

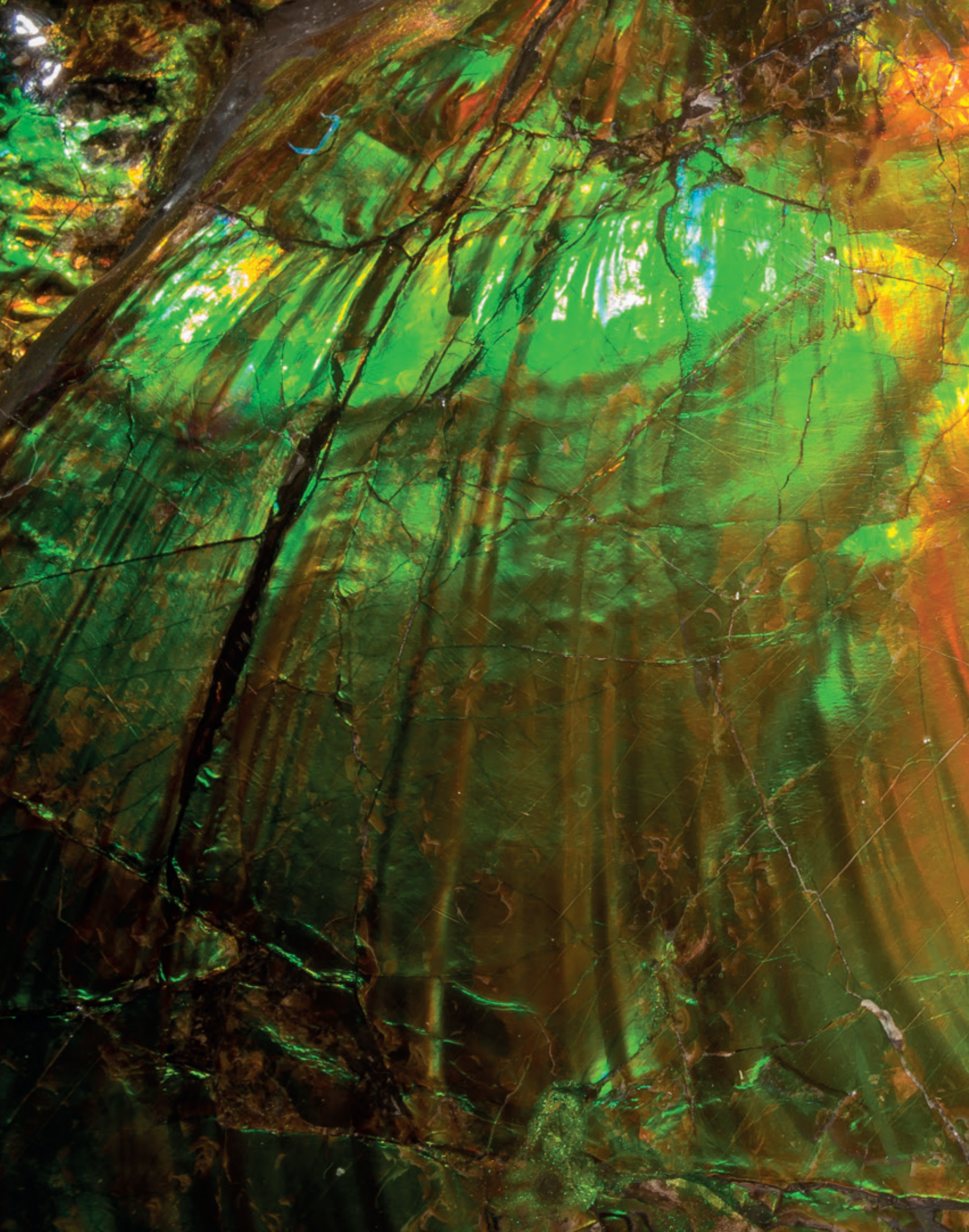
SCIENCE & NATURAL HISTORY

*London 24 May 2019*

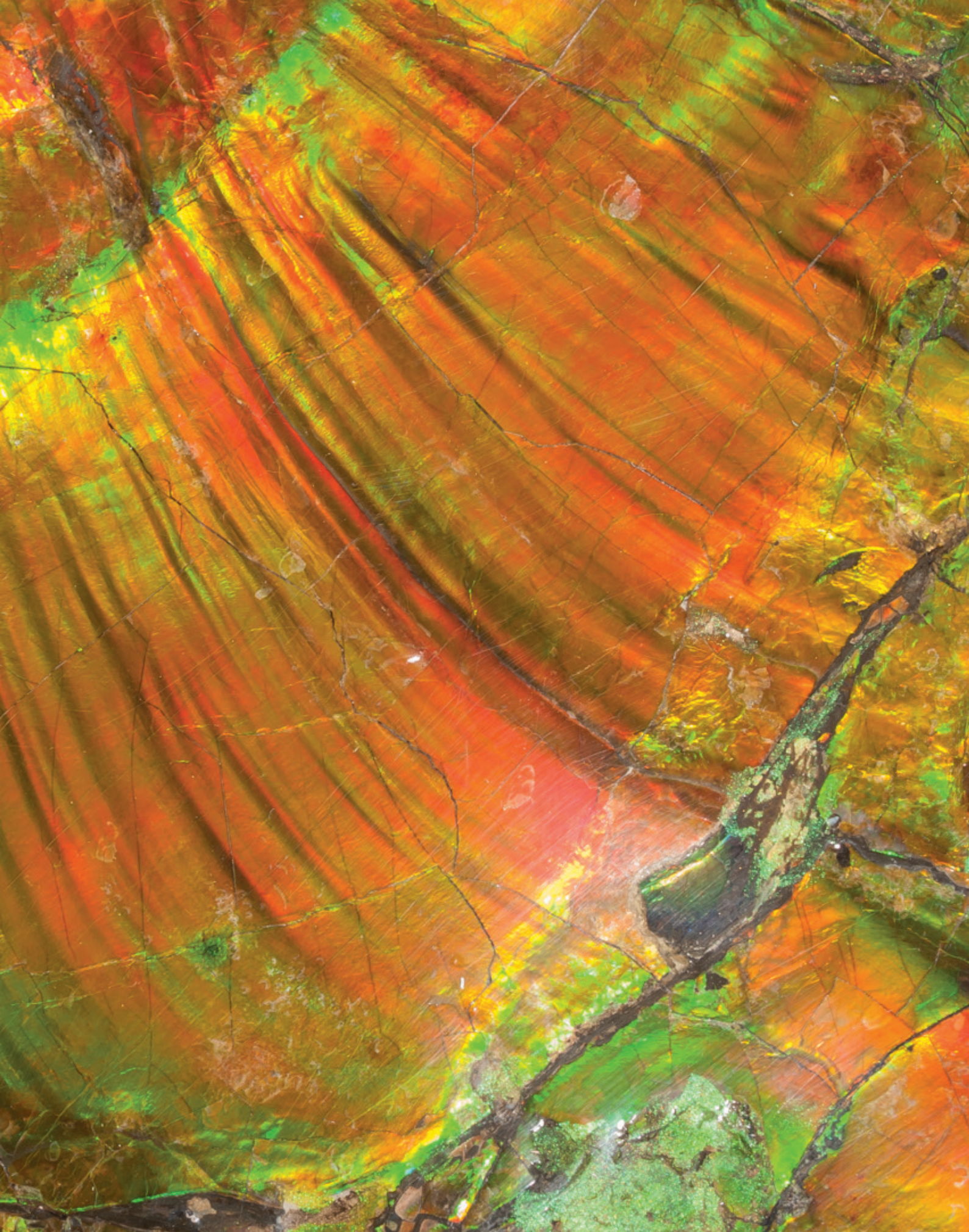


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# SCIENCE & NATURAL HISTORY

FRIDAY 24 MAY 2019



James Hyslop



Phoebe Tronzo

## AUCTION

Friday 24 May 2019  
at 11am Lots 1-182  
8 King Street, St. James's  
London SW1Y 6QT

## AUCTION CODE AND NUMBER

In sending absentee bids or making enquiries, this sale should be referred to as **FLUORITE-17492**

## VIEWING

Saturday 18 May	12.00pm - 5.00pm.
Sunday 19 May	12.00pm - 5.00pm
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Tuesday 21 May	9.00am - 8.00pm
Wednesday 22 May	9.00am - 4.30pm
Thursday 23 May	9.00am - 4.30pm

## AUCTIONEER

Nick Martineau

## STORAGE AND COLLECTION

Please refer to the important notice on page 141. Please note that Cadogan Tate's opening hours are Monday to Friday 9am to 5pm, and purchases transferred to their warehouse are not available for collection at weekends.

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Front cover: Lot 101  
Back cover: Lot 95  
Inside front cover: Lot 122  
Page : Lot 107  
Inside back cover: Lot 99

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# CHRISTIE'S



## Globes and Scientific Instruments (lots 1 – 13)



1

### AN ENGLISH 2¾-INCH POCKET GLOBE

NATHANIEL HILL, 1754

Comprised of twelve hand-coloured engraved gores and two polar calottes, the cartouche signed *A NEW Terrestrial GLOBE by Nath Hill 1754*, the terrestrial globe with graduated equator, meridian through London, the map showing New Holland, Dimens Land and New Zealand part delineated, North-West America as Unknown Parts, in original fishskin case, each interior hemisphere with twelve hand-coloured engraved half gores and a polar calotte.

3in. (7.5cm.)

£5,000-8,000

US\$6,600-10,000

€5,800-9,200

Nathaniel Hill was apprenticed to globe-maker and surveyor Richard Cushee, working from the *Globe and Sun* at 128 Chancery Lane (Cushee's old address, and the future address of the Newton family firm). Hill was succeeded by his apprentice Thomas Bateman. He in turn was succeeded by John Newton (see lot 125), who, with minimum revisions, used the Hill plates as the basis for his own first pocket globe (dated 1783). Hill's globes appear to have been amongst the more popular of the mid-eighteenth century pocket globes, perhaps because they undercut those offered by the competition: Senex, Martin and Dudley Adams sold theirs for 10 shillings each, whereas Hill's were 7 shillings and 6 pence.





2

## 2

### A PAIR OF SIX-INCH TABLE GLOBES

G. & J. CARY, 1824

Each comprised of twelve hand-coloured engraved gores, supported with hour discs in graduated brass meridians, the terrestrial cartouche *CARY'S NEW SIX INCH TERRESTRIAL GLOBE, DRAWN from the latest AUTHORITIES. London: Published by G. & J. Cary January 1. 1814 the celestial NEW CELESTIAL GLOBE Pubd. by G. & J. Cary Jany 1st 1822* each on original mahogany stands with hand-coloured engraved horizon rings. 10 x 9 x 9in. (26 x 23 x 23cm.)

£6,000-9,000

US\$7,900-12,000

€7,000-10,000

## ■3

### A TERRESTRIAL GLOBE SUPPORTED BY HERCULES

SCHOTTE, EARLY 20TH CENTURY

The 12-inch globe with cartouche *TERRESTRIAL GLOBE Carefully compiled from the best Authorities, Berlin, E. Schotte & Co*, supported on graduated brass half-meridian arc, on cast bronze stand of Hercules. 26½in. (67cm.) high

£1,500-2,500

US\$2,000-3,300

€1,800-2,900



3





#### ■4

##### A PAIR OF SWEDISH TABLE GLOBES

CIRCA 1824 BY CARL FREDRIK AKRELL (1779-1862)

The 25-cm (10-inch) globes each supported in graduated brass meridian rings sitting in restored birch tripod stands with ebonised horizon rings with bronzed flowers at arcs, hand-coloured engraved calendrical scales; the terrestrial with applied cartouche *JORD-GLOB Utgifven ar 1824*; the celestial *HIMMELS GLOBE ufgifven Ar 1824* the sky hand-coloured blue to highlight the constellations.

Each 20½ x 14 x 14in. (52 x 36 x 36cm.)

(2)

£20,000-30,000

US\$27,000-39,000

€24,000-35,000

An attractive pair of Swedish table globes, a reissued form of the large sized globes issued by the Akerman workshop. Frederick Akrel (1748-1804), an engraver and globemaker, worked with Anders Akerman on his 11cm and 60cm globes. On Akerman's death in 1778 the workshop became the property of the state, and Akrel ran the operation issuing revised 12-inch globes in 1779 and 24-inch globes soon after. On his father's death in 1804, Carl Frederik took over making globes for the gentry of Sweden into the 1830s.





## ■5

### A RARE PAIR OF SWEDISH GLOBES

ANDRÆ AKERMAN (C.1723-1766)

Each 12-inch globe comprised of twelve hand-coloured engraved gores and two polar calottes, each supported in graduated brass meridian rings with hour rings and pointers, sitting in later stands with facsimile horizon rings; the terrestrial applied cartouche *ATLANTI Acadmiae Ups Scientiarumq*, [...] *Dom. CAROLO EHRENPREUS. Hanc GLOBI TERRAUELE* [...] *A. Akerman Reg. Soc. Lit. et Scient. Sculptores 1759.* and the celestial cartouche *ATLANTI Acad. Ups. Scientiarumq* [...] *Dom. C. EHRENPREUS Hunc GLOBUM COELESTEM Ex Flamsteedii Catalogo* [...] *A. Akerman Reg. Soc. Scient. Sculptore 1759.* Each with green cloth dustcovers.

Each 18½ x 19 x 19 in. (47 x 48 x 48 cm.)

£10,000-12,000

US\$14,000-16,000

€12,000-14,000

Andræ Akerman (c.1723-1766) was an engraver with a strong interest in mathematical science, and a founder member of the 'Kosmografiska Sällskapet' (Cosmographical Society) of Sweden, founded in 1758. The Society, following the French example, was strongly supportive of those of its members who wished to pursue geographical research and publication. As such, with the society's financial backing, Akerman was able to set up a workshop for producing globes, and in 1759 published his first pair, of 12-inch diameter.

Akerman's globes are of interest not merely because they represent the finest Swedish globes of their period, but also because of his use of pictorial relief to denote mountains and forests, and the detail applied to the oceans. This was due to the influence of the geographer Torbern Olaf Bergman, one of the other founder members of the Cosmographical Society. Under his influence Akerman was also one of the first modern cartographers to take note of the long forgotten Torres Strait between Australia and New Guinea, which following its initial discovery in 1606 seemed to have been almost entirely ignored. For the celestial gores, Akerman used the *Catalogus Britannicus* by British Royal Astronomer John Flamsteed for the northern hemisphere, and for the southern the 1756 catalogue of Abbé Nicolas-Louis de Lacaille, including Lacaille's fourteen new constellations, most of which were drawn as scientific instruments.

Count Carl Diedric Ehrenpreus (1692-1760) was a councillor of the (Swedish) realm, and a chancellor of Uppsala University, one of the centres of activity for the Cosmographical Society.



## 6

**A PIERCED BRASS CELESTIAL GLOBE**

PROBABLY FRENCH, MID-16TH CENTURY

Comprised of two brass hemispheres joined on at the ecliptic, which is graduated and numbered every 10°, alternately shaded every 1°, the constellations labelled — the cartography after Johannes Honter (1498-1549) — the Equator, Tropics and Polar circles all labelled, the Antarctic pole labelled and with a nearby cartouche 'IHC'. Axis through either the celestial or ecliptic poles, mounted on later (19th century?) stand.

7¾in. (19.5cm.) high 3¼in. (8.5cm.) diameter

£100,000-150,000

US\$140,000-200,000

€120,000-170,000

Often termed "manuscript" globes, the finest globes from the sixteenth century were, rather than being made by scientific instruments makers, engraved by silver- and goldsmiths onto metal, copying printed cartography. Elly Decker (1) has identified a group of silver and gilt brass globes based on the gores published, circa 1560, by Francois Demongenet (d. before 1592), and this is indeed the cartography usually seen on early manuscript globes — for an example of which see the terrestrial globes sold in these rooms, 12 July 2017 lot 199.

The source for the cartography on the present globe is identified by the ambiguous 'IHC' in the Southern Hemisphere: presumably seen by the engraver as a Christogram, but it could also be read as Johannes Honteri Coronensis. Publishing from his own press in Kronstadt, Johannes Honter (1498-1549) produced a woodcut celestial map in 1532 which would first appear in the collected works of Ptolemy printed in Basel in 1541. Loosely based on the famous celestial planispheres of Albrecht Durer (1515) Honter's map portrays the constellations in contemporary dress.

The use of Honter's cartography is rare. We note that a larger pierced celestial globe based on it can be found as part of the celebrated Rothschild mechanical sphere by Pierre de Fobis, Lyons circa 1540-50. (Christie's 8 July 1999, lot 179).

1. Decker, E. 'The Demongenet Tradition in Globe Making' in *Globes at Greenwich* (Oxford, 1999) pp. 69-73







Johannes Honter's 1532 woodcut map of the Southern Hemisphere



The Globe on its stand.



Southern Hemisphere





\*7

**A BRASS ARMILLARY SPHERE**  
POSSIBLY ITALIAN 16TH CENTURY

The 8-inch sphere composed of continental brass with a later brass ecliptic engraved with scales for zodiac [0°]-[360°], graduated unnumbered equator divided to 1° by alternating groups of 10°, two similarly graduated colures through equinoxes and solstices, rings for Arctic Circle, Tropic of Cancer, Tropic of Capricorn, Antarctic Circle all punched with graduations every 10°, two outer rotating colures meeting at equator, central axis with wooden Earth ball. Supported in 20th century ebonised oak stand with hour disc and pointer. 19½ x 10¼ x 10¼in. (49.5 x 27.5 x 27.5cm.)

£10,000-15,000

US\$14,000-20,000  
€12,000-17,000

This armillary features unnumbered rings — a feature it has in common with the very early hand-held sphere at the Whipple Museum of the History of Science, Cambridge (Wh.0336) and the early 16th century Italian sphere

published by Kugel in 2002 (A1). The brass ecliptic is made from a brass with a much higher copper content, suggesting a date of manufacture consistent with a 19th century restoration.

The armillary sphere is a demonstrational model of the universe. Composed of several rings (Armillae in Latin) and a band for the Zodiac, it represents the apparent movement of the celestial sphere around the Earth and marks the Sun's annual progress around the ecliptic.

