THE RICHES OF THE EARTH

25 March 2015 - 29 October 2017

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This display gathers together works from the collections at Waddesdon that embody or celebrate the riches of the earth. There are works made of clay, stone and metal – extracted from the earth and cut, embellished or transfigured by human skill. There are objects made for treasure rooms and cabinets of curiosity, for domestic use and for personal adornment. Some works show off the intrinsic qualities of the natural materials – pearls, amber, quartz – while others impress the viewer with the transformation of mineral ingredients into other materials, including porcelain and enamel.

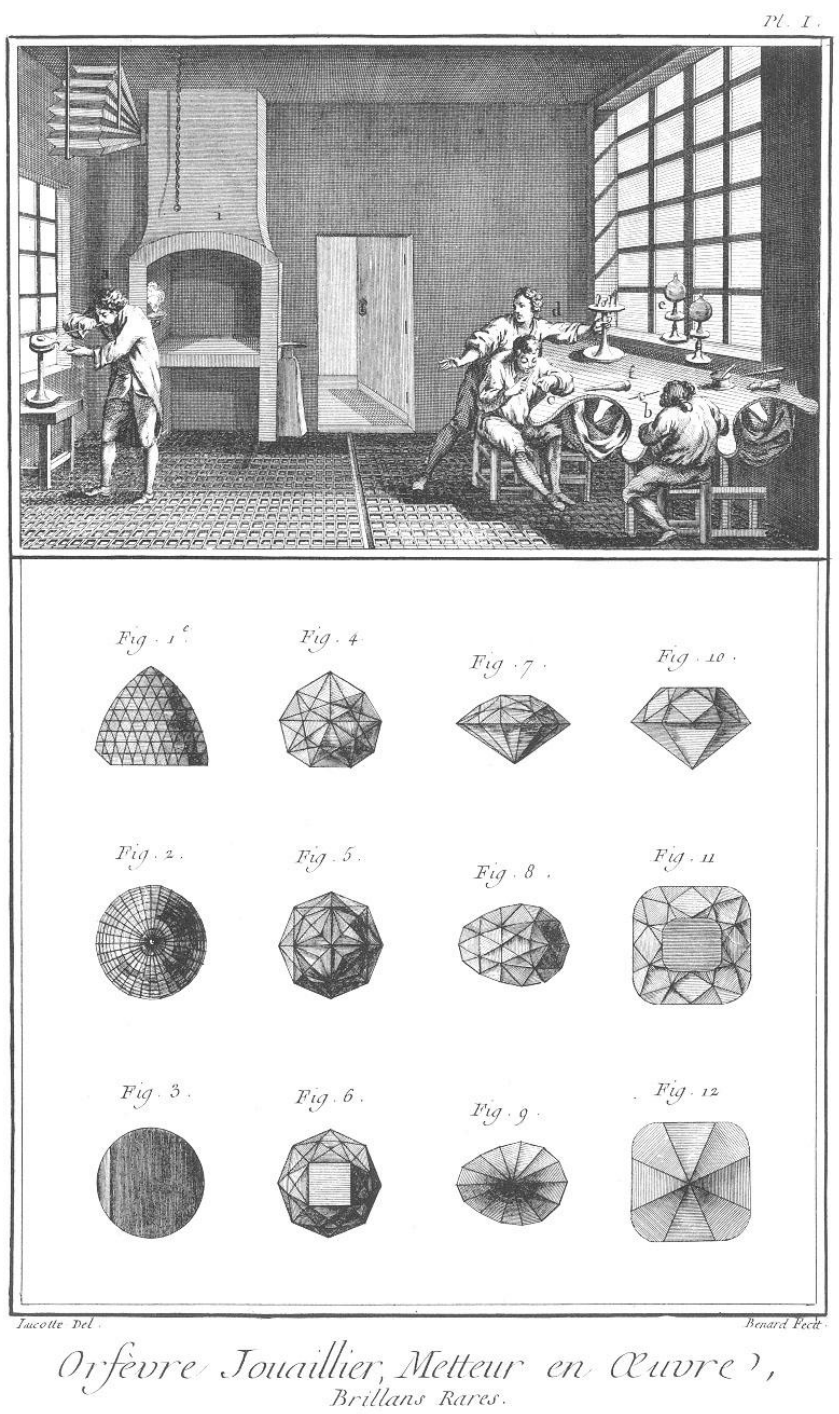
Dating from the 16th to 19th centuries, the works in this display are products of changing scientific cultures. The Four Elements (Earth, Air, Fire and Water) formed the basis of the understanding of matter into the 18th century when that model was gradually broken down by the development of chemistry and the new understanding of 'elements' that culminated in the development of the Periodic Table. Most of these works are the product of collaborative labour, and they bear witness to the knowledge about the origins, properties and possibilities of materials from the earth that was gleaned in workshops and through the experiment and enquiry of alchemists, natural philosophers, artists, designers, scientists and industrialists.

In his book, *The Spectacle of Nature* (1732-51), a French clergyman compared the Earth to a laboratory where one could learn the principles of nature. He described how air, water, fire, salts and generative juices in the earth combined in the creation of its mineral resources – a cabinet or treasure chest laid out for mankind.

For the writer and connoisseur Antoine-Joseph Dézallier d'Argenville (1680-1765) the Earth was the first element, giving nourishment to man, animals and plants. He invoked the Roman writer Ovid's description of earth as our ultimate parent and recalled Ovid's image of stones being the bones of the earth.

This frontispiece to a book about natural history depicts a personification of Oryctology (the science of 'fossils' or things dug out of the earth) based on the traditional iconography of Natura (the personification of Nature). She sits among boulders at the water's edge, holding a madrepore (from the sea) in one hand and an ammonite in the other. Crystals and shells lie at her feet; men heave minerals from the ground; a figure works at a rock-face with an adze. Birds draw attention to the air while fire is visible at the top of a volcano on the right. The image reflects contemporary understanding of Earth as one of the Four Elements and of the formation of materials within the earth through the interaction of all four.

