patented a black slate globe in the U.S., coated with a black substance made by the Candee Rubber Company in New Haven, CT. Another name for it is blank slate globe, referring to its lack of cartography.

Navigation training
U.S. Navy Quartermasters working on a blank slate globe / *Norfolk, Virginia, 1944*

Wipe-Off

The most extreme black slate globes are pitch black without geographical indications. Some have a grid of latitudes and longitudes, while others show the contours of landmasses. Most are mounted directly on a pin to avoid a meridian, making the globe easily accessible for drawing. In the postwar period, black slate globes were popular hands-on teaching tools: students could sketch countries, rivers, or time zones on them or draw principles of astronomy or goniometry. After the lesson, the chalk could easily be wiped off to empty the globe for the next assignment. Otto E. Geppert (1890-1970) of the Denoyer-Geppert Company wrote: *"Sometimes I refer to this globe as similar to a storage battery. Looking at a storage battery we do not see very much, but it has a remarkable potential. It starts the car motor, it lights the lights, it plays the radio"*.

Squeaking Felt Pens

Throughout the twentieth century, many globe makers promoted black slate globes. In Europe, this included Dietrich Reimer and Paul Räth, while in the U.S. companies like Cram, Denoyer-Geppert, Rand McNally, and Nystrom were notable producers [nos. 63-65]. Weber Costello, the largest U.S. producer of chalk sticks and wipers, made many black slate globes, including an elegant art nouveau model on a cast-iron stand. After Sidney Rosenthal (1907-1979) invented the Magic Marker in the 1950s, the powder dust and scratching sound of chalk on a blackboard were gradually replaced by the squeaking sound of an alcohol felt pen on whiteboard. The Danish Scan-Globe company published a whiteboard globe in the 1970s, made of white plastic, with coastlines and borders in dotted black lines. One could draw on its smooth surface with felt pens and wipe it off afterward with a cloth [no. 62].

47
A Czechoslovakian school supplier manufactured this black slate globe in the 1970s. The model has a thirty-centimeter black sphere that features only a few basic geographical indications, such as the shape of the coastlines as red lines, the equator and the Greenwich meridian as yellow lines, and the Tropic of Cancer and Capricorn as blue lines. It provides teachers and students with a reference for drawing geographical information with chalk on this three-dimensional map. The black sphere is mounted on a graded meridian of translucent plastic and attached to a modernist steel wire stand.

DAY-AND-NIGHT GLOBES

Circadian Rhythm

Austrian neurologist Sigmund Freud (1856-1939) pioneered psychoanalysis, the theory of the unconscious, which dominated the twentieth century. In his book *Die Traumdeutung*, he introduced the interpretation of dreams. Dreams occur during our sleep-wake cycle, which is controlled by an internal biological clock that follows the twenty-four-hour cycle of night and day on Earth, a process called the Circadian rhythm. In the twentieth century, the Circadian rhythm became even more apparent when it was disrupted by long-distance air travel, leading to a novel condition known as jet lag. The day-and-night cycle is the result of the Earth revolving around the Sun while spinning on its axis, as proven five hundred years ago by Polish astronomer Nicolaus Copernicus (1473-1543). Various astronomical instruments have been created since then to demonstrate the day-and-night phenomenon.