Their use can be traced back to antiquity and the handful of earliest extant examples date from the Middle Ages. But it was in the 16th and 17th centuries that their construction reached a peak and they became such iconic instruments of science. Elaborate and decorative examples were made for princely collections and they became symbolic of astronomy in paintings and engravings of the time.





## ■8

### A "GRAND SOHLBERG" CELESTIAL GLOBE

SWEDISH CIRCA 1880

The 9-inch diameter glass celestial sphere engraved on the outside with the lines of latitude and longitude and the tropic and polar circles, the equatorial graduated in degrees and hours, with applied steel ecliptic band, the interior with a central polar axis, at the centre a miniature terrestrial globe painted with lines of longitude and latitude and coloured continents, with brass mountings at either end, at the South Pole two knurled turning knobs, one for the earth with graduations in hours 1-12 and one for the sphere itself with graduations 1-24, held in a semi-circular gilt and black-painted iron mounting, swivelling on the horizontal axis to move an index against a vertically-mounted brass circle, graduated in 0°-90° in four quadrants, raised on an elegant curved iron arm, the black ground with gilt-painted foliate decoration, to a concave triform tripod base, with splayed cast-iron legs, with a brass plaque affixed SOHLBERG HIMMELSGLOB ÖLLERS & CNI STOCKHOLM 1 TILLVERKAD AF, housed in glazed pine case — with K.H. Sohlberg, *Astronomi*, Stockholm 1881.

27 x 21 x 21in. (69 x 53 x 53cm.)

£7,000-10,000

US\$9,200-13,000

€8,100-12,000

The first example of the fine and unusual celestial globe issued in Stockholm. Designed for academic and institutional use they were originally priced at 118 Kr (of which the government paid 20). The globe was designed to be half-filled with ink or litmus coloured water, to show the selected regions horizon; the water could be drained and replaced through the valves.



9

# AN ENGLISH SURVEYING COMPASS

RICHARD RUST (FL.1752-85)

Signed on the arm *R·RUST LONDON*, finely engraved 8-point compass rose with foliage motif with graduations [0]-[90°]-[0]-[90°] numbered by 10°, inset from a raised scale 0-360° degree scale, blued compass needle, two sight vanes, in original oak box.

18 x 7 x 3in. (46 x 18 x 8cm.)

£2,000-3,000

US\$2,700-3,900

€2,400-3,500







10

# A CUFF-TYPE MICROSCOPE

JOHN CUFF (C.1702-1772)

Signed on the stage *JOHN CUFF IN FLEET STREET LONDON*, the limb engraved with markings for objective positions 1-6, accessories include: stage forceps; six objectives (one lacking lens); frog plate; lieberkuhn; tweezers; brass slides; on mahogany stand with drawer. 14 x 6¼ x 6¼in. (36 x 16 x 16cm.)

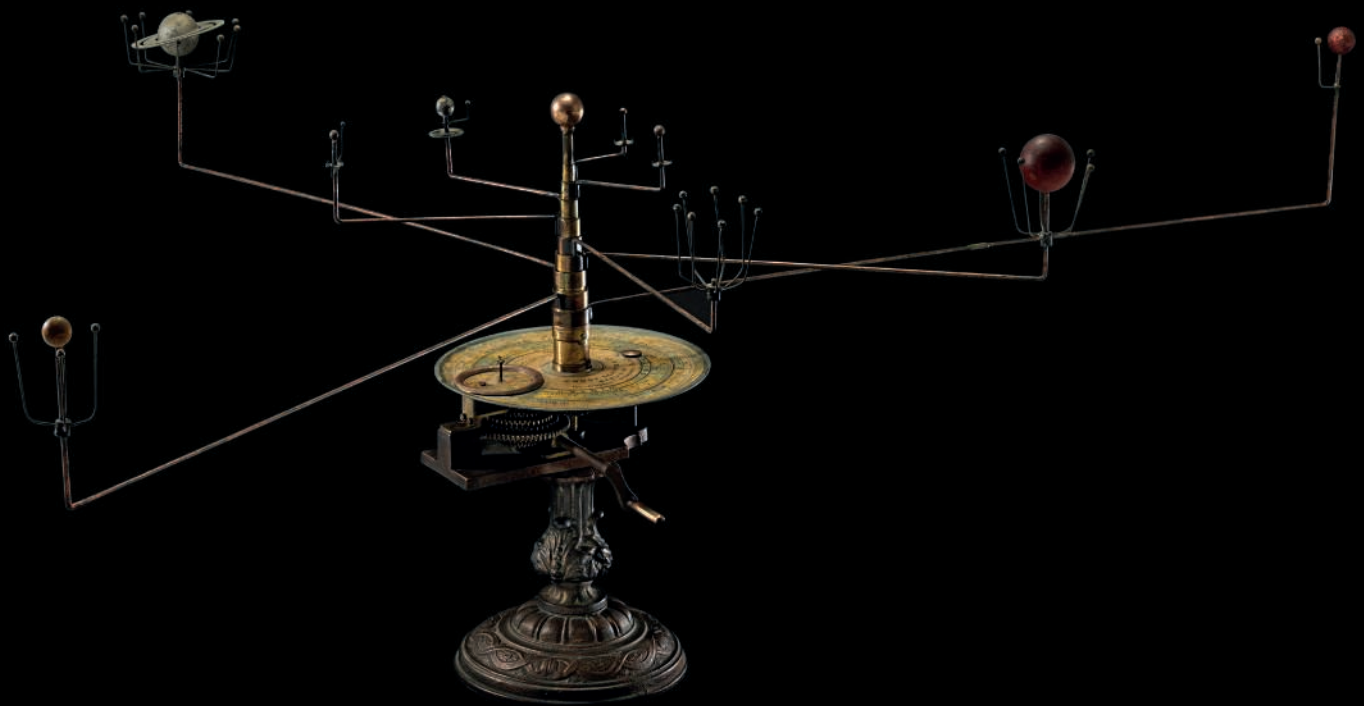
£2,000-3,000

US\$2,700-3,900

€2,400-3,500

In response to demand from the English naturalist Henry Baker (1698-1774) for an easier-to-use microscope, Cuff invented a new "Double Microscope," the design of which would be much copied by instrument makers across England and Europe throughout the 18th century. Alas for Cuff his innovation was unable to compete with the arrival next door of the workshop of Benjamin Martin (c.1705-84), and in 1750 he was declared bankrupt.





## 11

### A GERMAN PLANETARIUM

ERNST SCHOTTE, CIRCA 1892

Signed on the dial *ERNST SCHOTTE & Co. BERLIN, W Geographisch-artistische Anstalt.* the geared mechanism working and crank handle actuating all the planetary arms, the nine arms supporting: Mercury; Venus; painted Earth and Moon; Mars with two satellites; eight asteroids; Jupiter with five satellites; Saturn with two rings and eight satellites; Uranus with four satellites and Neptune with one. The graduated paper horizon dial in white yellow and blue with calendrical and zodiacal scales with another inner calendrical dial with index pointer; on a cast bronze column and plinth of geometric and floral design. 41in. (110cm.) maximum diameter

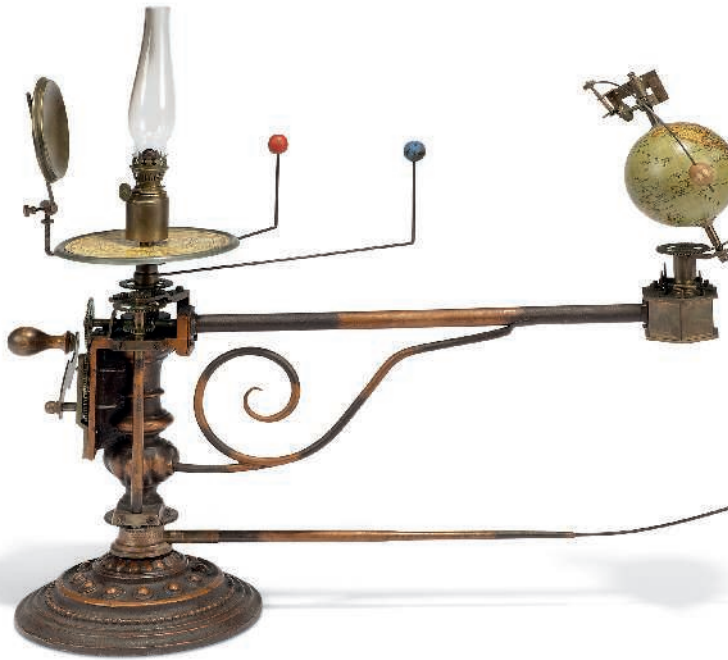
£8,000-12,000

US\$11,000-16,000

€9,300-14,000

A prolific manufacturer of globes and planetaria of various sizes and forms, Ernst Schotte & Co. was one of the major names in late nineteenth century German globe-making. Their planetary models designed for didactic use have also an elegant appearance. The number of satellites on each planet can help us date this orrery quite narrowly: Amalthea (Jupiter V) was discovered in 1892, and Phoebe (Saturn IX) in 1899.





12

### A BOHEMIAN ORRERY

PROBABLY BY FELKL, LATE 19TH CENTURY

Unsigned, the 3-inch terrestrial globe with lithographed gores and cartouche *JORDGLOB*, calendrical dial, the geared mechanism actuating movement of Mercury, Venus, Earth-Moon, and Mars, on Felkl-type cast iron stand. 29in. (74cm.) long

£5,000-8,000

US\$6,600-10,000  
€5,800-9,200

12



13

### A BOHEMIAN TELLURIAN

LATE 19TH CENTURY

The 3-inch terrestrial globe with lithographed gores and cartouche *JORDGLOB*, blue glass oil lamp over calendrical dial, the working geared mechanism on Felkl-type cast iron stand. 21in. (53cm.) long

£2,000-3,000

US\$2,700-3,900  
€2,400-3,500

13

15



## The Moon (lots 14 -18)



**14**

### **LUNAR PHOTOGRAPHS**

GERMAN, CIRCA 1970

Collage of twenty five photographs showing details of the lunar surface during different phases. Framed.  
55 x 47in. (140 x 120cm.)

£2,000-3,000

US\$2,700-3,900

€2,400-3,500





# ■15

## A LUNAR GLOBE

CIRCA 1963

The 33-cm diameter globe comprised of twelve gores and two polar calottes, the cartouche *RATH'S MOND GLOBUS* [...] Verlag: *Paul Rath Nachf. KG, Leipzig* [...] two and a half gores unmapped, supported on Bakelite stand.

16in. (41cm.) high

£1,000-1,500

US\$1,400-2,000

€1,200-1,700





**\*16**

**NWA 11616 MOON ROCK WITH FUSION CRUST — UNUSUAL POLYMICT BRECCIA WITH RARE LUNAR MARE COMPONENT**

*LUNAR METEORITE / GABBRO AND MARE COMPONENTS IN POLYMICT FRAGMENTAL BRECCIA  
SAHARA DESERT*

This fresh lunar sample contains both the lighter and darker materials seen on the Moon. It contains two different types of clasts: the lighter olivine gabbro clasts contain, in part, olivine, zoned clinopyroxene and maskelynite; the darker area is a rare basaltic clast (lunar mare). A mixture of gabbro and regolith are also contained in this select lunar sample. Significantly, the reverse of this sample is covered in fusion crust, and the gabbro and mare sections exhibit crusts of different character, not previously documented on a lunar meteorite, as encrusted lunar samples are rare. Modern cutting.

1 x 1 x 1½in. (25 x 29 x 34mm.)

26.2g.

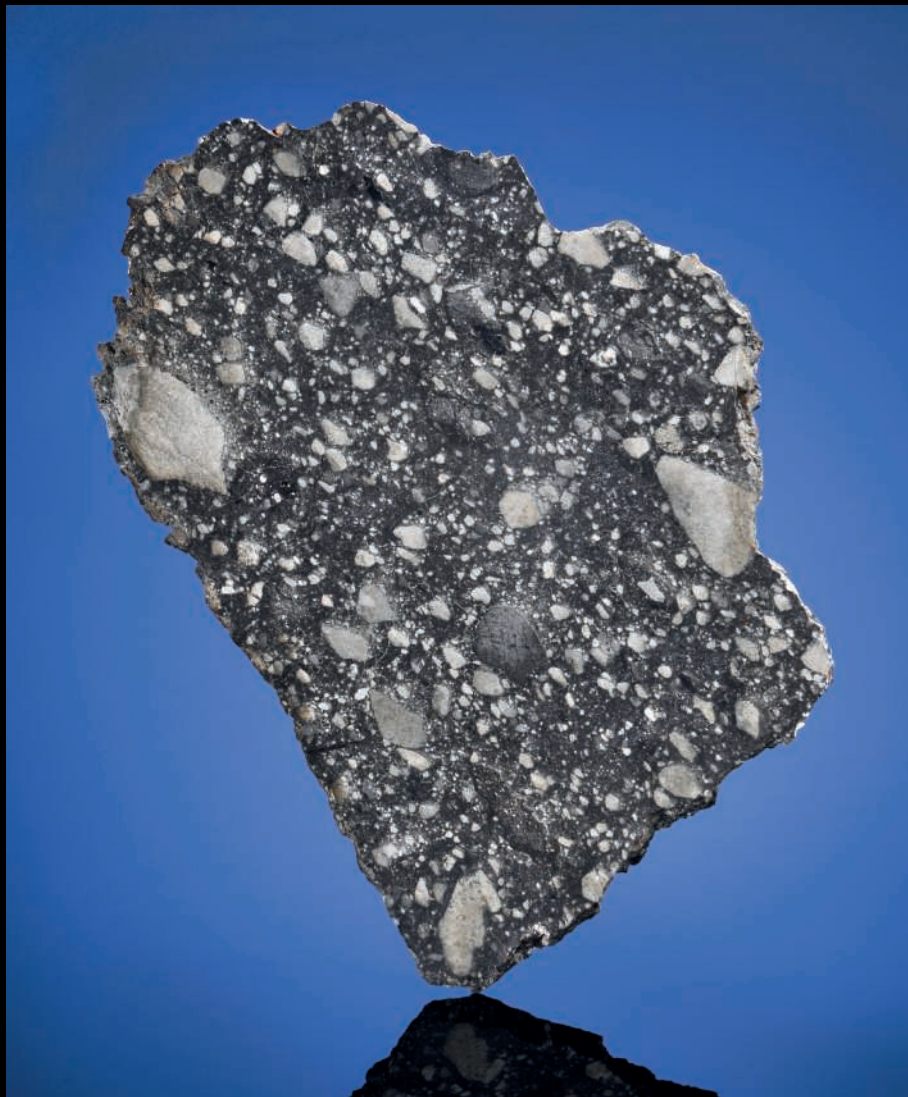
£10,000-15,000

US\$14,000-20,000

€12,000-17,000

Material from the Moon is among the rarest substances on Earth, here offered is an end piece of a lunar meteorite: a Moon rock ejected from the lunar surface following an asteroid impact. Lunar meteorites are identified by specific textural, mineralogical, chemical and isotopic signatures. Only 400kg. of lunar meteorites are known to exist and a significant fraction of these are controlled by governmental institutions. Many of the common minerals found on Earth's surface are rare on the Moon and some lunar minerals are unknown on Earth. While Apollo astronauts returned with 382kg. of Moon rocks, not one milligram is available for private ownership. In fact, the total amount of the Moon that is available to the private sector can be contained in two large suitcases. North West Africa (NWA) 11616 was discovered in 2017. As described by the foremost classifier of lunar meteorites, Dr. Anthony Irving at the University of Washington, this is a polymict fragmental breccia with separate olivine gabbro and rare olivine-free basaltic (lunar mare) clasts in a fragmental matrix. Dr. Irving and lunar geochemist Dr. Randy Korotev completed their analysis of this highly exotic Moon rock in January 2018.





**\*17**

**COMPLETE SLICE OF A MOON ROCK — NWA 10309**

*SAHARA DESERT, NORTH WEST AFRICA*

*LUNAR METEORITE (FELDSPATHIC BRECCIA)*

Signature inclusions of anorthite are in evidence in this complete slice of a Moon rock. In addition to mineral clasts of anorthite, this breccia also includes pigeonite and orthopyroxene. Its fine grained vesicular matrix contains kamacite, troilite and Ni-poor taenite — evidence of an iron asteroid that impacted the Moon's surface — and possibly the same asteroid which launched this into space into an Earth-intersecting orbit. As one would expect, many of the Apollo mission samples returned to Earth are nearly identical to lunar meteorites, and such is the case with this superior complete slice of the Moon.

4¼ x 3¾ x ½in. (109 x 93 x 2mm.)

63.3g.

£7,000-10,000

US\$9,200-13,000

€8,100-12,000





**\*18**

**END PIECE OF A METEORITE FROM THE  
MOON — THE INTERIOR AND EXTERIOR OF  
NWA 11273 REVEALED**

*MOON ROCK – FELDSPATHIC REGOLITHIC  
BRECCIA*

*SAHARA DESERT, NORTHWEST AFRICA*

Sheathed in a sandy desert patina from its residency in the Sahara, this hand-sized lunar sample is a combination of lunar materials fused together following repeated asteroid impacts on the Moon, opened on one face to reveal the interior that features rare basalt clasts and glass fragments.

5 x 2¼ x 2¼in. (128 x 69 x 68mm.)

432g.

£30,000-50,000

US\$40,000-65,000

€35,000-58,000

Having been blasted off the lunar surface following an asteroid impact, rocks from the Moon are among the rarest substances on Earth, and now offered is a sectional wedge of one such rock. There are less than 350 kg. of lunar meteorites known to exist and a significant fraction is controlled by governmental institutions. Moon rocks are identified by specific textural, mineralogical, chemical and isotopic signatures. Many of the common minerals found on Earth's surface are rare on the Moon and some lunar minerals are unknown on Earth. In addition, Moon rocks contain gases captured from the solar wind with isotope ratios very different from the same gases found on Earth. NWA 11273 is the 11,273rd rock recovered in the Northwest African grid of the Sahara Desert to be analyzed and classified.