Chedel after Devermont, *L'oryctologie*, frontispiece from A.-J. Dézallier d'Argenville, *L'histoire naturelle…*, (Paris, 1755). Biodiversity Heritage Library



Frontispiece to Philip Jacob Hartmann, *Succini Prussici physica & civilis historia cum demostratione ex autopsia et intimiori rerum experientia deducta*. Frankfurt, 1677. National Library of Czech republic, BH FOA 2909

These men are using a spade and a net to gather amber on the Baltic coast. Because it was most frequently found by the sea, amber was sometimes thought to be of marine origin, although in fact it is fossilised tree resin.

'Orfèvre Jouaillier, Metteur en OEuvre, Brillans Rares' (plate 1) in *Encyclopédie, ou dictionnaire raisonné des sciences, des arts et des métiers, etc.*, eds. Denis Diderot and Jean le Rond d'Alembert. University of Chicago: ARTFL Encyclopédie Project (Spring 2013 Edition), Robert Morrissey (ed), http://encyclopedie.uchicago.edu/

The workshop of these gemstone goldsmiths is dominated by the furnace and lit with enormous window. Specialist tools allow them to cut diamonds in ways that reflect and refract the light.

Circle of Johann Heinrich Köhler (1669-1736), *Orpheus taming the animals*
German, *c*. 1720 (cameos 1550-1600)
bronze, gold, silver, enamel, diamond, ruby, pearl and precious stones

A wondrous combination of nature and art, objects like this were highly prized for the Schatzkammern or 'treasure rooms' assembled by European rulers and their richest courtiers in the 17th and early 18th centuries.

In classical myth, Orpheus was a poet and musician who could charm wild animals with his lyre. The goldsmith formed parts of the human and animal bodies and the tree's fanciful fruit out of irregularly shaped (or 'baroque') pearls. The French priest Dominique Bouhours (1628-1702) wrote that precious stones, extracted from rocks, owe their lustre to the industry of man, but pearls are perfected and polished by Nature before being detached from the shell.

Acc. no. 3050

For the full commentary, please click here

Casket, Germany, c. 1650; amber, ivory, wood, brass

Amber is fossilised tree resin. The amber for this casket came from the Baltic Sea and it was made in Königsberg, now Kaliningrad, the former capital of Prussia, which was the leading centre for amber carving in the 17th century. With mysterious static electricity, amber was valued since prehistoric times for magical and medicinal powers as well as its aesthetic beauty - credited with the ability to heal infection, to detect poisons and to test virginity. In classical myth, amber originated in the tears shed by the daughters of the Sun (called the Heliades) at the death of their brother Phaeton. To ease their grief, Zeus transformed them into trees. Their tears oozed out as sap and the sun hardened them into amber.

This architectural piece is a virtuoso display of amber carving, exploiting the different hues and translucencies of the material. Air bubbles are visible in the transparent columns that support the main storey. The figure of Diana, the goddess of hunting, on the roof of the casket and the animals and merfolk that keep watch from the corners are carved from yellower, more opaque amber.

This casket was probably made as a marriage gift. As well as soldiers (carved from ivory) and battle scenes, the outside is decorated with flowers and courting couples. Inside the three separate compartments, the walls and ceilings are decorated with pictorial panels depicting scenes of hunting and sexual desire from Ovid's Metamorphoses. Appropriately for a nuptial gift, they include stories about the relative power of men and women. The largest one (illustrated here) shows Actaeon being changed into a stag as punishment for looking at the goddess Diana and her nymphs while they were bathing. His own hounds subsequently tore him to pieces.

Acc. no. 3145

For the full commentary, please click here

Cup, French, *c.* 1540-1550 ; lead-glazed earthenware

This cup is of an exceptionally rare type of pottery called 'Saint-Porchaire' after a village in south-west France where it was produced.

The fine white clay was fired but not to a temperature high enough to vitrify it, so a clear lead glaze was added to render it non-porous. This piece was built up of several separate components, inlaid with moresque and arabesque designs in coloured slip (watered-down clay) and embellished with shells, masks and chimeras- all favourite Renaissance motifs.

Difficult to make and extremely fragile, these luxury earthenwares, whose elaborate shapes competed with metalwork and with other European court ceramics, were owned only by the aristocracy.

Acc. no. 2773

Bowl, Chinese, *c*. 1725-50; porcelain

A Chinese merchant told a European missionary that trying to make porcelain without kaolin is like trying to make a body without bones. This bowl is made from Chinese hard-paste porcelain, whose chief components are kaolin (an exceptionally fine clay) and feldspar, both derived from weathered granite.

Porcelain is considered supreme among ceramic materials for its extraordinary whiteness and translucency, for its resistance to heat and for the luminosity and permanence of the colours applied to it.

The greyish-green of the glaze on this bowl was achieved by the addition of iron oxide and careful control of the airflow and temperature in the furnace. The behavior of the glaze in the extreme heat is unpredictable and can result in the crazing, or 'crackle,' seen on this piece.

Acc. no. 2507

Sèvres porcelain manufactory,
***Pygmalion and Galatea*,**
French, 1764; soft-paste biscuit porcelain

This unglazed sculpture shows off the whiteness and fine surface of Sèvres's soft-paste porcelain, which was created in imitation of Chinese hard paste. The French royal porcelain manufactory at Sèvres combined a clay called marl with a frit of saltpeter, salt, alum, gypsum, sand and other materials. These were purified, mixed and fired in a furnace. The resulting mass was ground and recombined with water to form a paste, which was left to mature, before being worked by hand and in moulds and fired again.