Trippensee Tellurian

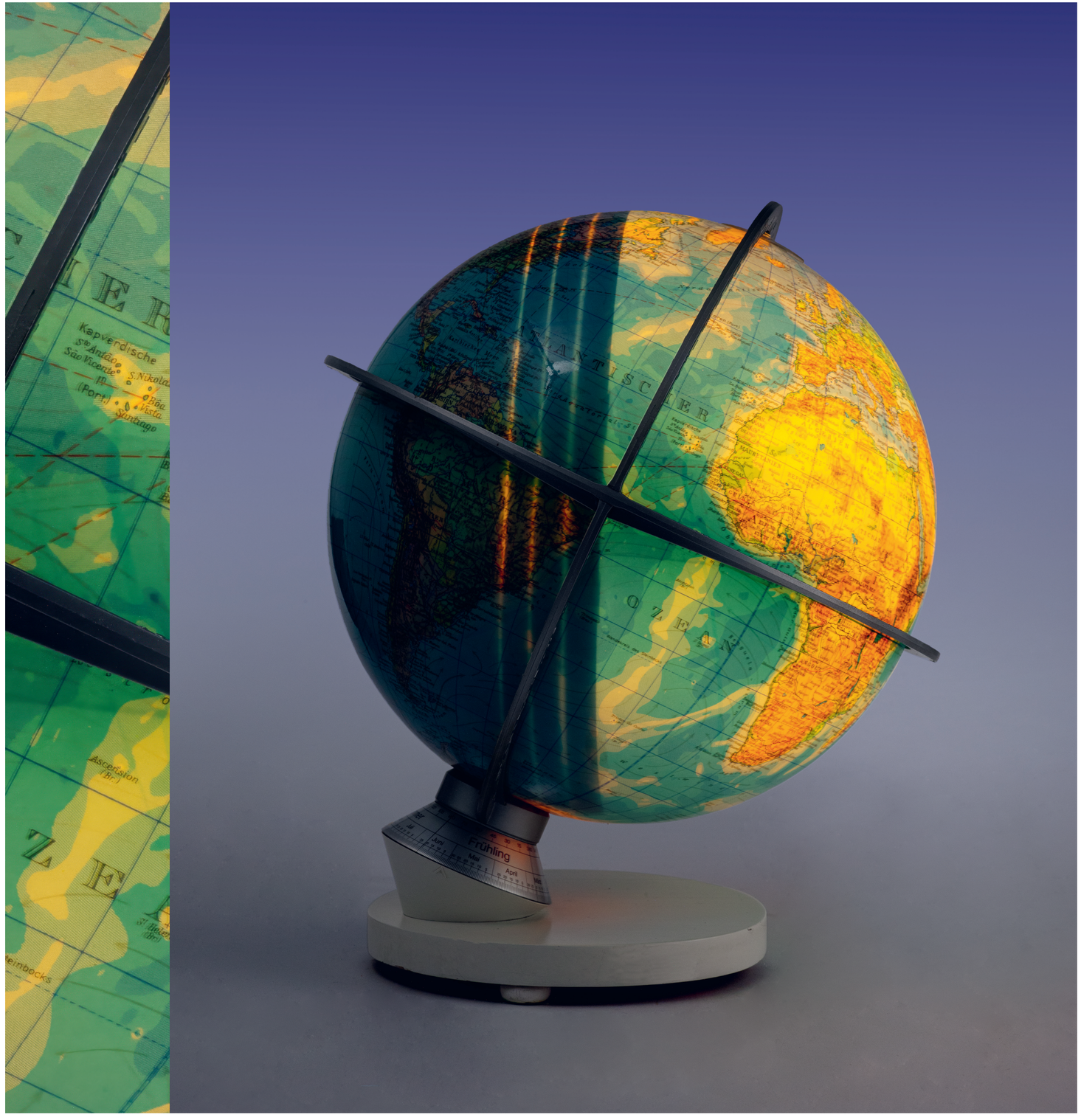
Canadian Alexander Laing (1845-1917) patented a mechanical Tellurian in 1896. A Tellurian is a model of the Earth, the Sun, and the Moon with movable parts, connected with pulleys and chords, to demonstrate orbits and rotations, the day-and-night cycle, the four seasons, and the phases of the Moon. At the position of the Sun, there is an electric light to simulate sunlight. Ten years later, the Trippensee Brothers, a company supplying automobile parts for Buick and Ford in Detroit, began producing Laing's Tellurian and improved the design using chains and gears. The early Trippensee Tellurians were built of wood and brass, while the later ones were made of Bakelite and plastic. At the end of the twentieth century, the company was acquired by Science First, a scientific learning aids producer in Buffalo, which still produces the Trippensee Tellurian today [no. 108].