## Meteorites (lots 19 – 40)



**\*19**

### **A SIKHOTE-ALIN METEORITE — PRISTINE INDIVIDUAL FROM THE ONE OF THE LARGEST METEORITE SHOWERS IN HUMAN HISTORY**

*IRON, COARSE OCTAHEDRITE - IIAB*

*MARITIME TERRITORY, SIBERIA, RUSSIA (46°9' N, 134°39' E)*

Wrapped in a pewter-hued patina with charcoal accents and covered with signature regmaglypts. The top surface is largely flat — the result of this meteorite having split apart along a crystalline plane during its descent to Earth. This is an engaging example from one of the largest meteorite showers in modern times.

1¾ x 2½ x 1¾in. (47 x 63 x 44mm.)

299g.

£2,000-3,000

US\$2,700-3,900

€2,400-3,500

After breaking off its parent asteroid 320 million years ago, a massive iron mass wandered through interplanetary space until a close encounter with Earth on February 12, 1947. A fireball brighter than the Sun was seen to explode at an altitude of about 6 kilometres over eastern Siberia. Sonic booms were heard at distances up to 300 kilometres from the point of impact. Chimneys collapsed, windows shattered and trees were uprooted. A 33-kilometre long smoke trail persisted for several hours in the atmosphere after impact. Iron fragments were scattered over a broad elliptical area. Many of the meteorites penetrated the soil, producing impact craters up to 26 meters across; about 200 such depressions have been catalogued. As evidenced by the *regmaglypts* (thumbprint-like indentations) blanketing this mass, this meteorite was *not* part of the massive low altitude explosion. Instead, this specimen broke off at a much higher altitude, providing sufficient time for frictional heating with the atmosphere to form the artifacts of atmospheric heating now seen.





**\*20**

**EXTRATERRESTRIAL GEMSTONES IN COMPLETE SLICE OF SEYMCHAN METEORITE**

*PALLASITE - PMG*

*MAGADAN DISTRICT, SIBERIA, RUSSIA (62°54' N, 152°26' E)*

Comprised of a mosaic of sparkling olivine and peridot in a polished iron-nickel matrix, which was at one time part of an asteroid's molten core, this is a fine representation of the most beautiful extraterrestrial material known. Modern cutting and polishing.

6½ x 4¼ x ½ in. (169 x 121 x 2mm.)

140g.

£3,000-5,000

US\$4,000-6,500

€3,500-5,800

Representing less than 0.2% of all known meteorites, pallasites are widely considered the most beautiful extraterrestrial substance known. Like all pallasitic meteorites, Seymchan originated from the mantle-core boundary of an asteroid that broke apart following a cataclysmic collision. The crystals seen here are the result of small chunks of an asteroid's stony mantle becoming suspended in its molten metal core. Cut and polished, the lustrous metallic matrix features crystals of gleaming olivine and *peridot* (gem-quality olivine) ranging in hues from emerald to amber. It was in the 1960s that the first masses of Seymchan were found in a streambed in a part of Siberia made infamous as the remote location of Stalin's gulags. Identified as meteorites, they were named Seymchan for a nearby town. Unlike most pallasites, the dispersion of olivine crystals in Seymchan can be varied. The example now offered boasts an aesthetic array of olivine and its gem-quality counterpart, peridot, the birthstone of August.





**\*21**

**NWA 7397 – PARTIAL SLICE OF THE PLANET MARS**

**MARS ROCK – SNC DIABASIC SHERGOTTITE**

**SMARA, MOROCCO**

The unusual “poikilitic” texture of this rock is marked by large crystals of pyroxene (a magnesium-iron silicate) enclosing small crystals of olivine (a magnesium-iron silicate) and chromite (an iron-chromium oxide). The texture most likely formed by rapid cooling of the rock from magmatic temperatures. The feldspar mineral grains (a calcium-aluminium silicate) have been transformed into glass, a result of the shock pressure experienced when the rock was blasted off the surface of Mars by an enormously energetic impact event on the Martian surface. Modern cutting.

2½ x 3 x ½in. (59 x 77 x 1mm.)

22.3g.

£3,000-5,000

US\$4,000-6,500

€3,500-5,800

Specimens of the planet Mars are among the most exotic substances on Earth, with less than 400 pounds known to exist. The delivery mechanism to Earth was an asteroid impact on Mars that ejected material off the Martian surface into an Earth-intersecting orbit. This is the 7,397th distinct meteorite to be recovered and classified by scientists after having been found in the Northwest Africa (NWA) region of the Sahara Desert. The determination of Martian origin is the result of research conducted by hundreds of scientists throughout the world. In addition to many arcane chemical and isotopic markers, the link to Mars was speculative until an analysis was conducted on the glassy inclusions of other suspected Martian meteorites. Within the glass were tiny bubbles of gas. The gas was analyzed and it matched perfectly with the signature of the Martian atmosphere as reported by NASA’s Viking Missions to Mars. The author of the scientific abstract on NWA 7397 is Dr. Anthony Irving, the world’s foremost classifier of planetary meteorites. The official classification of this meteorite appears in the 102nd edition of the *Meteoritical Bulletin*.





**\*22**

**EXTRATERRESTRIAL PERIDOT IN A COMPLETE SLICE OF ADMIRE METEORITE**

*PALLASITE – PMG*

*LYON COUNTY, KANSAS*

Extraterrestrial crystals of olivine and peridot are suspended in an iron-nickel matrix in the cut and polished complete slice. The edge of this meteorite is delimited by its natural external surface. One side of this slice has been polished to a mirror finish while the other side reveals its natural crystalline structure. Modern cutting.

10⅓ x 5¼ x ⅛ in. (265 x 147 x 2mm.)

440g.

£7,000-10,000

US\$9,200-13,000

€8,100-12,000

Admire is a member of the pallasite group of meteorites, widely considered to be the most beautiful otherworldly substance known. While meteorites are among the rarest substances on Earth — all the world's meteorites weigh less than the world's *annual* output of gold — pallasites are more rare still as they represent less than 0.2% of all known meteorites. Pallasites formed at the mantle-core boundary of an asteroid as chunks of stony olivine (a magnesium-rich silicate) settled atop the molten iron core and became suspended in the metallic matrix. Also present in this specimen is gem-quality olivine or *peridot* (birthstone of August). Admire pallasites are readily identified by large polycrystalline areas that cleaved into highly angular shards during an energetic collision on its parent asteroid. Originating from the asteroid belt, with a few bumps along the way, the first Admire meteorites were ploughed up by a farmer in Lyon County, Kansas in 1881.





**\*23**

**AN EXTRATERRESTRIAL NUGGET — A SERICHO METEORITE**

*PALLASITE — PMG*

*HABASWEIN / SERICHO, KENYA*

This cleaned, pocket-sized meteorite exhibits caramel aggregates of olivine naturally suspended in its iron-nickel matrix — in effect, natural extraterrestrial steel studded with gems from space.

2¼ x 2¼ x ¾in. (57 x 57 x 21mm.)

144.5g.

£1,500-2,500

US\$2,000-3,300

€1,800-2,900

The Sericho pallasite formed at the mantle-core boundary of an asteroid about 4.5 billion years ago. Deep inside the asteroid, molten metal from the outer core mixed with chunks of the olivine mantle that had crystallized. Things remained quiet for Sericho until a major collision shattered the asteroid; this event and subsequent, less energetic collisions set Sericho pallasite material on a collision course with Earth — and more specifically, 200 miles northeast of what is now Nairobi, Kenya. The strewn field was discovered by camel herders, and the stony-iron rocks were first identified as meteorites in 2016; it is currently unclear when this meteorite shower occurred, but it is at least decades old.





**24**

**A SEYMCHAN METEORITE CUBE**

PALLASITE – PMG

MAGADAN DISTRICT, RUSSIA (62°54' N, 152°26' E)

The cut surfaces revealing in three dimensions the internal *Widmanstätten* pattern and amber-hued olivine and peridot crystals. Modern cutting.  
2in. (49mm.)

783g.

£3,000-5,000

US\$4,000-6,500

€3,500-5,800

Less than 0.2% of all meteorites are pallasites, the most beautiful extraterrestrial substance known. Pallasites are formed at the core-mantle boundary of an asteroid that underwent mixing of the molten metal of the core with stony olivine from the mantle. The result is striking—olivine crystals suspended in an iron-nickel matrix.



25

**COMPLETE SEYMCHAN METEORITE**

*PALLASITE - PMG*

*MAGADAN DISTRICT, RUSSIA (62°54' N, 152°26' E)*

With a patina ranging from ochre to cocoa and the archetypal abrasions that result from excavation, this complete meteorite is so teeming with crystals it glitters when moved under a bright light. Accompanied by a custom armature.

(6 x 6½ x 2½in.) 153 x 169 x 59mm.

3.62kg.

£10,000-15,000

US\$14,000-20,000

€12,000-17,000







**\*26**

**LOS VIENTOS 171 — WEDGE END PIECE OF A SCIENTIFICALLY IMPORTANT METEORITE**

*LL3.1*

*ATACAMA DESERT, CHILE*

As seen from its cut faces, this elongated end piece is packed with a galaxy of chondrules and other inclusions. It is extremely fresh; very little weathering is in evidence. A warm-hued variegated fusion crust wraps the reverse.

7¼ x 3 x ½ in. (185 x 77 x 14mm.)

466g.

£7,000-10,000

US\$9,200-13,000

€8,100-12,000

Los Vientos 171 is a member of a very select club: researchers have determined it belongs to the 3.1 subtype which makes it among the most primitive planetary matter known. In 2016 Los Vientos 171 was recovered by Polish meteorite hunters near Antofagasta, Chile in the Atacama—the highest desert on Earth. Of the tens of thousands of *chondritic* meteorites known to exist (meteorites which contain silica-rich spherules). Specifically, unlike 99% of all meteorites, the constituents of this meteorite are almost unchanged since their origins in the early solar nebula when its constituents first precipitated out of the cloud from which our solar system formed. It escaped the heating that results from pressure and radiation and it retained its primitive texture and composition. Prior to the discovery of Los Vientos 171, less than 40 kg of similarly primitive planetary material was known to exist. Devoutly sought-after by scientists, such unmetamorphosed, primitive meteorites reveal the raw ingredients of the planets.





**\*27**

**A CAMPO DEL CIELO — COMPLETE IRON METEORITE**

*IRON, COARSE OCTAHEDRITE - IAB-MG*

*GRAN CHACO, ARGENTINA (27°28' S, 60°35' W)*

Surprisingly dense, this meteorite exhibits the finely stippled surface characteristic of superior Campo del Cielo meteorites. With a platinum to charcoal hued patina with chrome highlights, thumbprint-like sockets abound and small patches of fusion crust are also in evidence — both being a sought-after artifact of fractional heating when penetrating Earth's atmosphere.

3½ x 3½ x 4¼in. (86 x 84 x 107mm.)

2.25kg.

£1,500-2,500

US\$2,000-3,300

€1,800-2,900

Campo del Cielo ("Valley of the Sky") meteorites are the result of a cataclysmic collision between two asteroids that were flying at a cosmic velocity in interplanetary space. At least one of the asteroids completely shattered resulting in large fragments. When one such fragment later struck Earth's upper atmosphere approximately 5,000 years ago, the result was further explosive fragmentation into thousands of meteorites. The larger meteorites struck the ground at such a high velocity that an array of at least 26 impact craters formed, the largest measuring a football field in diameter. Campo del Cielo meteorites were first written about by 16th century Spanish explorers when their unearthly origins had yet to be understood. The first large meteorite to be displayed in a museum — and it was at the famed *British Museum of Natural History* — was a Campo, and several large masses can today be found in the foremost museums throughout the world. This meteorite was once part of the iron core of an asteroid between Jupiter and Mars.





**\*28**

**A COMPLETE DRONINO METEORITE — AN EXOTIC SAMPLE FROM INTERPLANETARY SPACE**

*IRON, ATAXITE (UNGROUPE)*

*RYAZAN DISTRICT, RUSSIA (54° 44' N, 41° 25' E)*

The wavy, textured surface unique to Dronino meteorites is in evidence with long parallel furrows running the length of the specimen — with a deep furrow at the base. The surface is sheathed in a platinum-hued patina — the result of a centuries-long interaction of this meteorite's unique chemical composition with that of moist earth. A singularly atypical meteorite, this is a select Dronino specimen.

5½ x 3¾ x 2 in. (137 x 97 x 49 mm.)

1.71 kg

£3,000-5,000

US\$4,000-6,500

€3,500-5,800

**PROVENANCE:**

Macovich Collection of Meteorites, New York

While 89% of iron meteorites are members of established chemical groups, the other 11% are chemically unrelated. Dronino is one of these exotic, ungrouped irons, which is to imply it originated from an otherwise unknown parent asteroid. Dronino meteorites fell approximately 20 kilometers from an ancient town founded in 1152. As nothing was ever written about what would have been the memorable event of a fireball accompanied by sonic booms and smoke trails, it can be inferred Dronino's arrival occurred when the area was unpopulated. Given the extent of terrestrial sculpting seen, a descent to Earth more than a millennium ago can be confidently fixed. The first Dronino meteorite was discovered by a mushroom hunter in Russia in 2000. This specimen evidences the long, deep crenellated furrows of a quintessential Dronino meteorite.



**29**

**A "LEVITATING" METEORITE**

THE CASING OF RECENT MANUFACTURE

The Sikhote-Alin meteorite suggesting the appearance of its parent body floating in space, it is drilled and secured in place with wire and pulled upwards by a magnet. Housed in Perspex casing.

11 x 8 x 8in. (28 x 20 x 20cm.)

£2,500-3,500

US\$3,300-4,600

€2,900-4,000





**SIKHOTE ALIN METEORITE — AESTHETIC EXAMPLE FROM HISTORIC METEORITE SHOWER***IRON, COARSE OCTAHEDRITE - IIAB**MARITIME TERRITORY, SIBERIA, RUSSIA*

Wrapped in a pewter-hued patina with charcoal accents and chrome highlights. Crevasses and ridges are seen in the concave face evidencing the forces that created it. The reverse is largely a smooth curved surface with faint criss-crossed striations. Accompanied by a custom armature.

8¾ x 7 x 4in. (22 x 18 x 10cm.)

4.30kg.

£15,000-25,000

US\$20,000-33,000

€18,000-29,000

At 10:30 A.M. on February 12, 1947 the largest meteorite fall since the dawn of civilization occurred. It streaked over the Sikhote-Alin Mountains and at an altitude of just 5 km it violently exploded, showering the snowy Siberian taiga with tens of tons of material. There are two types of Sikhote-Alin: those which experienced frictional heating in the upper atmosphere which are gently scalloped, and the jagged and twisted shrapnel-like specimens (from the low altitude explosion). This is an example of the latter. The fragments from this explosion, including the fragment now offered, fell within an elliptical debris field about 1.6 km<sup>2</sup> in area. The conspicuous shearing from a larger mass is testament to the massive forces this meteorite experienced before impact. Originating from the asteroid belt, this is a choice example from a historic meteorite shower.





**GIBEON METEORITE — NATURAL SCULPTURE FROM OUTER SPACE***IRON, FINE OCTAHEDRITE**GIBEON, GREAT NAMA LAND, NAMIBIA*

Draped in a milk chocolate-hued patina with ochre and metallic accents, thin ridges meet in a pyramid that divide the face into the form of an abstracted strigine mask. Accompanied by a custom armature.

9½ x 9 x 4in. (23.5 x 23 x 10cm.)

8.01kg.

£10,000-15,000

US\$14,000-20,000

€12,000-17,000

Like most iron meteorites, Gibeon meteorites originated 4.5 billion years ago from the molten core of an asteroid located between Mars and Jupiter whose shattered remains are part of the asteroid belt. An impact event ejected what was to become the Gibeon mass into interplanetary space, and Gibeon meteorites are the bounty that occurred thousands of years ago when the wandering iron mass slammed into Earth's atmosphere before exploding and raining down in what is now the Kalahari Desert in Namibia. In previous generations, indigenous tribesmen recovered the smallest meteorite shards and fashioned them into spear points and other tools. This specimen was recovered with the aid of a metal detector. Its final shape being the product of a fortuitous combination of variables including its composition, the soil chemistry in which it landed, its orientation in the ground and the amount of groundwater to which it was exposed — all of which slowly reshaped this mass as it sat near the Earth's surface as the seasons turned over thousands of years. In effect, this meteorite was hewn by monumental forces encountered in space, frictional heating as it plunged through Earth's atmosphere as well as the effects of Earth's elements. While the vast majority of iron meteorites are prosaically shaped, that is not the case in regard to this engaging 4.5-billion-year-old otherworldly form, a tabletop sculpture from outer space.







**\*32**

# **ORIENTED CHELYABINSK METEORITE**

LL5

*CHELYABINSKAYA OBLAST, RUSSIA (54°49' N, 61°07' E)*

Blanketed in fusion crust, the leading face of this perfectly oriented meteorite exhibits a textbook example of the heat shield parabolic curve that was adopted for use on space capsules. On the reverse, the expected artifact of "bubbling melt" in the low-pressure zone is richly in evidence. This is an exquisite oriented meteorite from one of the most celebrated impact events of the current era.

2½ x 2½ x 1½in. (64 x 64 x 34mm.)

196g.

£10,000-15,000

US\$14,000-20,000

€12,000-17,000

Traveling at a speed of 66,000 kilometers per hour, a giant fireball entered Earth's atmosphere over Kazakhstan on 15 February 2013. At an altitude of 45 kilometers, atmospheric friction resulted in the largest portion—a 12,000-ton, 19-meter rock—to start breaking up. As fragmentation increased so did the amount of atmospheric drag, and when the object could not withstand the pressure, it exploded in a massive air burst 30 kilometers over the Russian city of Chelyabinsk. The total kinetic energy released was equivalent to 500 kilotons of TNT (approximately 25 times more energy than released by the atomic bomb that destroyed Hiroshima). Fortunately, most of this energy was dispersed and absorbed by the surrounding atmosphere. Ninety seconds later the shockwave reached the ground: people were knocked off their feet, 7,200 buildings in six cities were damaged and 100,000 homeowners had to replace broken windows. Worse still, more than 1100 people were injured, most from shattered glass and some for ultraviolet burns and temporary flash blindness. The Chelyabinsk shockwave left a trail of damage nearly 200 kilometers wide—and it could have been far worse: had the meteoroid exploded at a lower altitude, its explosive force would have been more focused and concentrated and the result would have been horrific. Chelyabinsk is the only meteorite documented to have resulted in a large number of injuries. It's also the only meteorite whose final moments were extensively documented on video: hundreds of security cameras and dash-cams recorded Chelyabinsk's descent, as well as video of exploding windows and collapsing walls. While most of the Chelyabinsk mass disintegrated in the atmosphere, thousands of small meteorites landed on Earth—and this is among the finest.