Pygmalion, king of Cyprus, fell in love with a figure that he had sculpted and begged the goddess of Love Aphrodite to grant him a woman in its image. The figure came to life as Galatea. This sculpture is a reduced version of a celebrated work by Etienne Maurice Falconet (1716-91). The Sèvres porcelain sculpture competes with Falconet's marble in whiteness and the fineness of its surface.

Acc. no 99.1995.1

Claude Michel, called Clodion (1738-1814), *Votaries of Bacchus*, French, early 1780s; terracotta

This young couple are bringing offerings for Dionysus or Bacchus, the god of wine, theatre and fertility.

Clodion was an exceptionally skilled modeller of terracotta (which means baked earth, in Italian) during a period of unprecedented interest in the material. Terracotta was traditionally used to make studies for larger works in more robust and expensive materials such as stone or bronze, but by the late 18th century, terracotta sculptures were seen as independent works of art. The porous clay was favoured for the representation of warm flesh and it was valued for the way it retained evidence of the artist's touch.

Clodion incised the pitcher with crisp, linear decoration and he used a tool to gouge out slivers of clay to texture the rocks and plants at the back. Contrastingly, the grapes were formed in the sculptor's hand and the figures' skin was smoothed with wet fingers.

Acc. no. 2457

Frederick de Veer, Snuff box, England, *c.* 1740-1750; gold

'Gold is the heaviest, the most dense, the most simple, the most ductile, and most fixed of all bodies; not to be injured either by air or fire, and seeming incorruptible' (Samuel Johnson, *A Dictionary of the English Language*, 1755).

The undulating form, curvilinear chasing and *bombé* sides of this English box are rendered even more dynamic by the way light moves across its reflective surface. Eighteenth-century scientists used a symbol of the Sun to denote gold, preeminent over all the other metals, which were called by the names of the planets. The lid of this box is decorated with a scene of Apollo with a musician. As well as the god of Music, Apollo was god of the Sun.

Acc. no. 2819

Sewing box, German?, *c.* 1760, gold and mother-of-pearl

This box contains sewing and personal items, including scissors and a needle-case, ear and toothpicks. On the front a boy is blowing a long alpine shepherd's horn beneath a tree with extravagantly curling branches and roots.

Mother-of-pearl (nacre) is the iridescent material that makes up the inner layer of some shells. Its watery origins contrast with the gold, found in the earth and melted, purified and shaped with fire.

Mother-of-pearl is not particularly expensive, but was 'ennobled' by using sophisticated techniques to work it and combining it with more prized materials. Gold is so precious that goldsmiths' clothes were burnt on a regular basis to extract the gold dust they contained.

Acc. no. 2795

Sewing box, German?, *c.* 1740-50, gold and mother of pearl

This box unites the realms of earth and sea with its combination of gold and mother-of-pearl. The raised decoration in gold continues and repeats the motifs that are engraved in the mother-of-pearl. On the lid, a Native American man with a feather headdress stands before a woman who is using one of the rococo scrolls as a hammock.

The European 'discovery' of new places and peoples is reflected in the decoration of many luxury goods such as this, through which unfamiliar cultures were encountered and consumed.

Acc. no. 2681

Double snuff-box, English?, *c*. 1740-50; agate and gold

In his *Dictionary* (1755), Samuel Johnson called agate 'a precious stone of the lowest class, often clouded with beautiful variegations'. The geologist John Woodward had described some of these variations 30 years before: 'a grey horny ground, clouded, lineated or spotted with different colours, chiefly dusky, black, brown, red'.

The playful use of scale in the design of this box encourages enjoyment of these patterns. Despite the small size of the box, the arches, balustrades and herms of the gold cagework give it an architectural monumentality and create the illusion that the flat panels of agate are in fact windows onto a mineral universe.

Acc. no. 2820

Notebook, English?, *c*. 1760; gold, moss agate, ivory and precious stones

This case contains four ivory tablets for writing on, two gold-tipped pencils and a mirror. Craftsmen arranged diamonds, rubies and emeralds in the shape of flowers to decorate the gold cagework. However, the ferny forms in each of the main plaques are natural phenomena, created because of the presence of manganese and iron oxide in the stone. Moss agate (or 'dendridic' agate) was particularly prized for the way the images it contained confounded the boundaries between nature and art.

Many 17th- and 18th-century *Kunstkammern*, or cabinets of curiosity contained pictorial agates. However, this tactile notebook was part of the personal accoutrements of its owner, designed to be kept in a pocket or held in the hand.

Acc. no. 2807

Flask, English, *c.* 1760; agate, gold and enamel

Decorated with cupids and doves, the inscription around the neck of this love-token reads: UNIS A JAMAIS (united forever).

The specimen of red striated agate that forms the body of the flask may have been chosen because it matched the fiery feelings of the buyer.
Agates are produced within the fissures of volcanic rock when microcrystalline silica fibres form on the walls of veins and cavities and grow inwards.

Acc. no. 2818

Jean-Joseph Barrière (active 1763-1793), Snuffbox, French, 1767-69, gold and enamel

What appear to be areas of lapis lazuli are in fact enamel imitations of the bright blue stone. However, far from being a cheap alternative, this clever imitation was enormously demanding. The process involved the fusion of several layers of glass to the metallic surface, firing in a furnace and then laborious polishing.

As if to vie with the variety of colours in the imitation lapis and the central pictorial scene, the gold borders are articulated with different hues, made by adding other metals to pure gold. The reddish gold is an alloy of copper and adding silver produced the greenish gold.

Acc. no. 2.1997

Snuffbox, German, *c.* 1750, amethystine quartz, semi-precious stones (including turquoise, lapis lazuli, agates and jasper) and gold

Snuffboxes – for a form of powdered tobacco - were not static objects, but designed to be shown off in close company, balanced in the palm of the hand while a pinch of snuff was taken or offered to others. Only in movement can the transparency of the quartz walls and top of this box be appreciated. The lapidary chose his stone carefully – the darker colour of the amethyst at the base suggests the ground with air above.