Night Caps

The George F. Cram Company from Indianapolis started producing the Sun Ray Globe in the 1930s. This terrestrial globe is equipped with an automatic sun ray and season indicator and a day-and-night meridian. The meridians can be adjusted and pointed to a specific time of the year, printed on its circular base. It demonstrates astronomical phenomena such as the seasons, day and night, the position of the Sun in relation to the Earth, the angle of the sun rays, and more [no. 67]. A straightforward solution to show the day-and-night cycle is the Capped Globe. This type of globe has a rotating shield that covers the part of the globe where it is nighttime. One example is the Kugelhauben-Globus patented around 1910 by Johann Georg Rothaug (1850-1924) in Vienna. Another example is Dietrich Reimer's 1930 clock globe [no. 78].

The difference between day and night
Eveready Flashlights advertisement, painting by Frances Tipton Hunter / *U.S., 1930s*

55
Peter Oestergaard of Columbus Verlag in Stuttgart, renowned for its innovations, modernized the concept of the capped globe and patented a special day-and-night globe in the 1973, known as the Planet Erde Globe. The thirty-centimeter illuminated translucent plastic sphere contains a cap inside, resulting in illuminated and darkened areas that simulate day and night. As the globe rotates, the light zone progresses, akin to reality. By adjusting the meridian, users can shift the Earth's inclination to demonstrate the transition of the Sun between the northern and southern hemispheres during various seasons of the year.



CONSTELLATION GLOBES

Physicists and Superheroes

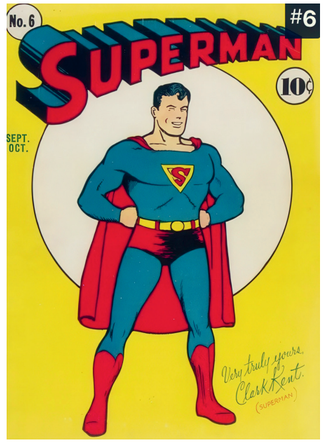
German-born Albert Einstein (1879-1955) was one of many physicists in the early twentieth century who promoted groundbreaking new concepts about the universe. His 1915 *Theory of Relativity* introduced concepts such as time travel and parallel dimensions. A few years later, Belgian Jesuit and physicist Georges Lemaire (1894-1966) was able to reconcile religion and science when he postulated the Big Bang Theory. This theory suggests that the universe originated from a singular point, more than thirteen billion years ago, and has been expanding ever since. These exciting new scientific theories inspired popular culture. Comic book artist started a new genre in the 1930s with superheroes from faraway galaxies, such as Superman, who was born on planet Krypton and possesses supernatural powers, including the ability to travel in time.

Zodiac and Horoscope

Superheroes stand in a long tradition of fascination with the universe. Already in ancient times, people tried to grasp the mysteries of the night sky by joining stars into the constellations and drawing them as mythical figures and animal shapes on their celestial globes. These constellations of the zodiac were believed to have cosmic powers that influence the fate of humans on Earth, an idea continued in the pseudoscience of astrology and its horoscopes. In the 1920s, the International Astronomical Union used the constellations as a basis for an official mapping of the universe, listing eighty-eight constellations as rectangular territories in the sky. Some globe makers adopted this new system, while others retained the mythological figures floating on a background of golden stars to create romantic constellation globes [nos. 30, 94, 159, 166, 168].

Mythical Animals

Vallardi, the Italian publishing house, created a remarkable constellation globe. Its map gores were designed by Italian astronomer Ernesto Sergent-Marceau (1832-1897). The pale-green sphere, adorned with classic illustrations of the zodiac, balances on top of a modernist brown Bakelite fin-shaped stand. The Danish Scan-Globe created a twelve-inch Constellation Globe in the 1970s, with a star map by Karl F. Harig (1940-). The acrylate sphere displays a blue celestial globe with yellow stars. However, once the internal light is switched on, a colorful drawing of the constellations comes to life, with green and red animals and mythological figures floating in a purple universe. The globe came with an exuberant curved transparent Plexiglas stand, that was also used for terrestrial globes by Scan-Globe and Replogle during that period [no. 105].