Fully oriented meteorites like this example are rare; unlike 99% of meteorites, this sample maintained the same orientation as it descended through the atmosphere. The parabola in evidence is the curvature at which heat most efficiently deflects from a falling body. As such, this curve was emulated in the heat shield design of the Mercury, Gemini and Apollo space capsules. A low-pressure zone forms on its far side of an oriented meteorite as it plunges through the atmosphere, resulting in the boiling of pooled molten material. One would then expect the character of the far side of a perfectly oriented meteorite to be wildly different than the oriented face—and that is abundantly evident in the specimen now offered.





33

**FUKANG — EXTRATERRESTRIAL  
GEMSTONES IN MATRIX**

*PALLASITE - PMG*

*FUKANG, XINJIANG UYGHUR AUTONOMOUS  
REGION - (44° 26'N, 87° 38'E)*

This partial slice of a meteorite features a mosaic of sparkling olivine and peridot in a gleaming iron-nickel matrix, which has been polished to a mirror finish on both sides. On custom stand.

3¾ x 2½in. (93 x 54 x 3mm.)

105.3g.

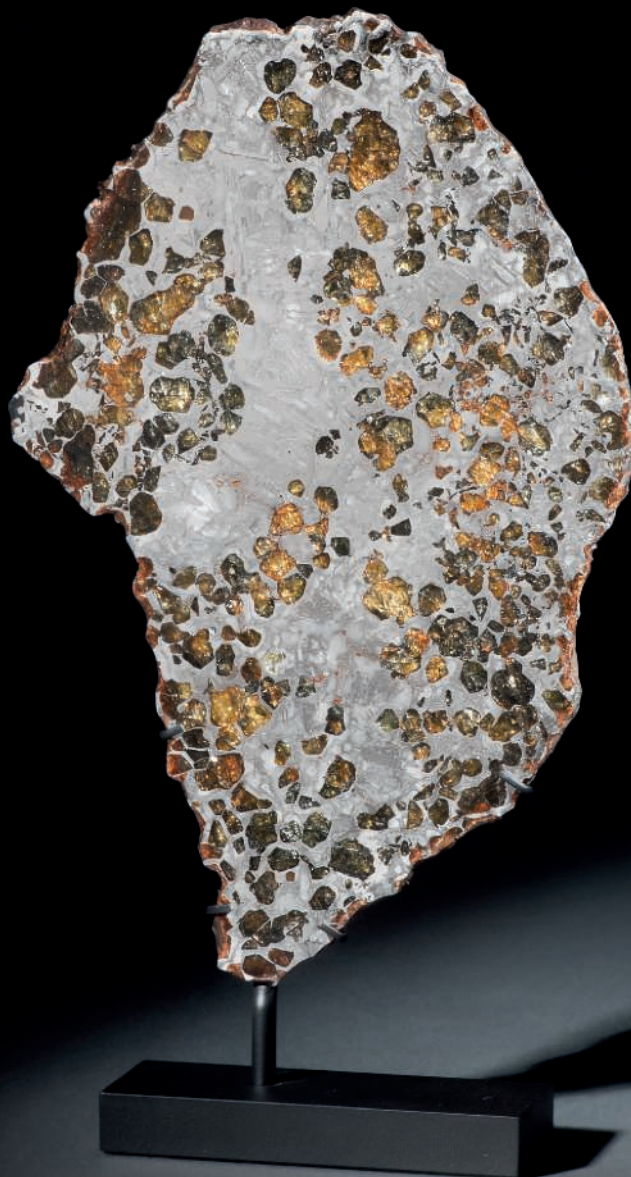
£4,000-6,000

US\$5,300-7,800

€4,700-6,900

Pallasites are not only rare, representing less than 0.2% of all known meteorites, they are also widely considered the most beautiful extraterrestrial substance known, and Fukang is among the most coveted. Recovered in China's Gobi Desert, Fukang contains some of the largest and most translucent crystals of any pallasite. Comprised of approximately 50% olivine and peridot crystals suspended in 50% nickel-iron, main-group pallasites originated from the mantle-core boundary of a large planetary body between Mars and Jupiter that broke apart after an enormously energetic collision. The pallasite designation for this meteorite class is in honor of the German scientist, Peter Simon Pallas, who while traveling through Siberia, examined the first pallasitic mass in the early 1770s. This is an honor Pallas is fortunate to have received, for he fervently believed the unusual specimen he examined could not possibly have come from outer space.





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# EXTRATERRESTRIAL GEMSTONES IN METALLIC MATRIX — COMPLETE SLICE OF A SEYMCHAN METEORITE

PALLASITE - PMG

MAGADAN DISTRICT, RUSSIA (62°54' N, 152°26' E)

A highly aesthetic Seymchan slice with subtle textural heterogeneity of the Seymchan meteorite. The small metal-rich areas display a prominent Widmanstätten pattern and represent the olivine-free region at the top of the iron-nickel core. The olivine-rich aggregates were derived from a fragmented olivine layer at the bottom of the mantle that was invaded by a metallic liquid during mixing at the core-mantle boundary; supported on fitted stand. Modern cutting.

9½ x 6 x ½ (236 x 151 x 3mm.)

494g.

£10,000-15,000

US\$14,000-20,000

€12,000-17,000

Pallasites are not only rare, representing less than 0.2% of all known meteorites, they are also widely considered the most beautiful of meteorites. Like all pallasitic meteorites, Seymchan originated from the core-mantle boundary of an asteroid that broke apart during the early history of our solar system. The crystals seen here are the result of small chunks of the stony mantle becoming suspended in the molten metal of an asteroid's iron-nickel core. Cut and polished, the lustrous metallic matrix features crystals of gleaming olivine and peridot (gem-quality olivine) ranging in hues from emerald to amber. The prominent latticework referred to as a Widmanstätten pattern is indicative of a slow cooling rate that provided sufficient time — millions of years — for the two metallic alloys to orient into their crystalline structure. The pattern seen is diagnostic in the identification of an iron meteorite. It was in the 1960s that the first masses of Seymchan were found in a streambed in a part of Siberia made infamous as the remote location of Stalin's gulags. Identified as meteorites, they were named Seymchan for a nearby town. Unlike most pallasites, the dispersion of olivine crystals in Seymchan is extremely heterogeneous. Some specimens are olivine rich and some are olivine poor; some specimens have no olivine whatsoever. The example seen here boasts an aesthetic array of olivine and its gem-quality counterpart, peridot, birthstone of August





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# **HISTORIC METEORITE FROM GREENLAND – CAPE YORK, THE INUITS' IRON MOUNTAIN**

*IRON, MEDIUM OCTAHEDRITE  
GREENLAND*

The polished and etched surfaces of the partial slice exhibit Cape York's signature matrix of pendulous troilite inclusions in a medium octahedral crystalline pattern. Supported on custom stand.

13¾ x 11½ x ¼in. (350 x 290 x 7mm.)

3.59kg.

£10,000-15,000

US\$14,000-20,000

€12,000-17,000

Cape York is the only meteorite that a population depended upon for their existence. In 1818, explorer Captain John Ross became icebound in Greenland while searching for the Northwest Passage. A tribe of Inuit, who had never before encountered members of the Old World, came to trade with their unexpected guests. Among their offerings were knives, harpoons and other tools forged from their sole source of iron—a meteorite. "Iron Mountain," so named by the Inuit, was part of the largest single meteorite shower from which specimens have ever been recovered. In 1894, they revealed a thirty-one ton specimen designated Ahnighito ("The Tent") to Admiral Robert Peary, who had been seeking not only the North Pole but the source of the Inuit's iron. Three years later, Peary returned to Greenland and then to New York City to great acclaim with Ahnighito and several other specimens from the meteorite now known as Cape York. Peary had obtained and delivered the largest meteorite ever recovered—a distinction still held today. Given its size and massive weight, the meteorite hall at the American Museum of Natural History had to be built around the Inuit's "tent" after its platform was anchored in bedrock. In conveying the meteorite to his ship, Peary built what is still the only railroad in Greenland. Cape York is a most unusual meteorite with large, pendulous inclusions of troilite (iron sulfide), replete with inclusions of metal and phosphate. This select specimen reveals a striking etch pattern offset by Cape York's characteristic troilite (iron sulfide) inclusions. (Iron meteorites are composed of about 99% iron and nickel and 1% other elements. The amount of nickel determines the type of crystalline pattern that will form, referred to as either a Widmanstätten or acid-etch pattern. This singularly dazzling crystalline latticework is unique to meteorites, and only those that contain about 6%-18% nickel.) The meteorite authority Dr. Vagn Buchwald said in the Handbook of Iron Meteorites, "Probably no other meteorite has been so intimately connected with the life and fate of so many people." Indeed, Admiral Peary had to bring a tremendous amount of iron tools and implements to barter in order to offset the loss of much of the Inuit's source of iron. Unbeknownst to Perry, other masses of Cape York remained behind. In 1963 Buchwald himself discovered a 20 ton mass that is currently on display at the Geological Museum at the University of Copenhagen.



**A LARGE MUONIONALUSTA METEORITE CUBE — CRYSTALLINE STRUCTURE DRAMATIZED IN THREE DIMENSIONS***IRON, FINE OCTAHEDRITE**KIRUNA, SWEDEN*

This dense iron-nickel cube that is in effect, extraterrestrial steel, exhibits a Muonionalusta meteorite's choice crystalline fingerprint in three dimensions. Modern cutting.

4¾in. (12cm.)

13.1kg.

£15,000-25,000

US\$20,000-33,000

€18,000-29,000

Muonionalusta meteorites were found in northern Sweden above the Arctic Circle near the Muonio River. While meteorite hunters have unearthed numerous masses in recent years, it was back in 1906 that children discovered the first Muonionalusta while engaging in a favorite childhood pastime: kicking rocks—and in this instance kicking an unexpectedly dense object later verified to be a meteorite. Possessing what is among the highest terrestrial ages of any meteorite, Muonionalusta fell to Earth about one million years ago when the region was glaciated. Despite its age, many specimens exhibit only minor interior weathering as a result of it being “on ice” in the freezer of the Arctic. Muonionalusta specimens are believed to be glacial erratics (material transported by a glacier), and their exposure to churning rocks and ice during the course of four ice ages would account for the smooth surface of most specimens. It is all about the splendor within; when sliced and etched, Muonionalusta displays the classic Widmanstätten pattern, the intergrowth of two iron-nickel minerals that form an unearthly metallic grid in shimmering shades of gray and silver which is diagnostic in the identification of an iron meteorite—and the current presentation is a large example.







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# A MONOLITHIC SLAB OF MUONIONALUSTA METEORITE

IRON, FINE OCTAHEDRITE

KIRUNA, SWEDEN

The cut surfaces displaying troilite inclusions within a resplendent fine-grained Widmanstätten pattern, the product of the solid-state intergrowth of two different iron-nickel minerals – kamacite and taenite. Modern cutting.

3½ x 3 x 2 in. (92 x 76 x 50mm.)

2.69kg.

£4,000-6,000

US\$5,300-7,800

€4,700-6,900

Muonionalusta meteorites were found in northern Sweden above the Arctic Circle near the Muonio River. While meteorite hunters have unearthed numerous masses in recent years, it was back in 1906 that children discovered the first Muonionalusta while engaging in a favourite childhood pastime: kicking rocks—and in this instance kicking an unexpectedly dense object later verified to be a meteorite. Possessing what is among the highest terrestrial ages of any meteorite, Muonionalusta fell to Earth about one million years ago when the region was glaciated. Despite its age, many specimens exhibit only minor interior weathering as a result of it being “on ice” in the freezer of the Arctic. Muonionalusta specimens are believed to be glacial erratics (material transported by a glacier), and their exposure to churning rocks and ice during the course of four ice ages would account for the smooth surface of most specimens. It is all about the splendour within; when sliced and etched, Muonionalusta displays the classic Widmanstätten pattern, the intergrowth of two iron-nickel minerals that form an unearthly metallic grid in shimmering shades of gray and silver which is diagnostic in the identification of an iron meteorite.



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**A LARGE GIBEON METEORITE SLICE**

*IRON, FINE OCTAHEDRITE*

*GIBEON, GREAT NAMA LAND, NAMIBIA*

The undulating natural rim of this complete slice is rendered in a smoky charcoal hue with caramel highlights. The crystalline pattern of this meteorite is unusually robust. Signature troilite inclusions are scattered throughout this choice example. The reverse is polished to a mirrored finish. Modern cutting.

15½ x 13 x ¼in. (39.5 x 33 x 0.6cm.)

£10,000-15,000

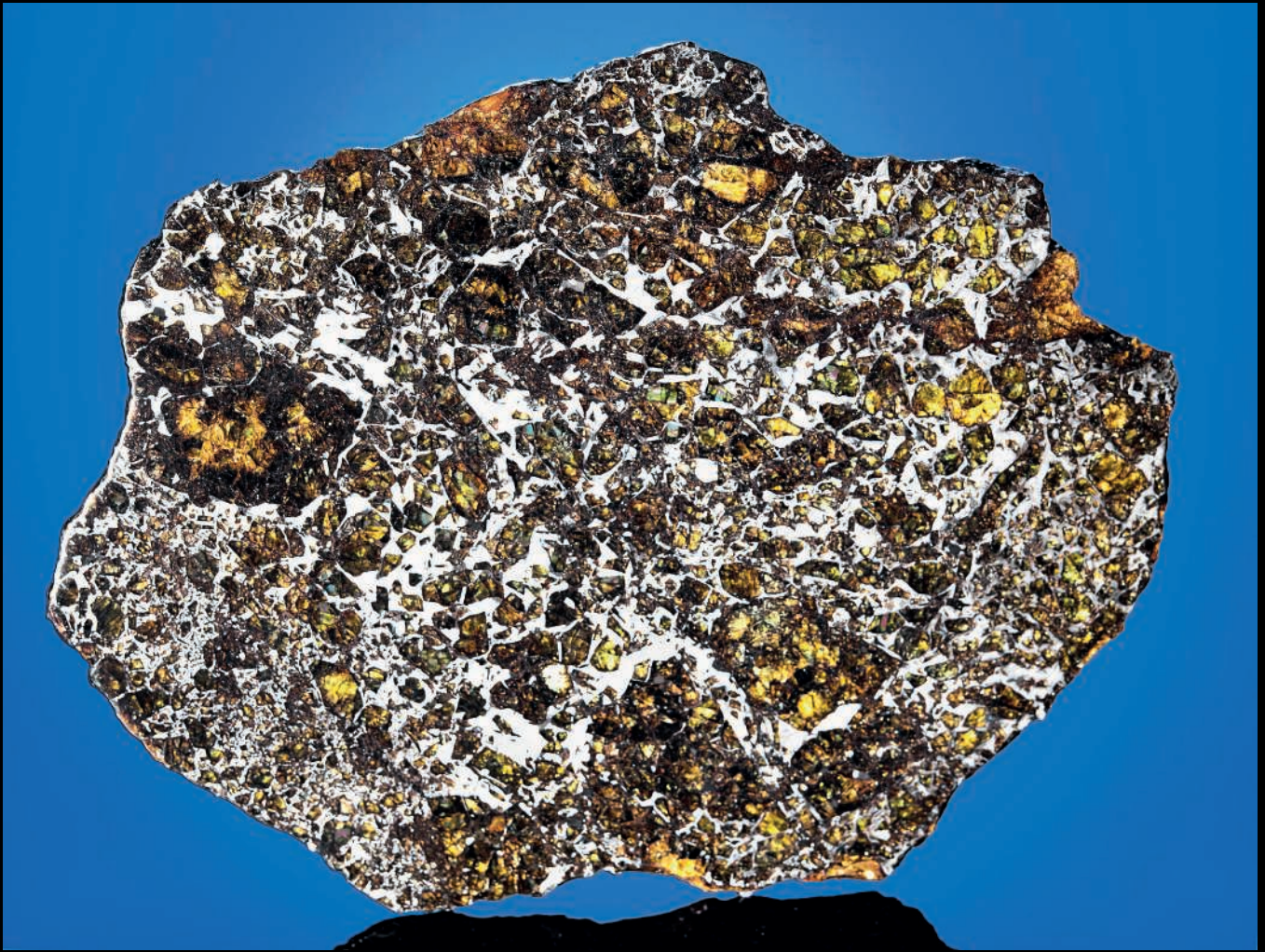
US\$14,000-20,000

€12,000-17,000

Most iron meteorites originated from the cores of asteroids that existed billions of years ago between Mars and Jupiter. Namibian tribesmen located the mass from which this slice originated with the aid of a metal detector. When cut and etched, Gibeons exhibit a fine-octahedral latticework of metallic alloys, troilite and taenite. This exquisite natural design is known as a Widmanstätten pattern. As this pattern does not appear in terrestrial iron ores, its presence is diagnostic of iron meteorites.







**\*39**

# **A COMPLETE SLICE OF ADMIRE METEORITE**

PALLASITE – PMG

LYON COUNTY, KANSAS

Extraterrestrial crystals of olivine and green peridot are suspended in an iron-nickel matrix of this polished complete slice. A thin band of the meteorite's external surface is seen in the rim of this alluring specimen. Modern cutting.

8½ x 11 x ½ in. (216 x 293 x 3mm.)

846g.

£6,000-9,000

US\$7,900-12,000

€7,000-10,000

Admire is a member of the pallasite group of meteorites, widely considered to be the most beautiful otherworldly substance known. Meteorites are among the rarest substances on Earth. All the world's meteorites weigh less than the world's *annual* output of gold, and pallasites are more rare still as they represent less than 0.2% of all known meteorites. Pallasites formed at the mantle-core boundary of an asteroid when chunks of stony olivine (a magnesium-rich silicate) settled atop the edge of the asteroid's molten iron core and became suspended in the metallic matrix. Gem-quality olivine also known as the gemstone *peridot* (birthstone of August) is present in this specimen. Admire pallasites are readily identified by large polycrystalline areas that cleaved into highly angular shards. Some olivine grains in Admire are also somewhat rounded, indicating recrystallization following an impact event in interplanetary space. Originating from the asteroid belt, the first two masses of Admire were ploughed up by a farmer in Lyon County, Illinois in 1881. More than a century later, enterprising meteorite hunters returned to the site, and after a lot more plowing (following the use of a metal detector) they discovered several additional masses.