The walls of this box are 18th-century, in the manner of Benjamin Gottlob Hoffmann, who was famous for his decoration with fruit and insects. The cover and mount are 19th-century replacements.

Acc. no. 111.1996

Goblet, German, 17th century (the stem later), rock crystal, gold, enamel and jewels

In antiquity, rock crystal was thought to be petrified ice. It is in fact a form of quartz, a mineral formed from silicon and oxygen. It was long thought to be the basis of other gems and its luminous purity made it one of the most alluring of all materials before craftsmen mastered the art of imitating it in clear glass.

This goblet was hollowed out with saws, drills and grinding wheels, with the help of abrasives such as emery and diamond. Contemporaries would have recognized the enormous skill required to produce its thin walls, delicate engraving and the handles formed of imaginary creatures with open mouths and fishtails. The undecorated areas are no less remarkable as their smoothness and clarity is the result of the arduous polishing.

Acc. no. 101.1995.2

Ewer, French, 17th century; sardonyx, gold, enamel and rubies

An antique vase – Roman or Byzantine - was transformed into a ewer in the 17th century by the addition of a gold handle, spout and foot, enamelled and set with jewels.

Sardonyx is a variant of agate with parallel bands of reddish brown and white. The Roman writer Pliny the elder said that when the stone is cut in certain directions, it resembles flesh as seen through the fingernail. Seventeenth-century literature makes clear that its dramatic colouring and translucency and its resemblance to blood, skin and wax was a source of fascination.

Acc. no. 3447

WADDESDON
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Yakov Vasilevich Kokovin (1787-1840), Vase, Russian, *c.* 1800-1818; jasper and gilt bronze

Jasper is an opaque form of chalcedony, which is a microcrystalline variety of quartz formed from silica-rock sediment or volcanic ash. Patterns form when other minerals penetrate the rock. The stone from which this vase was made is coloured red by inclusions of iron.

This jasper was mined in the Ural Mountains, the source of many of Russia's most precious minerals. It was made into a vase in Ekaterinberg, where the mapping of mineral deposits, mining technology and the invention of new techniques for the cutting and shaping of hardstones had long been supported by the Tsars.

A vase like this could take 7 or 8 years to carve. The large amounts of quartz in the jasper meant that different techniques had to be used to work and polish different parts.

Acc. no. 22.2002.2

Georg Schwanhardt the elder (1601-67), Goblet, German, 1651 (with some later additions); rock crystal, gold and enamel

Schwanhardt was the leading engraver of rock crystal in Nuremberg, Germany, which had been a centre for the art since the 15th century. The festoons with bundles of fruit were wheel-engraved and the stag hunters and shepherd under tall trees were engraved with a diamond point.