Superman
Cover of the comics book series *No. 6* by Jerry Siegel and Joe Shuster / *U.S., 1940*

94
Rand McNally from Chicago created this twelve-inch constellation globe in the 1950s. Its paper gores feature a map drawn by astronomer Oliver J. Lee (1881-1964). The stars are bright yellow, with magnitudes from one to five. Classical constellation figures are drawn as light-blue lines on a dark-blue background, in a fluid contemporary style. The sphere is fixed to a gimbal metal stand, allowing it to be rotated and observed from all directions. The company sold a smaller nine-inch globe with the same constellation map, mounted on a Bakelite stand, called The Galileo [no. 168].

ART GLOBES

International Klein Blue

French artist Yves Klein (1928-1962), born in Nice, began his career as a black belt judoka. His next step was to move to Paris and dedicate his life to art. Klein created monochromes in an effort to "*liberate color from the prison that is the line*" and "*make visible the absolute*". In his quest to capture immateriality and the infinite, he developed a special blue color, a new formula branded International Klein Blue (IKB). It is a bluer-than-blue color that radiates vibrant waves, engaging the eyes of the viewer, "*... allowing us to see with our souls, to read with our imaginations*". Klein applied it to many works, including on an IKB-globe. He wrote the following: "*In 1957 Yves Klein stated that the Earth was entirely blue. It was on that occasion that he created a Blue Relief Globe ... Four years later cosmonaut Gagarin stated in April 1961 that the Earth is of a deep intense blue!!!*" [see page 246].

Calfskin

Italian artist Claudio Parmiggiani (1943-) worked in the spirit of the ZERO movement. Several of his works include maps and globes, depicting Earth as a vulnerable organism. One work features an inflatable globe, folded in a closed glass jar, marked with a label 'Globo', suggesting that Earth is fragile and needs protection. Another work called *Terra* is a large, seventy-centimeter terracotta globe. During a performance in 1989, Parmiggiani buried the globe in the garden of the Museum of Contemporary Art in Lyon. The idea is that the Earth is invisible as a whole, a precious object buried like a treasure: "*... a sculpture that wants to be secret, invisible, born for no exposition and for no public ...*" [see picture above]. In his work *Tavole Zoogeografiche* he manipulates pictures of five cows, giving each one a skin pattern in the form of a map of one of the continents.

World Processor

German artist Ingo Günther (1957-) has been working on his *World Processor* for forty years already. The aim of this project is to map the global condition by using illuminated globes. Günther has created more than a thousand thematic globes based on objective data. These topics range from political conflicts and social issues to the natural world and other concerns. The data are immediately comprehensive and intuitively accessible, thanks to their strong visual presentation. The colorful globes are exhibited in monumental installations, creating a memorable experience that encourages visitors to engage with the themes and with each other. In Günther's own words: "*... I am challenged by the incomprehensibility of the world's totality ... every globe requires the invention of a new code in order to represent the data appropriately and effectively ...*" [no. 198].

Terra
Performance by artist Claudio Parmiggiani / Musée des Beaux-Arts / *Lyon, 1989*

185
Italian artist Claudio Parmiggiani worked in the spirit of the ZERO movement. Several of his artworks incorporate a globe, such as this one from 1968, called *Pellemondo* (Skinworld). The sphere is enveloped in calfskin and mounted on an aluminum stand. The distinctive black-and-white pattern of the calfskin resembles a world map, with black landmasses contrasting against a white ocean. However, the tactile surface of the hairy animal skin suggests that the world is a precious living organism, one that must be treated with respect, nurtured, and protected by humans.