**SEYMCHAN METEORITE SPHERE — AN EXTRATERRESTRIAL CRYSTAL BALL***PALLASITE - PMG**MAGADAN DISTRICT, SIBERIA, RUSSIA*

This specimen originates from a Seymchan meteorite sample that underwent a number of stages of cutting and then grinding and polishing in a sphere-making device. The crystalline habit of the alloys comprising Seymchan's iron-nickel matrix are seen to great effect adding to the complexity of this three-dimensional presentation. Dazzling amber-hued olivine and peridot crystals are suspended throughout the iron-nickel matrix which has been etched to reveal the beautiful metallic crystalline structure. Supported on stand. Modern cutting.

2½in. (63mm.)

687g.

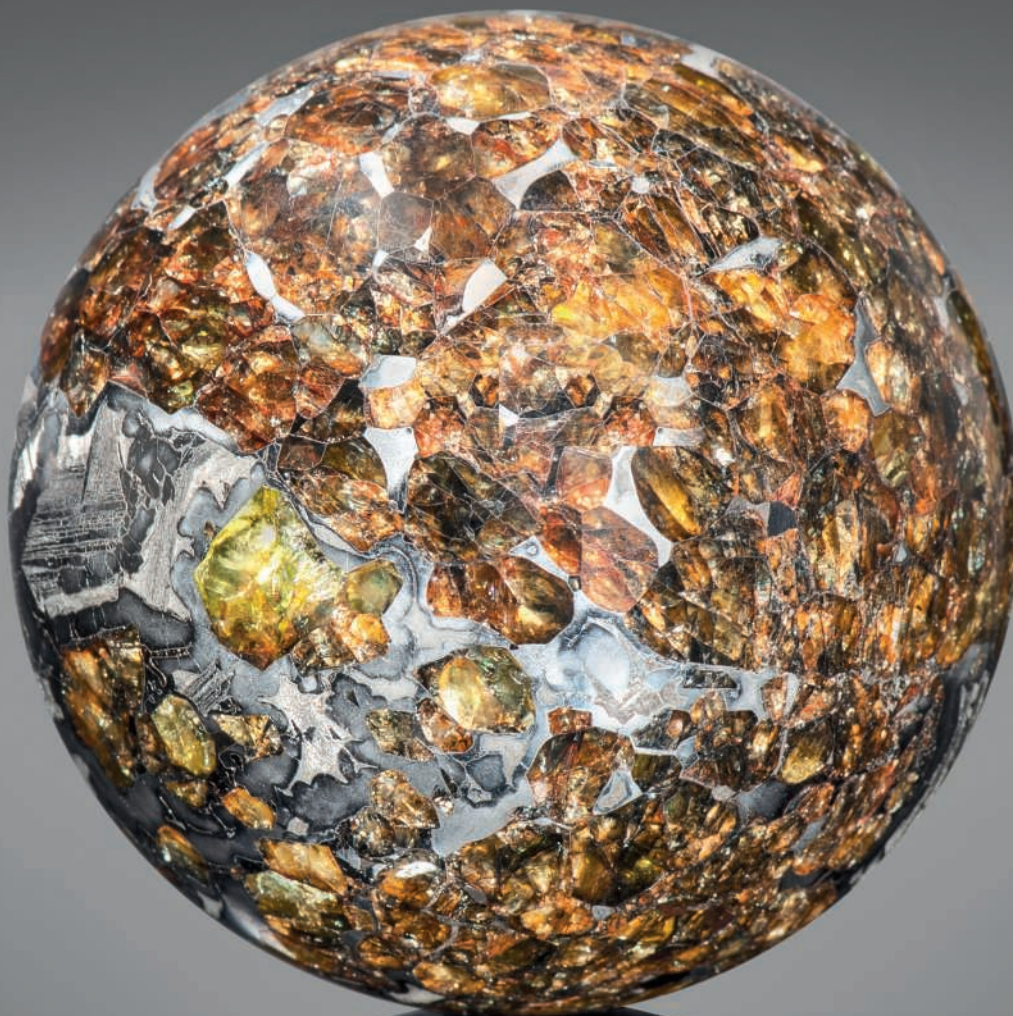
£10,000-15,000

US\$14,000-20,000

€12,000-17,000

Like all pallasites, Seymchan formed at the boundary of the stony mantle and molten iron core of an asteroid that shattered following an impact with another asteroid. As might be expected, pallasites are extremely rare and, indeed, they represent less than 0.2% of all known meteorites.

Seymchan meteorites are found in the Magadan district of Siberia — the location of Stalin's infamous gulags. The first two masses were found in a streambed by geologists in the 1960s. Most Seymchan meteorites are non-descript, prosaic masses until they are cut to reveal their internal splendor. To make a sphere of this size requires a mass nearly three times that of the sphere, given the amount of material lost during the grinding and polishing processes. This is a wondrous three-dimensional presentation of a pallasite, revealing aspects of the structure impossible to see in a flat slab. This specimen can rightfully be considered an otherworldly crystal ball with crystals of olivine and peridot (birthstone of August).





## Minerals (lots 41 – 90)



THIS LOT IS OFFERED WITH NO RESERVE.

★41

### A SLICE OF ACASTA GNEISS — ONE OF THE OLDEST ROCKS ON EARTH

SLAVE CRATON, NORTHWEST TERRITORIES, CANADA

The elongated slab cut and polished. The matrix of this sample is pink-hued with bands of ebony-hued mineralization coursing its length. This is a sample from one of the oldest surviving rocks that originate on Earth.

7¼ x 3 x ½in. (183 x 79 x 9mm.)

£1,000-1,500

US\$1,400-2,000

€1,200-1,700

This is a slice of one of the oldest rocks in the world. This *gneiss* (a metamorphic rock subjected to high temperature and pressure) is approximately 4.0 billion years old. Its age can be determined as a result of zircon crystals having trapped a uranium isotope that acts as a timekeeper. Acasta Gneiss originates from an old and stable part the Earth's two topmost layers — the crust and the uppermost mantle — in a geologically inactive portion of Earth's continental crust. Acasta Gneiss is seen as an outcrop on an island that is middle of Canada's Northwest Territories and is the oldest rock exposed on Earth's surface.





■42

**AN AMETHYST GEODE**  
URUGUAY

The highly aesthetic freeform of a dynamic zoomorphic appearance, the face cut and edges polished to reveal crystal forms of rich purple amethyst through to clear quartz, the reverse in natural state, supported on custom stand.  
34½ x 15 x 8 in. (87.5 x 38 x 20.5cm.)

£5,000-8,000

US\$6,600-10,000  
€5,800-9,200





43

#### ■43

##### A CLUSTER OF TOURMALINE CRYSTALS

BRAZIL

Of natural form with cavities and gaps through the mass of black crystals, on custom stand.

21 x 8 x 6in. (53 x 20 x 15cm.)

£3,000-5,000

US\$4,000-6,500

€3,500-5,800

#### ■44

##### A SPECIMEN OF CHRYSOCOLLA

Of natural form with smooth undulating botryoidal front, supported on custom stand.

22 x 14 x 5in. (56 x 36 x 13cm.)

£2,500-3,500

US\$3,300-4,600

€2,900-4,000



44





45

#### ■45

##### A SPECIMEN OF CHALCEDONY

GERMANY

Of natural form, supported on custom stand.

13in. (33cm.) high

£1,000-2,000

US\$1,400-2,600

€1,200-2,300

#### ■46

##### A FORKED AMETHYST GEODE

RIO GRANDE DO SUL, BRAZIL

Of hollow concave form with two towers of purple crystals of amethyst, cut and polished.

34in. (87cm.) high

£5,000-8,000

US\$6,600-10,000

€5,800-9,200



46





47

#### ■47

#### A SPLIT AMETHYST GEODE PAIR

RIO GRANDE DO SUL, BRAZIL

Of hollow concave form, each cut and polished to reveal overgrowth of orange calcite and deep cavity to base.

Each 16in. (41cm.) high

£2,000-3,000

US\$2,700-3,900

€2,400-3,500

#### ■48

#### A SPECIMEN OF MALACHITE

KATANGA PROVINCE

Left in natural, unpolished, state showing the botryoidal form to the front face, the reverse with cross-sections showing a fibrous texture, cut flat to the base.

12 x 8½ x 6in. (30.5 x 21.5 x 15cm.)

£3,000-5,000

US\$4,000-6,500

€3,500-5,800



48





49

**49**

**A SPECIMEN OF MALACHITE**  
KATANGA PROVINCE

The freeform polished to front with cavities and natural holes between concretions, on custom stand.

12 x 9 x 3in. (31 x 23 x 8cm.)

£3,000-5,000

US\$4,000-6,500

€3,500-5,800

**■50**

**A CUT BOULDER OF CHAROITE**  
RUSSIA

One face cut and polished to reveal deep lilac colour of the mineral on fitted stand.

17 x 10 x 7in. (43 x 26 x 18cm.)

£1,000-1,500

US\$1,400-2,000

€1,200-1,700



50





51

**51**

**A SPECIMEN OF AMETHYST**

BRAZIL

Of natural form, the multitude of naturally-terminated crystal aligning in a dramatic vertical pattern.

7 ½ x 5 x 5in. (8.5 x 2.5 x 2.5cm.)

£1,000-1,500

US\$1,400-2,000

€1,200-1,700

**■52**

**MANGANO-CALCITE ON PYRITE**

KOSOVO

An interplay of white florets and lustrous cubes with a scattering a miniature pyrite crystals that sparkle when catching the light, supported on custom stand.

13 x 9 x 2 ½ in. (33 x 23 x 6.5cm.)

£2,000-3,000

US\$2,700-3,900

€2,400-3,500



52



53

**■53**

**A SLICE OF PINK AMETHYST**

BRAZIL

Cut and polished to both sides, on oak stand.

11in. (28cm.) high

£1,000-2,000

US\$1,400-2,600

€1,200-2,300





■54

**A DESERT CONCRETION**

MOROCCO

Of tall monolithic form, on stone base.  
40in. (102cm.) high

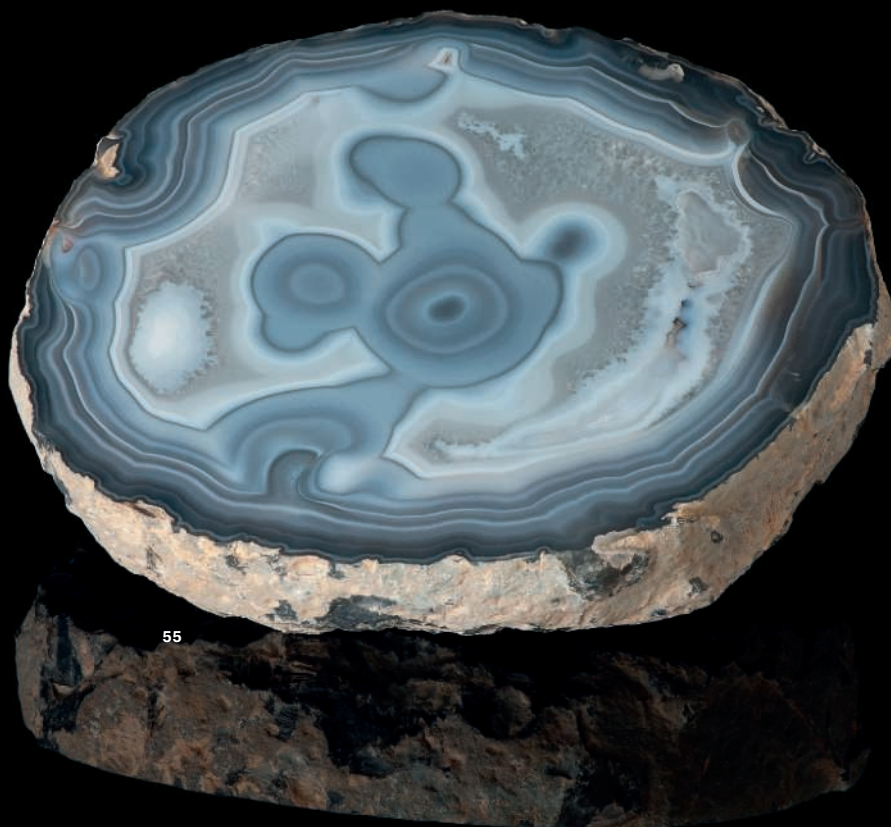
£6,000-9,000

US\$7,900-12,000

€7,000-10,000

Once thought to be a stromatolite (a very primitive life form), these concretions are now considered abiotic formations from the Precambrian (circa 600 million years ago).





55

**55**

**A SPECIMEN OF AGATE**

BRAZIL

The front cut and polished revealing a cartoon-like silhouette pattern, the edges and reverse left natural.

8½ x 7½ x 2in. (21.5 x 19 x 5cm.)

£2,500-3,500

US\$3,300-4,600

€2,900-4,000

**■56**

**A MALACHITE BOWL**

KATANGA PROVINCE

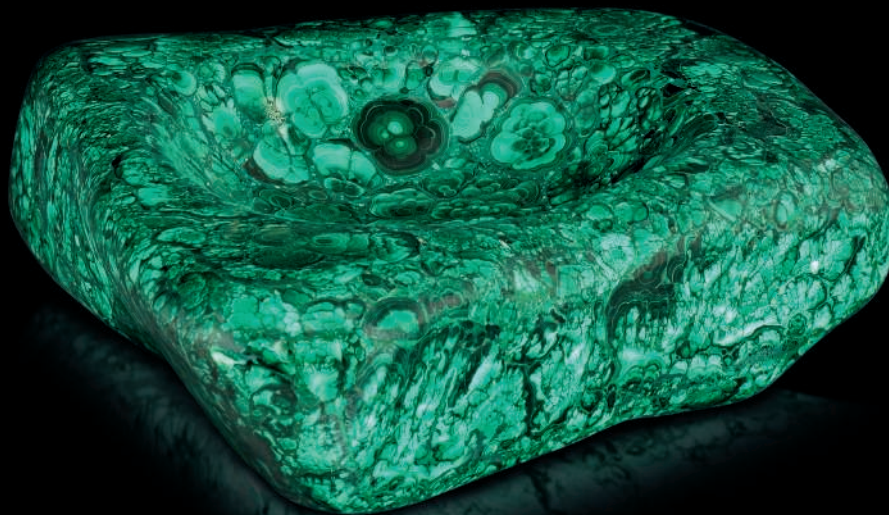
Formed from one single piece, the top cut with bowl recess, polished on all sides.

15 x 14 x 4in. (38 x 36 x 10cm.)

£2,000-3,000

US\$2,700-3,900

€2,400-3,500



56



57

**A SPECIMEN OF ROSE QUARTZ**

BRAZIL

Finely cut to irregular hexagonal bowl form with faceted sides.  
21 x 10 x 3in. (53 x 26 x 8cm.)

£2,500-3,500

US\$3,300-4,600

€2,900-4,000





58

**A SPECIMEN OF NATIVE COPPER**

MICHIGAN, USA

From the Keweenaw Peninsula, the specimen of dynamic jagged coral-like appearance with pockets of beautiful lustrous copper crystals interspersed with bright verdigris.

12in. (30.5cm.) long

£7,000-10,000

US\$9,200-13,000

€8,100-12,000





■\*59

**A LARGE TOURMALINE BOWL**

AUSTRALIA

Of bowl form, the interior and exterior polished to reveal cross-sections of large tourmaline crystals, the colours gradated from black to purple, through greens and pinks, in their quartz matrix. The rim left in natural state.

15 x 10 x 7in. (38 x 24.5 x 18cm.)

£20,000-30,000

US\$27,000-39,000

€24,000-35,000





■60

**A SPLIT SEPTARIAN CONCRECTION**

BELGIUM

Cut and polished to reveal internal calcite and aragonite structures, each supported on fitted custom stand.  
23 x 15½ x 6in. (58.5 x 39.5 x 15cm.)

£3,000-5,000

US\$4,000-6,500  
€3,500-5,800







61

**61**

**A SPECIMEN OF AZURITE AND MALACHITE**

CHINA

Of natural form.

5 ½ x 4 ½ x 2 ½ in. (14 x 11.5 x 6cm.)

£1,200-1,800

US\$1,600-2,400

€1,400-2,100

**62**

**A SPECIMEN OF YELLOW GYPSUM**

RED RIVER FLOODWAY, MANITOBA, CANADA

Of natural form displaying twinning.

4 x 2 x 2 ½ in. (10 x 5 x 6cm.)

£1,000-1,500

US\$1,400-2,000

€1,200-1,700



62



63

**63**

**A SPECIMEN OF SELENITE WITH APOPHYLLITE**

INDIA

Of natural form.

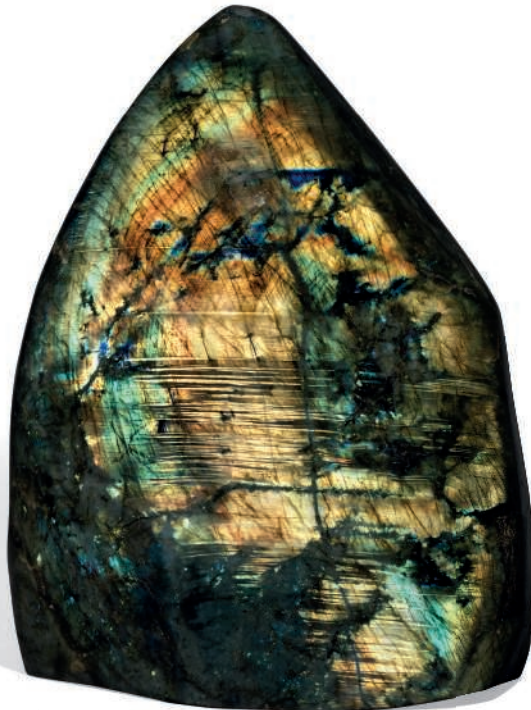
4 ¼ x 3 x 5 in. (10.5 x 7.5 x 13cm.)