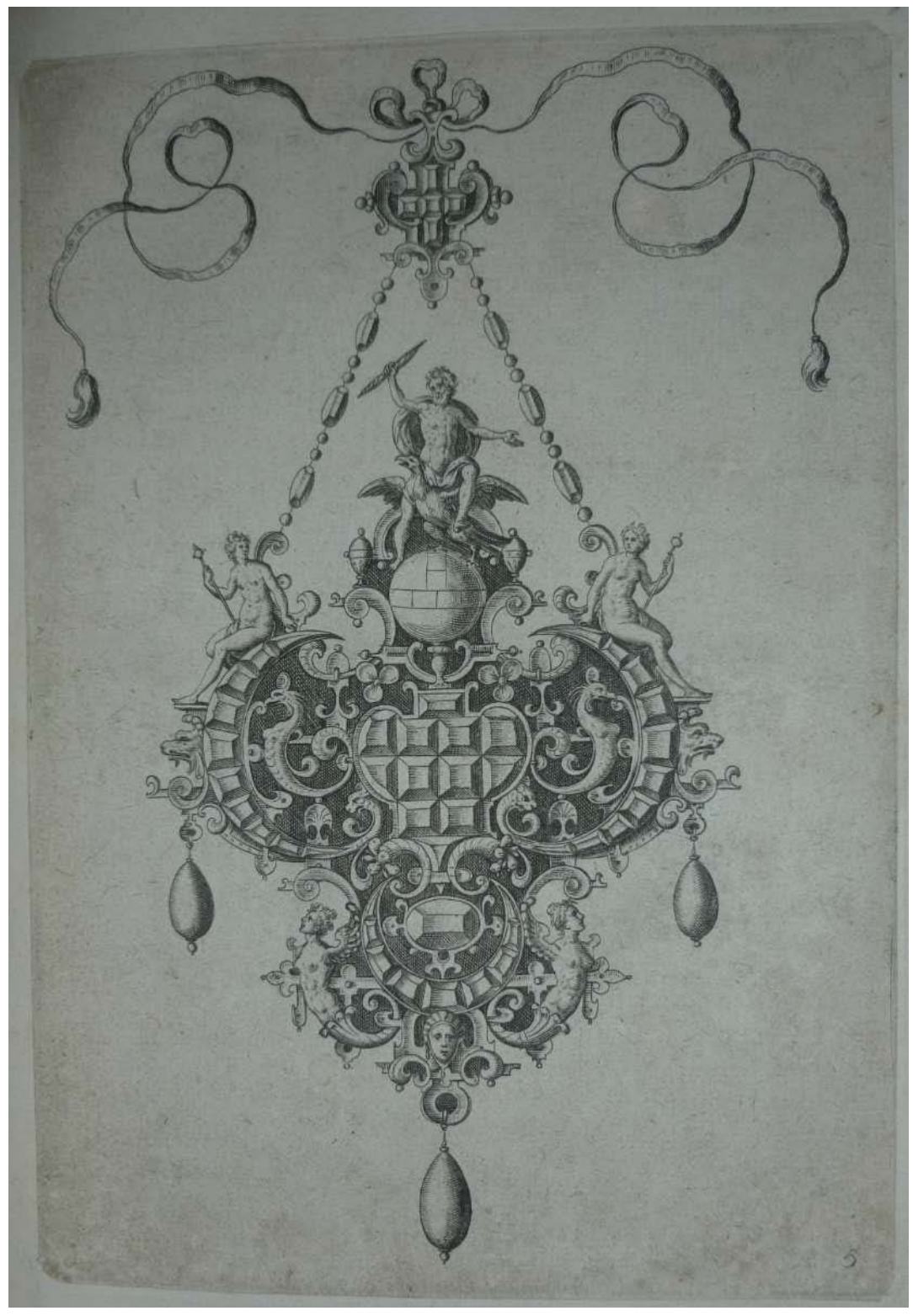
Acc. no. 101.1995.4

Pineapple, French, mid-18th century; garnet, gem gravel, spinel, Serpentine marble, jade, and rock crystal, with gilt bronze mounts

Pineapples – from South America – were introduced into Europe in the 17th century and their cultivation quickly became a focus for experimentation among gardeners and scientists. In 1733 Louis XV was presented with a pineapple grown at Versailles.

This bizarre object teases the viewer with tensions between the life-size fruit that it represents and the artful use of stones to mimic it. The surface of the fruit is formed with big, ground and polished garnets and gravel made of garnet and spinel (a gemstone sometimes mistaken for rubies). The soil from which it appears to grow is also made of gemstone gravel. The leaves are particularly life-like. Three of the under leaves are of engraved Serpentine marble and the others of jade. Half way up the pineapple is a bee, carved from rock crystal.

Acc. no. 2684



Jan Baptist (Hans) Collaert (*c.* 1530-1581), *Monilium Bullarum Inauriumque Artificiocissimae Icones.* Antwerp, Philip Galle (1537-1612), 1581;
[Bound with] Jan Baptist (Hans) Collaert (*c.* 1530-1581), *Pars altera. Bullarum inaurium etc. archetypi artificiosi.* Antwerp, Philip Galle (1537-1612), 1582

This is one of a series of designs for jewellery by the Flemish engraver Collaert. Incorporating classicizing figures and fantastical creatures, the pendant is crowned with the figure of the supreme Roman god Jupiter, holding a thunderbolt and seated on an Earth-like globe. This sphere could be materialized in gold or with a large pearl. Below, the design lays out the riches of the earth and sea – table-cut stones and pear-shaped pearls set into an elaborate framework of gold.

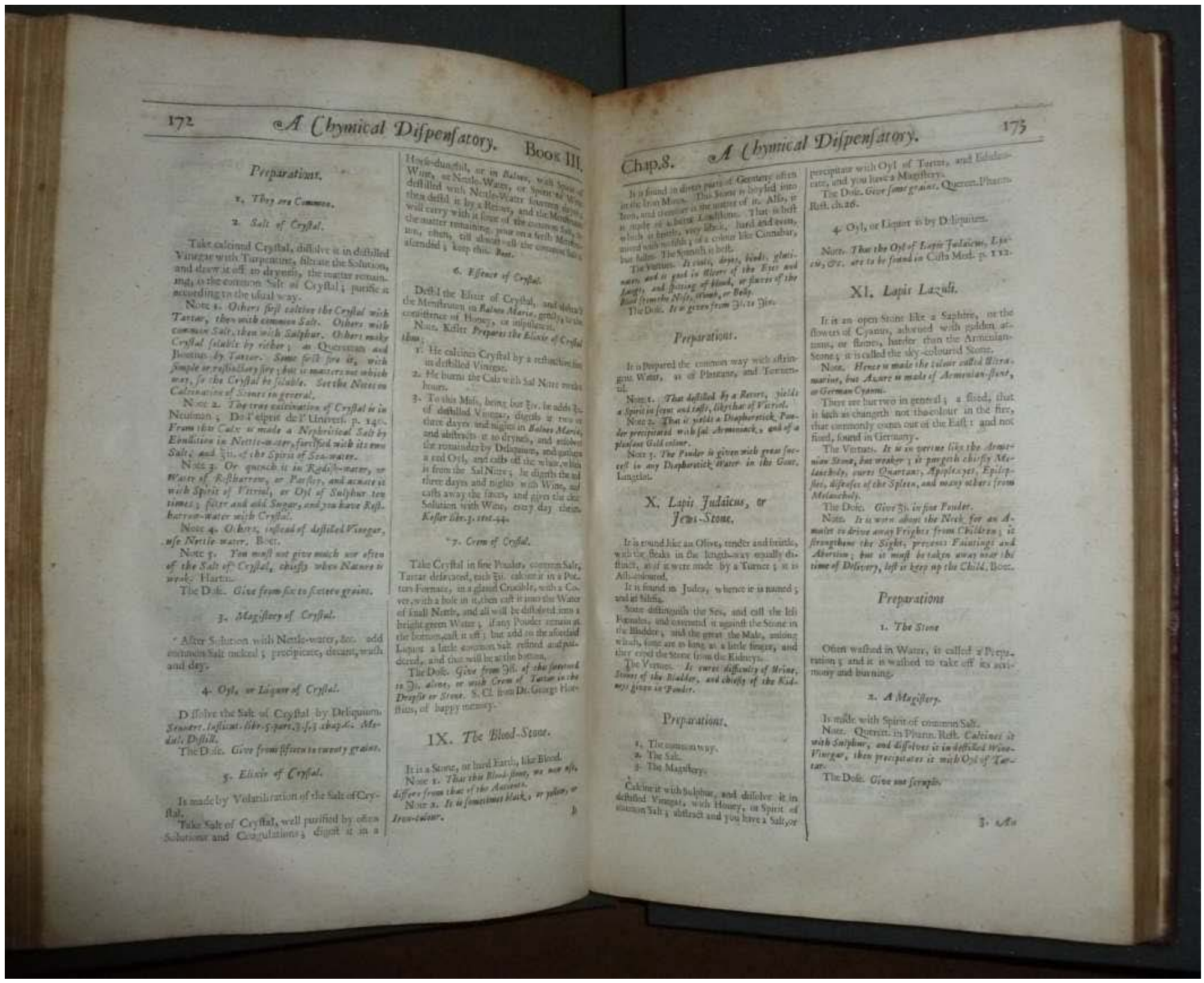
Acc. no. 3189

Pendant, Spanish, *c.* 1600 (with 19th-century additions), gold, enamel, diamond, emerald and sapphire