£800-1,200

US\$1,100-1,600

€930-1,400





64

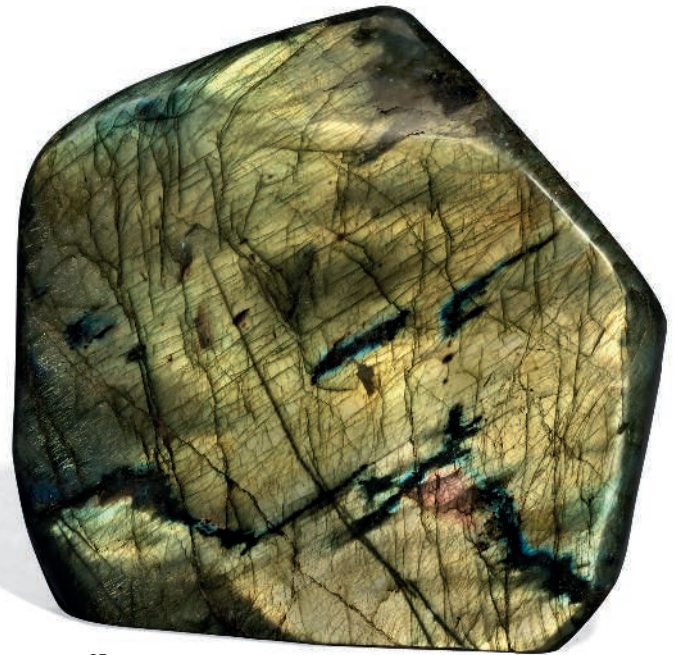
**\*65**

**A SPECIMEN OF LABRADORITE**  
MADAGASCAR

The free form polished on all sides, the front entirely covered in an iridescence of golden yellows.  
8½ x 8 x 2½in. (22 x 20 x 6.5cm.)

£500-800

US\$660-1,000  
€580-920



65

**\*66**

**A SPECIMEN OF LABRADORITE**  
MADAGASCAR

The free-form polished on all sides, the front showing strong iridescence of dark and silvery blues interspersed with yellow flashes.  
11½ x 10 x 4½in. (30 x 26 x 11.5cm.)

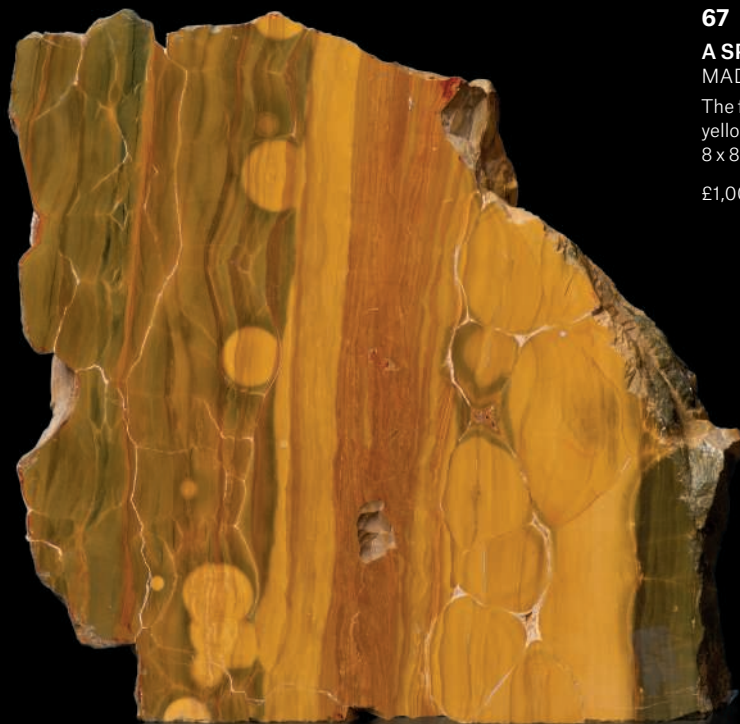
£1,000-1,500

US\$1,400-2,000  
€1,200-1,700



66





67

**67**

**A SPECIMEN OF ORBICULAR JASPER**

MADAGASCAR

The front face cut and polished to reveal striated patterns with circles of lighter yellows.

8 x 8 x 3½in. (20 x 20 x 9cm.)

£1,000-1,500

US\$1,400-2,000

€1,200-1,700

THIS LOT IS OFFERED WITH NO RESERVE.

**•68**

**A SPECIMEN OF CRYSTALLINE SULPHUR**

BOLIVIA

The small crystals with strong yellow colour.

9¾ x 5 x 3in. (25 x 13 x 8cm.)

£2,000-3,000

US\$2,700-3,900

€2,400-3,500



68





**69**

**A SLICE OF RHODOCHROSITE**  
MODERN CUTTING

The slice cut thinly to be displayed when backlit, on custom bronzed stand.  
17 x 10 x 5in. (43 x 26 x 13cm.)

£5,000-8,000

US\$6,600-10,000  
€5,800-9,200

69

**70**

**A SPECIMEN OF CALCITE ON AMETHYST**  
URUGUAY

Of natural form, the amethyst with three sceptres of calcite, two with secondary crystallisation of smaller crystals, the largest of form resembling the Eiffel Tower.

9 x 8½ x 7½in. (23 x 22 x 19cm.)

£5,000-8,000

US\$6,600-10,000  
€5,800-9,200



70





71

**71**

**A SPECIMEN OF MOOKAITE JASPER**

AUSTRALIA

A freestanding tabletop specimen, cut and polished on one side to reveal an abstracted range of autumnal shades. The reverse left in natural state.  
10 x 7 x 5in. (26 x 18 x 13cm.)

£1,500-2,500

US\$2,000-3,300

€1,800-2,900

**■72**

**THREE SODALITE OBELISKS**

BRAZIL

Freestanding, all faces cut and polished.  
14in. (36cm.) the tallest

£2,000-3,000

US\$2,700-3,900

€2,400-3,500



72





73

**\*73**

**AN AGATE BOWL**  
BRAZIL

Of bowl form with foot base, cut from one piece by Peter Muller and polished on all sides. Numbered 9656 on label to base.  
9 x 8 x 3in. (23 x 21 x 9cm.)

£2,000-3,000

US\$2,700-3,900  
€2,400-3,500

**\*74**

**AN AGATE BOWL**  
BRAZIL

Of bowl form with foot base, cut from one piece by Peter Muller and polished on all sides. Numbered 10048 on label to base.  
9 x 7 x 4in. (22.5 x 18 x 10cm.)

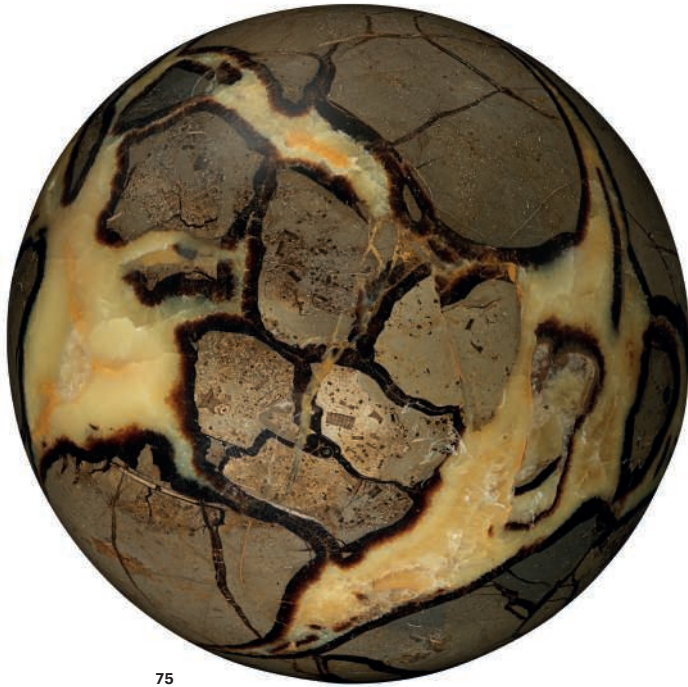
£2,000-3,000

US\$2,700-3,900  
€2,400-3,500



74





75

# 75

## A SEPTARIAN SPHERE

MADAGASCAR

The concretion nodule cut and polished to spherical form.  
9in. (23cm.) diameter

£1,000-2,000

US\$1,400-2,600

€1,200-2,300

# 76

## A FLUORITE SPHERE ON SEPTARIAN STAND

MEXICO

The 6-inch sphere cut and polished to reveal two hemispheres of colour, sitting  
on polished stand made from a septarian nodule.  
7½ x 6½ x 6in. (19 x 16 x 15cm.)

£2,500-3,500

US\$3,300-4,600

€2,900-4,000



76



■77

**A MASSIVE CITRINE SPHERE**  
BRAZIL

The 11-inch sphere cut and polished.  
11in. (28cm.) diameter

£25,000-35,000

US\$33,000-46,000  
€29,000-40,000





**\*78**

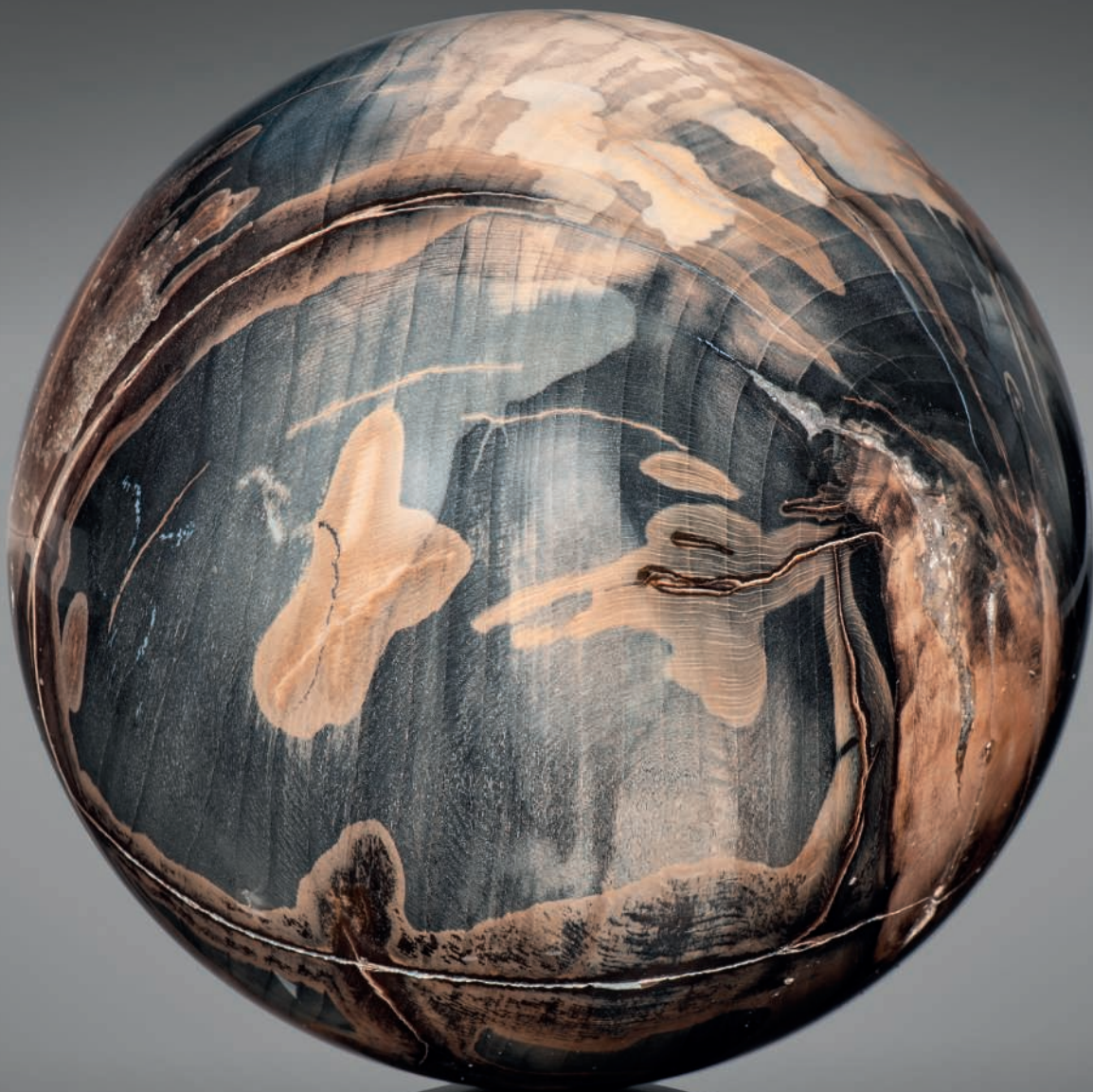
**A SPHERE OF PETRIFIED WOOD**

OREGON, USA

The 7-inch sphere cut and polished from a fossilized sycamore, with the annual growth rings preserved.  
7in. (18cm.)

£1,500-2,500

US\$2,000-3,300  
€1,800-2,900





■79

**A LARGE CLUSTER OF SELENITE CRYSTALS**

MEXICO

Of natural form with a lattice work of crossing crystals forming caverns and interlocking caves, with original matrix cut flat as a base.

26 x 23 x 20in. (66 x 59 x 51cm.)

£8,000-12,000

US\$11,000-16,000

€9,300-14,000







80

**80**

**AN AMETHYST "FLOWER"**

BRAZIL

The crystals with a delicate purple hue, radiating from a central point. On custom stand.

9 x 6½ x 2½ (23 x 16.5 x 5.5cm.)

£2,000-3,000

US\$2,700-3,900

€2,400-3,500

THIS LOT IS OFFERED WITH NO RESERVE.

•**\*81**

**A SPECIMEN OF SMOKY QUARTZ**

BRAZIL

Of natural form from the Macaco Mine, Minas Gerais, the Jacaré quartz stepped into the form of a tower with platform. On custom base.

11½ x 7¼ x 4in. (29 x 18.5 x 10cm.)

£1,000-1,500

US\$1,400-2,000

€1,200-1,700



81

■**82**

**A QUARTZ POINT**

BRAZIL

The freestanding crystal polished to termination.

11¼ x 3 x 3½in. (29.5 x 7.5 x 8cm.)

£1,200-1,800

US\$1,600-2,400

€1,400-2,100



82





■83

**A LARGE QUARTZ POINT**  
BRAZIL

With natural termination point.  
28in. (71cm.) high

£8,000-12,000

US\$11,000-16,000

€9,300-14,000





■84

**A LARGE QUARTZ CLUSTER**

MINAS GERAIS, BRAZIL

The heavy specimen formed of large crystals.  
18 x 14 x 16in. (46 x 36 x 40.5cm.)

£3,000-5,000

US\$4,000-6,500  
€3,500-5,800

84

**85**

**A SPECIMEN OF PYRITE**

SPAIN

The largest crystal 2-inches with twinned growths,  
on custom stand.  
6in. (15cm.) high

£3,000-5,000

US\$4,000-6,500  
€3,500-5,800



85



**87**

**A SPECIMEN OF PYRITE**

PERU

From the Huanzala Mine, Ancash Department, the complex of cubic crystals displaying a rich lustre. 5 x 5 x 5in. (12.5 x 12.5 x 12.5cm.)

£2,000-3,000

US\$2,700-3,900

€2,400-3,500



87

**88**

**A SPECIMEN OF PYRITE**

SPAIN

The crystals with twinned growths forming a natural cavity, on custom stand. 5in. (13cm.) high

£2,000-3,000

US\$2,700-3,900

€2,400-3,500



88





**89**

**A PYRITE CLUSTER**

SPAIN

An impressive twinned growth of lustrous cubic crystals on original matrix with other cubic crystals, supported on custom stand.  
12½in. (31.5cm.) high

£7,000-10,000

US\$9,200-13,000  
€8,100-12,000





■90

A SPECIMEN OF OBSIDIAN

MEXICO

The specimen cut and polished to sculptural form, on bronzed base.

21 x 16 x 5in. (54 x 41 x 12cm.)

£5,000-8,000

US\$6,600-10,000

€5,800-9,200



## Gogottes (lots 91 – 98)



### ■91

#### **A GOGOTTE FORMATION** FONTAINEBLEAU, FRANCE

Of natural form with a naturally occurring hole and branching appearance to the layers of concretions, from the Oligocene (circa 30 million years ago), supported on stand.  
16 x 19 x 8 in. (41 x 49 x 20 cm.)

£6,000-9,000

US\$7,900-12,000  
€7,000-10,000

Sandstone concretions formed in mineral rich waters 30 million years ago, gogottes are much prized for their sculptural-like appearance; this writhing specimen with an even colour is a fine example.



■92

**A GOGOTTE FORMATION WITH  
NATURAL HOLE**

FONTAINEBLEAU, FRANCE

Of natural form, from the Oligocene (circa 30  
million years ago), supported on stand.  
22 x 14 x 10in. (56 x 36 x 26cm.)

£5,000-8,000

US\$6,600-10,000

€5,800-9,200







■93

**A GOGOTTE FORMATION WITH NATURAL HOLE**

FONTAINEBLEAU, FRANCE

Of natural layered form with appendage-like concretions and a natural hole; from the Oligocene (circa 30 million years ago). A fine example, supported on stand.

19 x 9 x 8in. (49 x 23 x 20cm.)

£7,000-10,000

US\$9,200-13,000

€8,100-12,000



(Lot 93 from alternate angles)





■94

**A GOGOTTE FORMATION WITH TWO NATURAL HOLES**

FONTAINEBLEAU, FRANCE

Of natural form with cavities to the layers of concretions, from the Oligocene (circa 30 million years ago), supported on stand.

18½ x 8½ x 4in. (47 x 21.5 x 10cm.)

£3,000-5,000

US\$4,000-6,500

€3,500-5,800



(Lot 94 reverse)





■95

**A GOGOTTE FORMATION**  
FONTAINEBLEAU, FRANCE

Of natural form with layers of pillow-like concentric concretions giving the overall appearance of a cloud, supported on stand, from the Oligocene (circa 30 million years ago).

15 x 13 x 5 (38 x 32.5 x 13cm.)

£3,000-5,000

US\$4,000-6,500  
€3,500-5,800





■96

**A LARGE GOGOTTE FORMATION**

FONTAINEBLEAU, FRANCE

From the Oligocene (circa 30 million years ago), of natural form with many layers of concretions forming caverns and holes, supported on stand.  
26 x 30 x 8in. (66 x 76 x 20cm.)

£20,000-30,000

US\$27,000-39,000  
€24,000-35,000





**97**

**A SMALL GOGOTTE FORMATION**

FONTAINEBLEAU, FRANCE

Of natural near-symmetric form, from the Oligocene (circa 30 million years ago), supported on custom stand.

10 x 5 x 4in. (25.5 x 13 x 10cm.)

£1,500-2,500

US\$2,000-3,300

€1,800-2,900

**98**

**AN INTACT GOGOTTE FORMATION**

FONTAINEBLEAU, FRANCE

Of natural form, the regular layers of concretions forming a symmetrical rounded hooded boulder, from the Oligocene (circa 30 million years ago).

5½ x 7½ x 5½in. (14 x 19 x 14cm.)

£4,000-6,000

US\$5,300-7,800

€4,700-6,900

Sandstone concretions formed in mineral rich waters 30 million years ago, gogottes are much prized for their sculpture-like appearance. Intact concretions with such pure form and symmetry as displayed on this specimen are very rarely seen.





## Fossils (lots 99 – 182)



**99**

### **AN INTACT ELEPHANT BIRD EGG**

*MADAGASCAR, PRE-17TH CENTURY*

A complete egg of an *Aepyornis maximus*, maximum diameter 8 inches.  
11 x 8 x 8 in. (28 x 20 x 20 cm.)

£30,000-50,000

US\$40,000-65,000  
€35,000-58,000

The Elephant Bird was thought to be the giant flying beast known as the Roc (or Ruhk) in the tales of Sinbad and accounts of Marco Polo's voyages. The bird grew to around 10 or 11 feet in height and whilst probably unable to devour an elephant, as the Roc was reputed to do, it certainly was the largest bird ever to have lived. It was estimated to weigh up to 1100lbs (the largest ostriches might grow to 8 feet in height and weigh 300lbs). The birds are thought to have gone extinct between the 14th and 17th centuries.





# ■100

## **A LARGE PLAQUE OF FOSSILIZED SCALLOPS** SOUTHERN FRANCE

From the Upper Miocene, Burdigalian (20-16 million years ago) the specimens of *Gigantopectens restitutensis* in original matrix, inside one with a natural opening has been placed a small pearl.  
47 x 25 x 4in. (120 x 60 x 10cm.)

£8,000-12,000

US\$11,000-16,000  
€9,300-14,000

Preserved in their final pose, these fossils are the ancestors of today's modern (edible) scallop. Their surrounding host rock has been carved away to reveal their detail.





■101

**A TALL GROUP OF FOSSILIZED SCALLOPS**  
SOUTHERN FRANCE

From the Upper Miocene, Burdigalian (20-16 million years ago) the specimens of *Gigantopectens restitutensis* up to 7 inches wide, in original matrix with a smaller species of scallop and some sea urchins, cut to form freestanding column.  
69 x 14½ x 12in. (175 x 37 x 30.5cm.)

£4,000-6,000

US\$5,300-7,800  
€4,700-6,900



■102

**A GROUP FOSSILIZED SCALLOPS**

SOUTHERN FRANCE

From the Upper Miocene, Burdigalian (20-16 million years ago) the specimens of *Gigantopectens restitutensis* up to 6 inches wide, in original matrix, mounted on iron stand.

68in. (173cm.) high

£2,000-3,000

US\$2,700-3,900

€2,400-3,500





## Ammonites (lots 103 – 123)

### ■103

#### A MASSIVE AMMONITE

MADAGASCAR

From the Jurassic (201-145 million years ago) the very large and well preserved *Kranaosphinctes rabei* stable to stand on its end, with a smaller specimen in the matrix by its opening.  
23¼in. (59cm.) diameter

£5,000-8,000

US\$6,600-10,000

€5,800-9,200

One of the largest examples of this species we have seen.





■104

**A VERY LARGE AMMONITE**  
MADAGASCAR

From the Jurassic (201-145 million years ago) the finely preserved 23-inch *Kranaosphinctes rabei* with most of shell still intact a bivalve to final chamber, mounted on custom stand.

24½ x 23 x 8in. (62 x 59 x 20cm.)

£3,000-5,000

US\$4,000-6,500  
€3,500-5,800



104



106

■105

**A BITTEN AMMONITE**  
SOUTH DAKOTA

From the upper Cretaceous, Fox Hills Formation, (circa 65 million years ago) the specimen of *Sphenodiscus splendens* showing opal-like iridescence, with pathological markings.

13in. (33cm.) diameter

£10,000-15,000

US\$14,000-20,000  
€12,000-17,000

The shimmering, metallic colours were caused by the combination of millions of years of compression and the mineralization of iron, copper and silica which precipitated from volcanic ash. The "bite" marks seen on these ammonites were once suggested to have been caused by the teeth of a mosasaur, but are more likely caused by less fearsome barnacles or other parasitic creature.





Lot 106



■106

**A LARGE AMMONITE**  
MADAGASCAR

From the Cretaceous (circa 145-66 million years ago), the 21-inch *Douvilleiceras* sp. with most of the shell intact to the front with partial exposure to the suture lines below, the reverse partially opened revealing the mass burial of several smaller species including other ammonites, belemnites and bivalves amongst shelly fragment matrix, supported on stand.

23 x 20 x 12in. (59 x 51 x 30cm.)

£15,000-25,000

US\$20,000-33,000

€18,000-29,000



Lot 106 (reverse)





## ■107

### AN UNCOILED HETEROMORPHIC SPINY AMMONITE

FRANCE

From the Hauterivian, Early Cretaceous (circa 133-129 million years ago), the 16-inch specimen of *Crioceratites nolani* prepped on original matrix to form a free-standing sculpture supporting the ammonite which survives in marvellous state of preservation.

26 x 24 x 7in. (66 x 61 x 18cm.)

£15,000-25,000

US\$20,000-33,000

€18,000-29,000

#### LITERATURE:

Heteromorph : the rarest fossil ammonites : nature at its most bizarre. Wolfgang Gurke. [n.p.]: At One Communications, September 2014

Still veiled in mystery, the evolutionary benefit of the uncoiled form is still not fully understood. It may have been that this species inhabited the benthic zone, and thus did not require a form suited to swimming. The spiny defences would therefore have been necessary to protect a slow moving animal on the sea floor.

The inner coils of this specimen have been worked away from the matrix to free the specimen to highlight its unusual shape. Countless hours of careful work were required to prepare this specimen to reveal one of the most extraordinary forms that has been sculpted by nature.





# ■108

## TWO UNCOILED HETEROMORPH AMMONITES

FRANCE

From the Barremian, Early Cretaceous (129-125 million years ago) the *Heteroceras emerici* prepped in original positions in matrix, which is cut flat to base.  
21 x 20 x 7in. (54 x 51 x 18cm.)

£10,000-15,000

US\$14,000-20,000  
€12,000-17,000





# ■109

## AN AMMONITE GROUP

FRANCE

From the Hauterivian, Early Cretaceous (circa 133-129 million years ago) a mass mortality scene of six different species (two possibly placed or replaced) of ammonite displaying spines and Heteromorphy. The base of matrix cut flat to form freestanding sculpture.

29 x 17 x 7in. (74 x 44 x 18cm.)

£12,000-18,000

US\$16,000-23,000

€14,000-21,000





110

# ■110

## **A VERY LARGE SPLIT AMMONITE** VOLGA RIVER, RUSSIA

The 21-inch specimen of *Speetonicer* *sp.* from the Jurassic (201-145 million years ago) split and polished to reveal internal chambers, some naturally filled with a bright orange calcite, supported on custom stands.  
21in. (54cm.) wide (each)

£3,000-5,000

US\$4,000-6,500  
€3,500-5,800

# ■111

## **A VERY LARGE AMMONITE** MADAGASCAR

The 25-inch *Lytoceras* *sp.* from the Jurassic (201-145 million years ago) polished and cut at end to reveal suture lines, supported on custom stand.  
30 x 25 x 8in. (76 x 63.5 x 20cm.)

£5,000-8,000

US\$6,600-10,000  
€5,800-9,200



111





112

## ■112

### A RED AMMONITE GROUP BELMONT, FRANCE

From the Late Jurassic (circa 150 million years ago) the natural assemblage of *Hammatoceras* sp. in original matrix.  
28 x 19 x 10in. (72 x 48 x 25cm.)

£2,000-3,000

US\$2,700-3,900  
€2,400-3,500

## \*113

### A SPLIT AMMONITE VOLGA RIVER, RUSSIA

The 12-inch specimen of *Speetoniceras* sp. from the Jurassic (201-145 million years ago) split and polished to reveal internal chambers, some naturally filled with a bright orange calcite others lined with pyrite, surrounded by lustrous pyrite lines, the reverse sealed and revealing ridges of shell supported on custom stands.

13½ x 12 x 5in. (34 x 30.5 x 13cm.)

£1,200-1,800

US\$1,600-2,400  
€1,400-2,100



113





114

# ■114

## **A SLAB OF IRIDESCENT ENGLISH AMMONITES** SOMERSET

*Caloceras johnstoni* from the Hettangian, Jurassic (circa 200 million years ago) in original matrix on custom stand.

32½ x 14 x 7in. (82.5 x 36 x 18cm.)

£2,000-3,000

US\$2,700-3,900

€2,400-3,500

# ■115

## **A LARGE AMMONITE** MADAGASCAR

The 16-inch *Lytoceras* sp. from the Jurassic (201-145 million years ago) polished and cut at end to reveal suture lines, two other white shelly fragments preserved by inner chamber, supported on custom stand.

14 x 16 x 8in. (36 x 41 x 20cm.)

£4,000-6,000

US\$5,300-7,800

€4,700-6,900



115





116

**116**

**TWO ENGLISH AMMONITES**  
DORSET

From the Jurassic, Lower Lias (approx. 190 Mya) the *Asteroceras obtusum* in their matrix with an arch carved away.  
16 x 14 x 3½in. (41 x 36 x 9cm.)

£2,500-3,500

US\$3,300-4,600  
€2,900-4,000

**■117**

**A "WINGED" AMMONITE GROUP**  
BELMONT, FRANCE

Specimens of *Lytoceras cornucopia* with ribbed "wings" preserved, in original matrix with belemnites and another smaller ammonite.  
25in. (64cm.) high

£8,000-12,000

US\$11,000-16,000  
€9,300-14,000



117





118

# ■118

## A GROUP OF THREE AMMONITES

DIJON, FRANCE

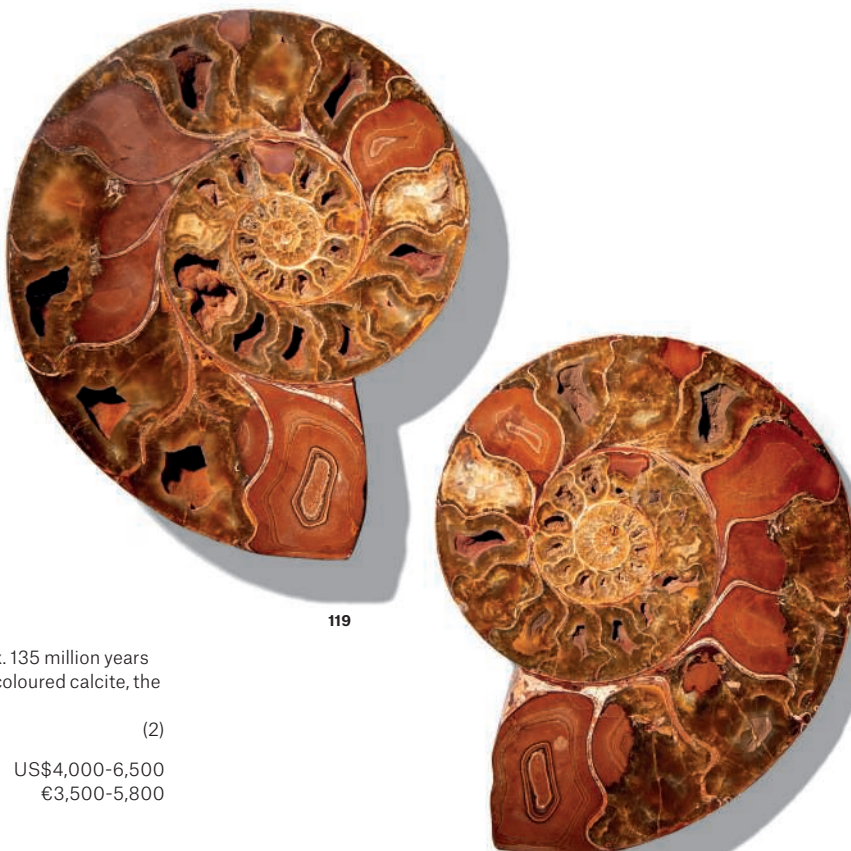
Three *Arietites* sp. (the largest 23-inches) in their original matrix with several brachiopods.

34 x 31 x 16in. (87 x 78 x 40cm.)

£6,000-9,000

US\$7,900-12,000

€7,000-10,000



119

# ■119

## A LARGE SPLIT AMMONITE

MADAGASCAR

A 17-inch *Cleoniceras* sp. from the early Cretaceous (approx. 135 million years ago), split and polished to reveal inner chambers of honey-coloured calcite, the reverse sides polished revealing suture lines.

17 x 14 x 2½in. (43 x 36 x 6.5cm.)

(2)

£3,000-5,000

US\$4,000-6,500

€3,500-5,800





120

## ■120

### AN ENGLISH AMMONITE

LYME REGIS

From Lower Lias, Jurassic (208-198 million years ago) the 18-inch *Paracorinicerias* sp. in original matrix, supported on stand.

22 x 19 x 11in. (56 x 49 x 28cm.)

£3,000-5,000

US\$4,000-6,500

€3,500-5,800

## ■121

### AN ASSEMBLAGE OF AMMONITES IN MATRIX

GERMANY

From the Lower Jurassic, Toarcian (182-174 million years ago) Posidonienschiefer Formation, Holzmaden Germany, the matrix worked away to reveal at least two species of ammonite, the largest a 9-inch *Harpoceras* sp., in a mass mortality scene. Framed.

24 x 44in. (61 x 112cm.)

£2,000-3,000

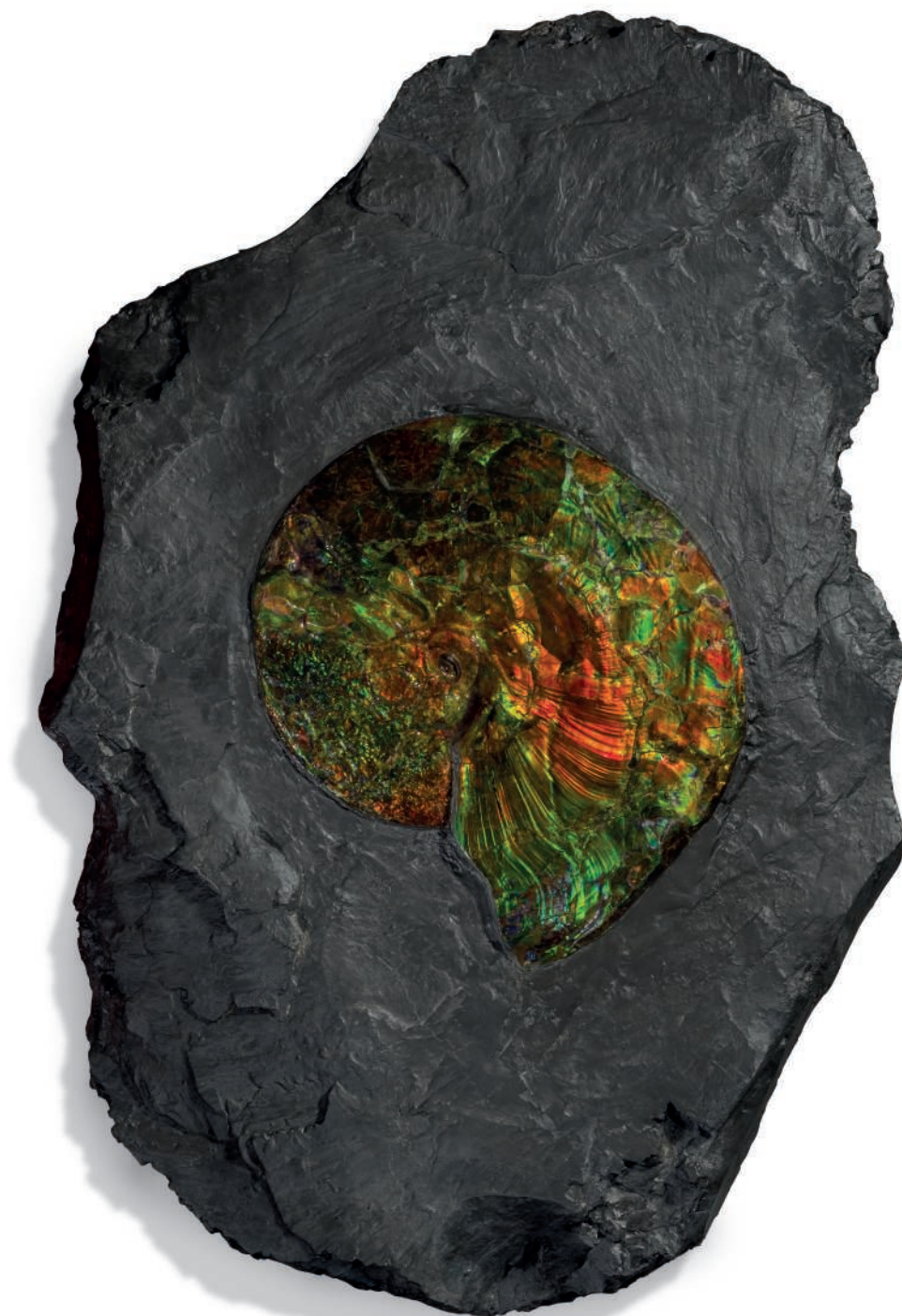
US\$2,700-3,900

€2,400-3,500



121





■\*122

# A LARGE IRIDESCENT AMMONITE

CANADA

The 19-inch *Placenticer* *interclare* from the upper Cretaceous, Bearpaw formation (75-72 million years ago), showing strong iridescences of red, orange, green and purple, placed in matrix supported with wall mounting. 44 x 29 x 5in. (112 x 74 x 13cm.)