What is now a pendant was originally an aigrette – an ornamental tuft of upright feathers – and this enameled and gem-encrusted jewel would have supported a real plume where now there are emerald and sapphire drops. Aigrettes were particularly fashionable adornments for men's hats in the late 16th century, but were also worn by women.

Much of the drama of this piece, which would have moved as its wearer moved, comes from the transparent, colourless diamonds. Diamond, which is pure carbon, is the hardest of all minerals. During the Renaissance, the development of continuous rotating motion tools enabled craftsmen to grind facets more easily and to cut diamonds into new, more brilliant shapes. The point and rose cut diamonds on this jewel maximize the reflection of light both inside and out.

Acc. no. 323.1997



Johann Schroeder (1600-1664), translated by William Rowland. *The compleat chymical dispensatory, in five books: treating of all sorts of metals, precious stones and minerals, of all vegetables and animals, and things that are taken from them, as musk, civet &c. How rightly to know them, and how they are to be used in physic*. London, John Darby, 1669

As its long title makes clear, this book describes the riches of the earth, their characteristics and applications, from magical to medicinal.

Acc. no. 3791

Pair of Ruby Glass Candlesticks, South German (probably Munich or Freising), late 17th century; gold-ruby glass and silver gilt

Glass is made by heating silica (from sand or flint) and other materials to a viscous state and then rapidly cooling the molten mixture. Red glass was particularly highly prized but difficult to make. Alchemists in the 17th century were among the first to create the colour, identified with the precious stone, ruby. They were practiced in purifying raw materials and in transfiguring them in furnaces. Heating a solution called 'purple of Cassius' (a tincture made by the reaction of gold with tin chloride) produced a red that the alchemist Johann Rudolf Glauber called 'gold's soul'.

Acc. no. 2934.1-2

Suzanne de Court (dates unknown), *The Annunciation,* Limoges, French, *c.* 1600; enamel

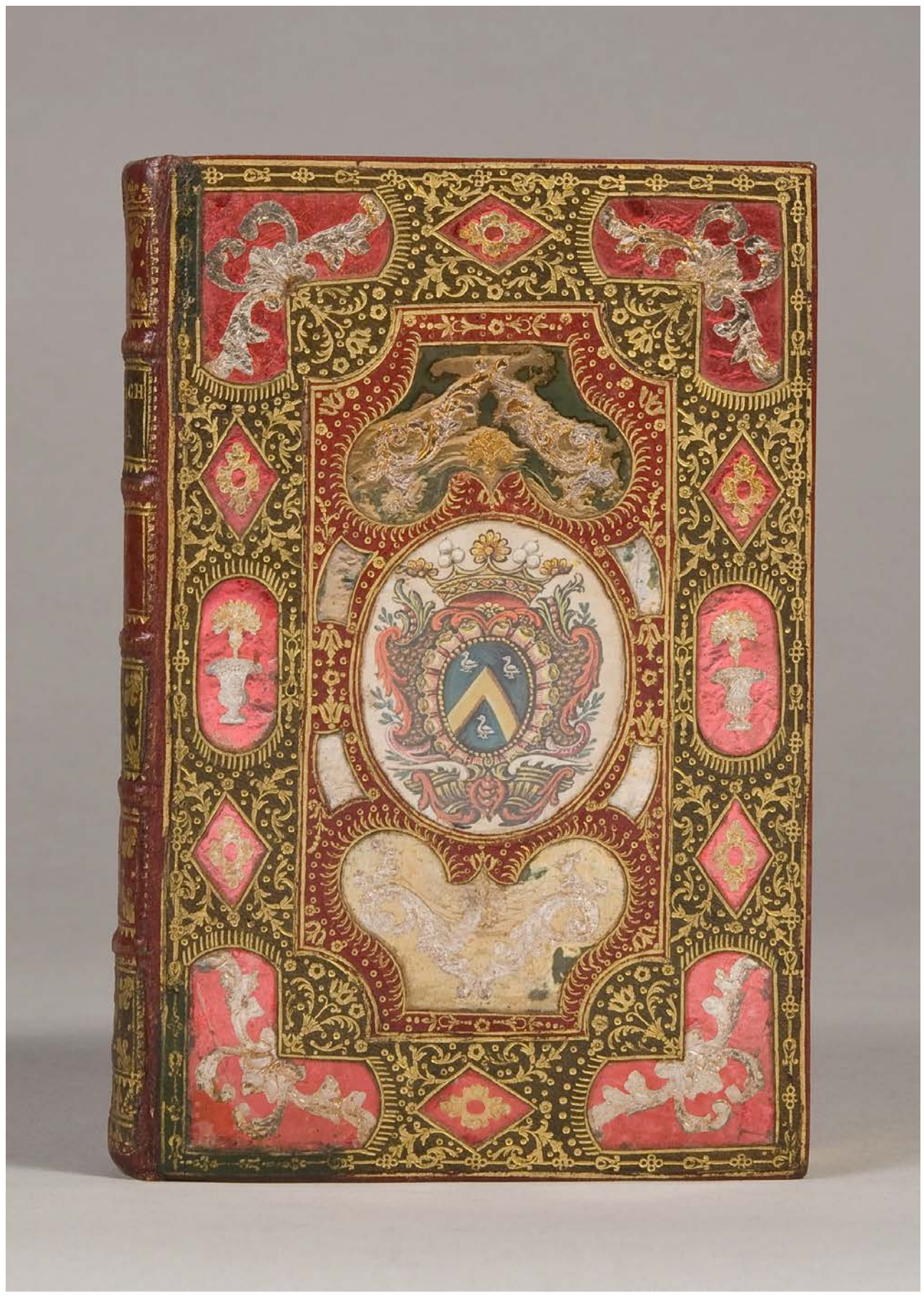
Shrouded in secrecy, enamellers used fire to transfigure a mixture of metallic oxides and ground glass and to fuse them onto a copper surface. Here, the deep blues (made with cobalt oxide) and greens (of copper oxide) are made to shimmer with foils – thin pieces of gold or silver – laid beneath the translucent enamel to reflect light. As the oxides, including manganese, lead and antimony, melted at different temperatures, a plaque could be fired up to 12 times, at temperatures of 700-900 °C.

Acc. no. 3163.1

***The Four Elements*, English, 1650-75, silk, velvet, silver wire and thread, glass and wood**

In the 17th century the Four Elements – Earth, Air, Fire and Water - were still the basis of the understanding of matter. This embroidery shows a betrothed couple framed by allegorical representations of the Elements in surroundings that evoke an Eden-like world of life, ripeness and plenty. The figures at the top embody Fire and Air with attributes of a lit beacon and a windmill. The realms of Water and Earth particularly caught the embroiderer's imagination. She sewed seed pearls, shells, beads, mica and glass painted to look like coral at the feet of Water. Oversized insects hover beside the figures of Water and Earth.

Acc. no. 7172

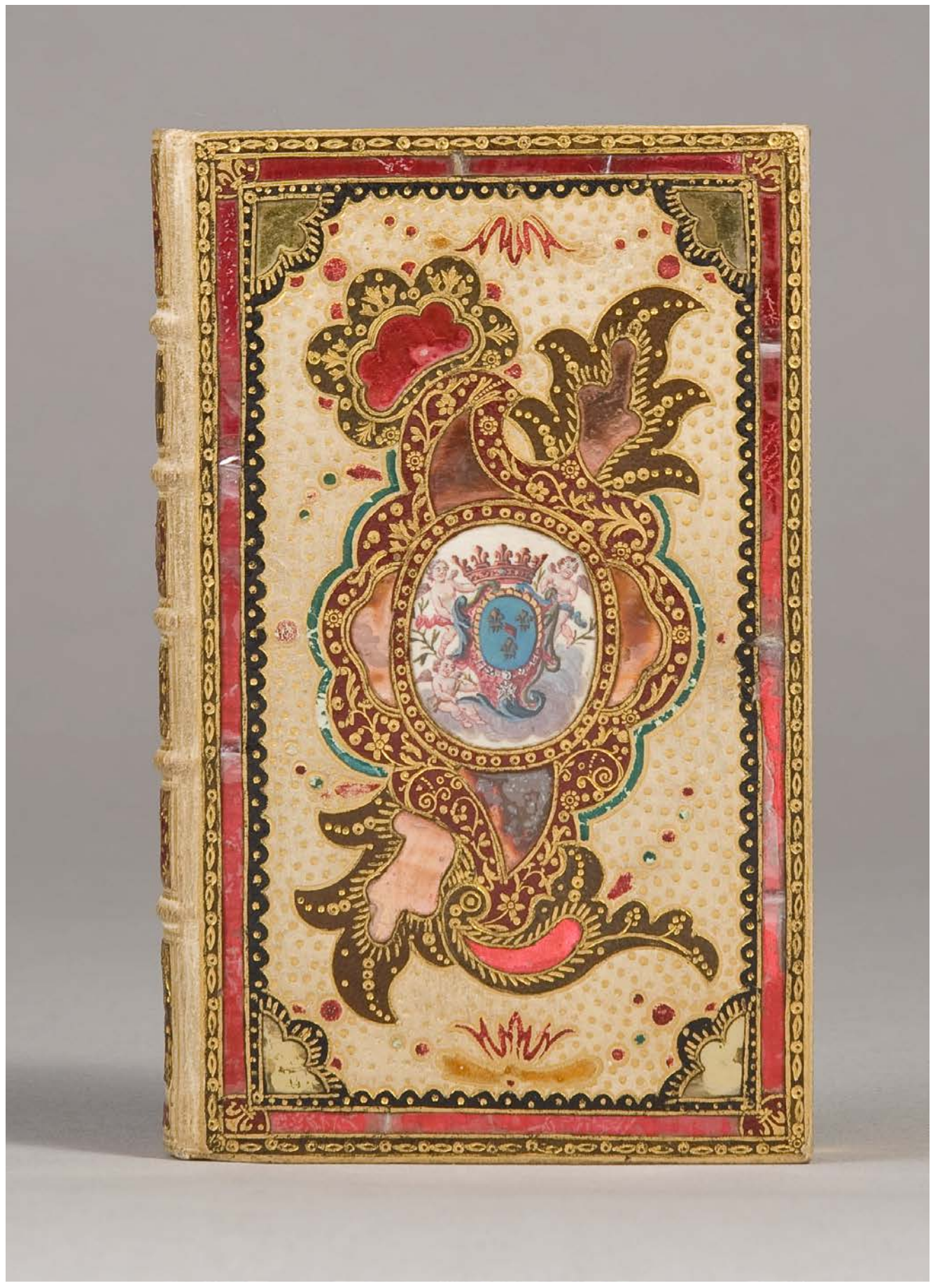


***Almanach royal, année M.DCC.LXIX*. Paris, Le Breton, 1768**

The arms of the (unidentified) owner of this almanac are protected – and made to shine – under a sheet of mica. There are further sheets of mica over some of the floral motifs, including the pair of shrubs in vases.

Mica is a silicate mineral whose crystalline structure forms layers that can easily be split into thin sheets. It is chemically inert and resilient against light, moisture and extreme temperatures. Ground up, mica adds shimmer to paints and cosmetics.

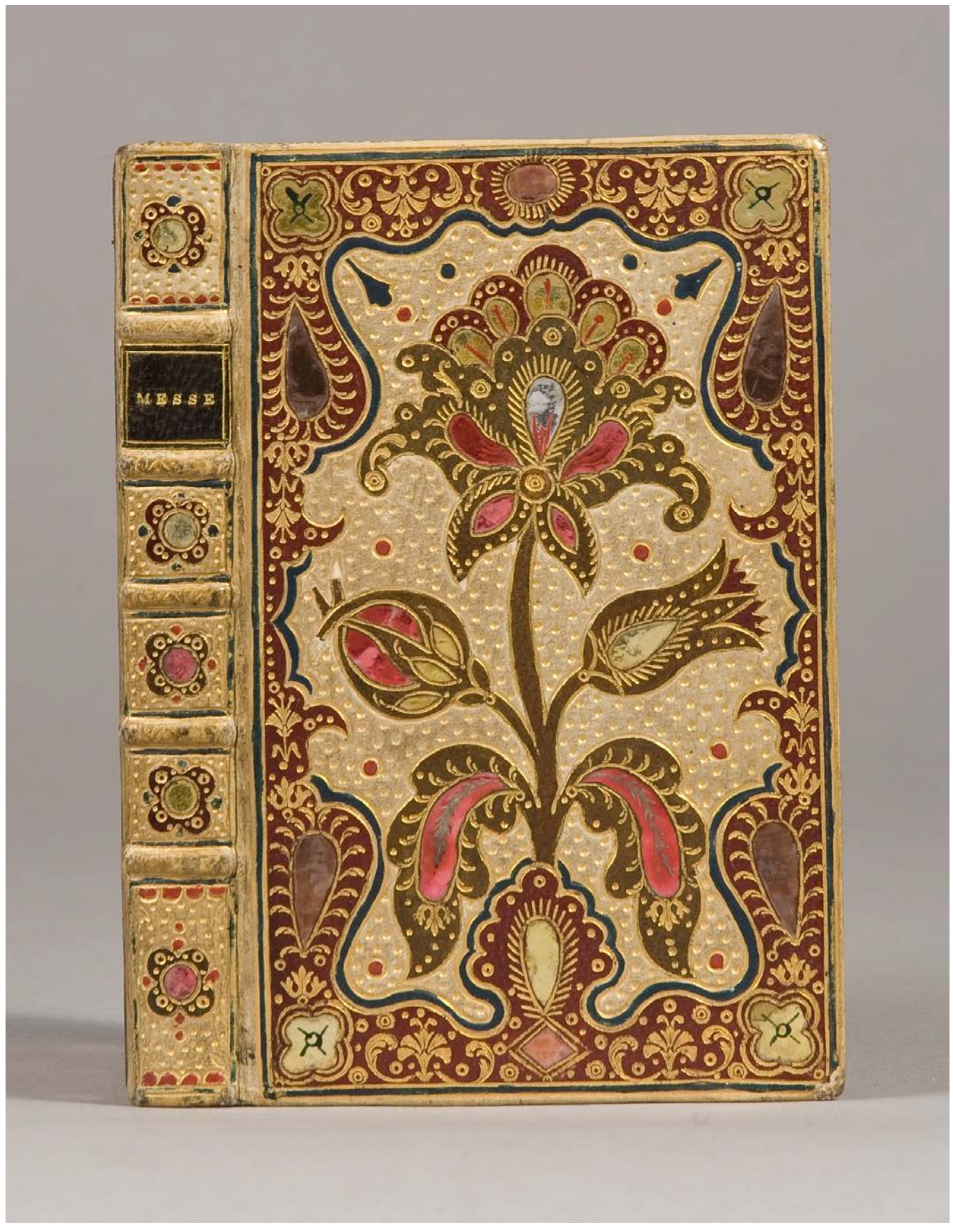
Acc. no 4641



***Heures contenant l'Office latin et francois, suivant le nouveau bréviaire & missel de Paris & de Rome*. Paris, C.-F. Simon, 1753 ; binding attributed to J.-A. Derome (*c.* 1696-1760)**

The bold design on the cover of this Order of Service for the Catholic Mass is made to shine with gold tooling, coloured foils and mica. The central cartouche is flame-like and floral at the same time, while the tiny circles on the white calf skin background suggest bubbles in water or air.

Acc. no. 3036



***L'Ordinaire de la Messe*, French, *c.* 1725 (with slip-case) ; possibly bound by J.-A. Derome (*c.* 1696-1760)**

This little book, with a protective slipcase, accompanied its aristocratic French owner to Mass. Mica shields the whole of the spine, but is used more decoratively on the cover, where it adds shine to coloured foils in the floral decoration. The complexity of design and craftsmanship, and the way it sparkles when turned in the hand, would have captured its reader's attention as much as its contents.

Acc. no. 4632

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***L'Ordinaire de la Messe*, French, *c.* 1725 (with slip-case) ; possibly bound by J.-A. Derome (*c.* 1696-1760)**

This volume is almost completely covered with sheet-mica. Underneath this protective, transparent layer are metal foils, decorated with impressed patterns that add colour, texture and glitter to a publication that was designed to be consulted frequently.

Essential to every French courtier, this almanac contains information about who was who in all spheres – from the Church to the Academies – about the religious and royal year, festivals and fairs, postal services, street lighting and transport.

This volume was owned by Marie-Antoinette, queen of France and Navarre (1755-1793), whose arms, painted on paper, adorn the cover. A payment of 200 livres for numerous almanacs is recorded in the queen's household accounts.

Acc. no. 2840