£25,000-50,000

US\$33,000-65,000

€29,000-58,000

The opal like iridescence of these ammonites from Alberta, Canada has been termed ammolite and since 1981 has had the status of a gemstone. The shimmering, metallic colours were caused by the combination of millions of years of compression and the mineralization of iron, copper and silica which precipitated from volcanic ash. The opalescent layers of colour are particularly prized in the Chinese philosophical system of Feng-Shui.

The ammonites are a group of molluscs that lived in the seas from the mid-Devonian (approximately 400 million years ago) to the end of the Cretaceous (65 million years ago). The sequence of events that famously killed off the dinosaurs also drove the ammonites to extinction.



123

**A FINE SPECIMEN OF AMMOLITE**

CANADA

The section of *Placenticerus costatum* from the upper Cretaceous, Bearpaw formation (75-72 million years ago), showing strong iridescences of red, orange, green, purple.  
9½ x 9 x 6in. (24 x 23 x 15cm.)

£6,000-9,000

US\$7,900-12,000

€7,000-10,000

The opal-like iridescence of these ammonites from Alberta, Canada has been termed ammolite, and since 1981 has had the status of a gemstone. The shimmering, metallic colours were caused by the combination of millions of years of compression and the mineralization of iron, copper and silica which precipitated from volcanic ash. The opalescent layers of colour are particularly prized in the Chinese philosophical system of Feng-Shui.

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**\*124**

**A BOWL OF BANDED IRON TIGER EYE**  
MT BROCKMAN STATION, AUSTRALIA

From the early Proterozoic (circa 2.5 billion years ago) the specimen of Marra Mamba iron formation with a broad chatoyant band, cut and polished to form an asymmetric bowl. The base cut flat, marked DW. 9 ½ x 12 x 8 ½ in. (24 x 30.5 x 20 cm.)

£7,000-10,000

US\$9,200-13,000

€8,100-12,000

Found only in the blue crocidolite seams of the Hamersley Range in the Pilbara region of Western Australia, this highly iridescent ironstone, Marra Mamba, is amongst the rarest and most colourful of all Tiger-eye. Probably stromatolitic in origin, this fossil is amongst the earliest signs of life on Earth, and as a semi-precious stone is also one of the most beautiful.





**\*125**

**A LARGE FREEFORM OF TIGER IRON**

ORD RANGES, AUSTRALIA

From the Paleoproterozoic (2.5 to 1.6 billion years ago) the banded layers of hematite, jasper and chatoyant Tiger-eye polished on two sides, one side left in a natural state, the base cut flat and marked with DW.

13 x 7 x 3in. (33 x 19 x 7cm.)

£4,000-7,000

US\$5,300-9,100

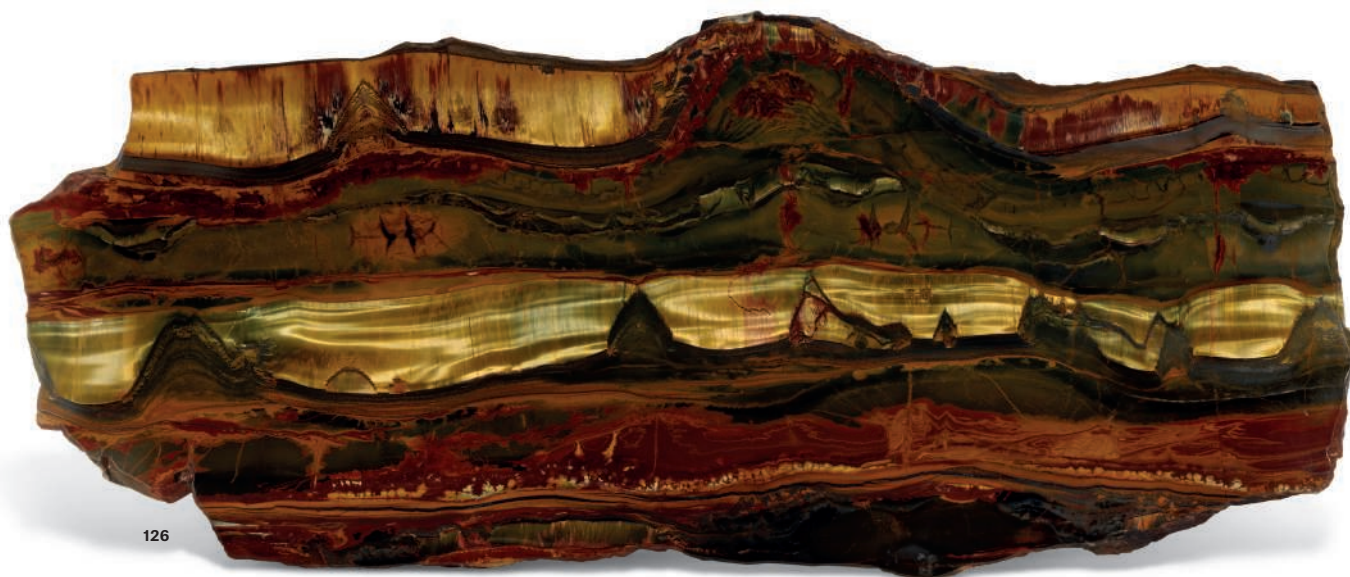
€4,700-8,100

As one of the earliest fossilized forms of life, a mystery still surrounds the creation of Tiger Iron almost 2 billion years ago — during a hostile era when the newly formed continents were barren and life was confined to the seas. Scientists have suggested that it is a banded iron formation (layered sediments caused by photosynthetic cyanobacteria) or a Stromatolite (layers of algae), or even both. Simple photosynthesising life forms such as these dominated the first two billion years of life on Earth, and were probably the source of the Oxygen in the atmosphere.



125





126

**\*126**

**BANDED IRON TIGER EYE SPECIMEN**

MT BROCKMAN STATION, AUSTRALIA

From the early Proterozoic (circa 2.5 billion years ago) the panel of Marra Mamba iron formation cut and polished.  
14 x 33in. (36 x 84cm.)

£4,000-6,000

US\$5,300-7,800

€4,700-6,900

Found only in the blue crocidolite seams of the Hamersley Range in the Pilbara region of Western Australia, this highly iridescent ironstone, Marra Mamba, is amongst the rarest and most colourful of all Tiger-eye. Probably stromatolitic in origin, this fossil is amongst the earliest signs of life on Earth, and as a semi-precious stone is also one of the most beautiful.





127

**\*127**

**BANDED IRON TIGER EYE SPECIMEN**  
MT BROCKMAN STATION, AUSTRALIA

From the early Proterozoic (circa 2.5 billion years ago) the panel of Marra Mamba iron formation cut and polished in the form of a table top to reveal large chatoyant bands glimmering in shades of red, orange, green and gold.  
23in. (58.5cm.)

£7,000-9,000

US\$9,200-12,000  
€8,100-10,000

**■128**

**A LARGE FREEFORM OF TIGER IRON**  
ORD RANGES, AUSTRALIA

From the Paleoproterozoic (2.5 to 1.6 billion years ago) the banded layers of hematite, jasper and chatoyant Tiger-eye polished, with base left natural.

16 x 14 x 9in. (40.5 x 35.5 x 22.5cm.)

£5,000-8,000

US\$6,600-10,000  
€5,800-9,200

As one of the earliest fossilized forms of life, a mystery still surrounds the creation of Tiger Iron almost 2 billion years ago — during a hostile era when the newly formed continents were barren and life was confined to the seas. Scientists have suggested that it is a banded iron formation (layered sediments caused by photosynthetic cyanobacteria) or a Stromatolite (layers of algae), or even both. Simple photosynthesising life forms such as these dominated the first two billion years of life on Earth, and were probably the source of the Oxygen in the atmosphere.



128



## Petrified Wood (lots 129 – 137)



■\*129

### A SLICE OF PETRIFIED OAK

OREGON, USA

From the Miocene (circa 10 million years ago), Juntura Formation, Stinking Water Pass, the annual growth rings of *Quercus* sp. clearly visible within the rarely seen shades of blue.

24½ x 22½ x 1½ in. (62 x 57 x 4 cm.)

£3,000-5,000

US\$4,000-6,500

€3,500-5,800





130

### ■130

#### A SPECIMEN OF PETRIFIED WOOD

INDONESIA

From the Miocene (circa 20 million years ago) the totem-like specimen preserving the wood's pre-mineralised eroded texture, annual growth rings still visible in places. Drilled and supported on stand.  
26½ x 11 x 8in. (67 x 28 x 20cm.)

£2,500-3,500

US\$3,300-4,600  
€2,900-4,000



131

### ■131

#### TWO SECTIONS OF A PETRIFIED TREE TRUNK

INDONESIA

From the Miocene (circa 20 million years ago), the two sections cut from the same trunk with natural cavity running down their interior, the tops cut and polished to reveal remains of annual growth rings, the outer texture preserving knots and furrowed with cavities.

16 & 12in. (41 & 30.5cm.) high

£3,000-5,000

US\$4,000-6,500  
€3,500-5,800

### ■132

#### A PETRIFIED WOOD STOOL

MADAGASCAR

*Araucaria* sp. from the Triassic (circa 225 million years ago) the top cut and polished to reveal internal structure and natural caramel colouration.  
11 x 15 x 13in. (28 x 38 x 33cm.)

£1,500-2,500

US\$2,000-3,300  
€1,800-2,900



132





133

#### ■134

##### A PETRIFIED WOOD STOOL

MADAGASCAR

*Araucaria sp.* from the Triassic (circa 225 million years ago) the top cut and polished to reveal internal structure and natural cream colouration. 20in. (51cm.) high

£2,000-3,000

US\$2,700-3,900

€2,400-3,500

#### ■133

##### A LARGE SLICE OF PETRIFIED WOOD

MADAGASCAR

The 2-inch thick slice of *Araucaria sp.* from the Triassic (circa 225 million years ago) cut and polished to reveal inner structure of rings with dark colours from mineralisation.

40 x 25in. (102 x 64cm.)

£2,500-3,500

US\$3,300-4,600

€2,900-4,000



134



■135

**A SLICE OF PETRIFIED WOOD**

NORTHERN ARIZONA

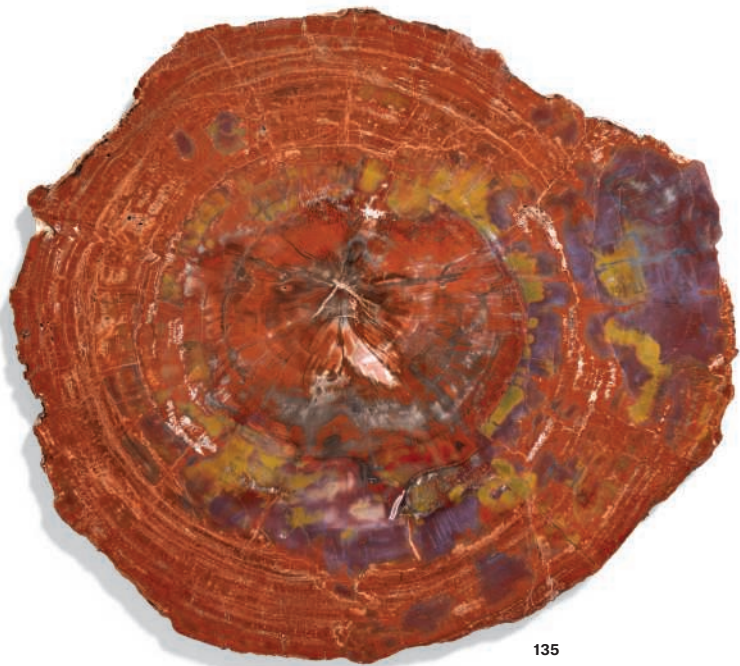
*Araucarioxylon arizonicum* from the Triassic (circa 225 million years ago), sliced in cross-section and polished to reveal a spectrum of reds, oranges and purples, with quartz-filled cavities, texture to edges preserved.

17½ x 19½ x 1¼ (44.5 x 49.5 x 3cm.)

£1,500-2,500

US\$2,000-3,300

€1,800-2,900



135



136

■136

**A LARGE SLICE OF PETRIFIED WOOD**

SILVER CREEK JUNCTION, UTAH

From the early Oligocene (circa 33 million years ago) the specimen of *Juniperus sp.* cut and polished to reveal natural cavities, preservation of some growth rings and a rich marbling of colours, the reverse reinforced, supported on simple wooden frame on metal easel.

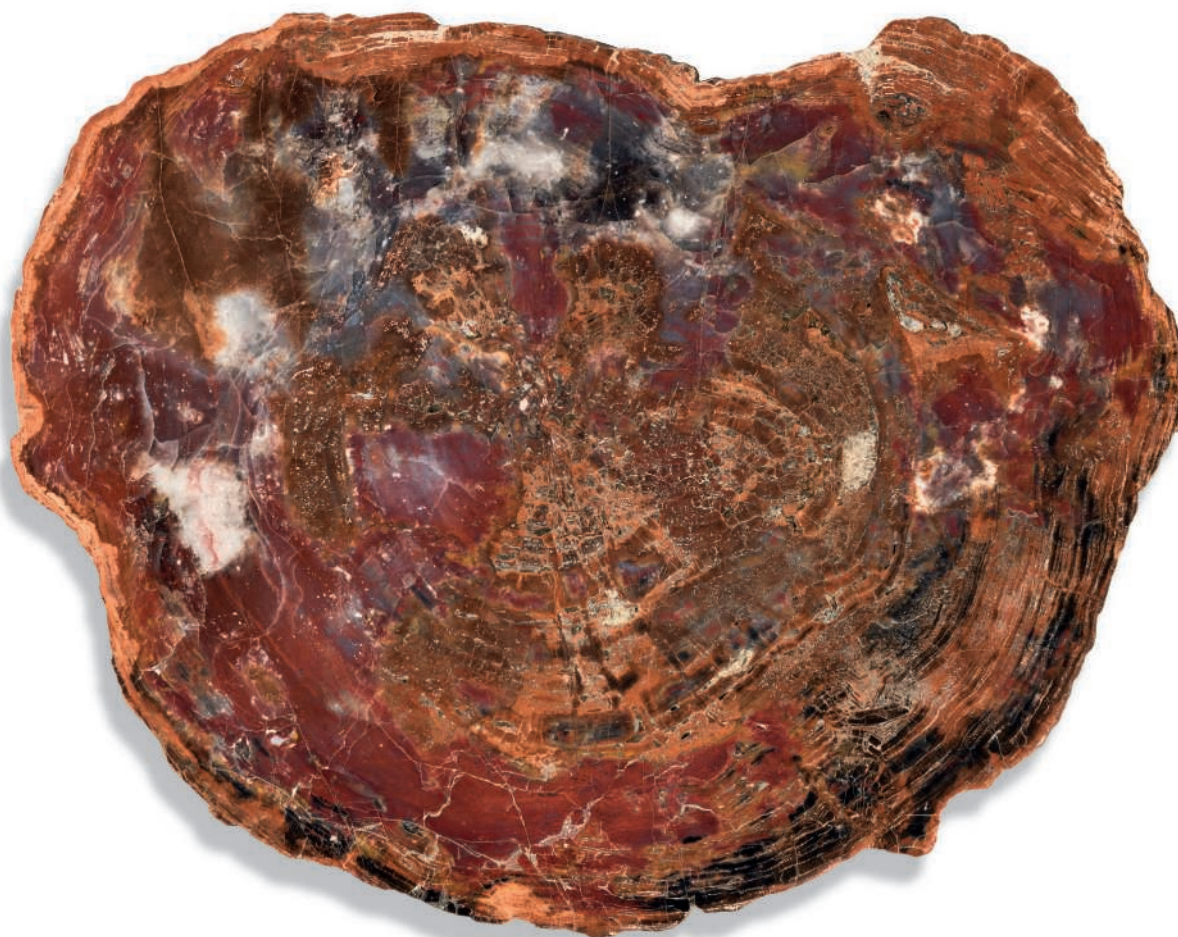
25 x 51 x 2in. (64 x 130 x 5cm.)

£3,000-5,000

US\$4,000-6,500

€3,500-5,800





137

### ■137

#### A LARGE SLICE OF PETRIFIED WOOD

NORTHERN ARIZONA, USA

*Araucarioxylon arizonicum* from the Triassic (circa 225 million years ago) the 3-cm slice cut and polished to reveal a rainbow of colours. 40 x 47in. (102 x 120cm.)

£10,000-15,000

US\$14,000-20,000

€12,000-17,000

### ■138

#### A TRIPLE FOSSIL SEALILY PLAQUE

GERMANY

From the Lower Jurassic, Toarcian (182-174 million years ago) Posidonienschiefer Formation, Holzmaden Germany, three curved specimens of *Seirocrinus subangularis* with well preserved large crowns, placed in a stabilised matrix, anchored to shelly flotsam. 82½ x 47in. (210 x 120cm.)

£40,000-60,000

US\$53,000-78,000

€47,000-69,000

Crinoids, also known as sealilies or feather stars, are examples of living fossils. They belong to the phylum Echinodermata, and are distantly related to the starfish, brittle star and sea urchin. Filter feeders, with crowns of pinnules that trap microscopic particles on which to feed, they sway back and forth on the ocean floor. Their fossil remains are found all over the world, but most beautiful and best preserved examples are those from the Posidonia shale beds of Holzmaden in southern Germany. The strong dark colour of the shale matrix serves as a beautiful background to the delicate serpentine neck of the fossil, highlighted by the subtle shimmer of pyritisation. The matrix itself has been prepared, to better the contrast with the superb three-dimensional detail of the fossil itself which stands out in high relief. This specimen remains attached to a piece of driftwood (not all species anchored themselves to the ocean floor, but floated through the oceans attached to drifting floral debris) and gathered around its holdfast are the remains of other members of the colony.









# 139

## A FOSSIL SEALILY GROUP

GERMANY

From the Lower Jurassic, Toarcian (182-174 million years ago) Posidonienschiefer Formation, Holzmaden Germany, the specimens of *Seiocrinus subangularis* prepped as found in their matrix with shelly fragments and flotsam.

33½ x 36in. (85 x 92cm.)

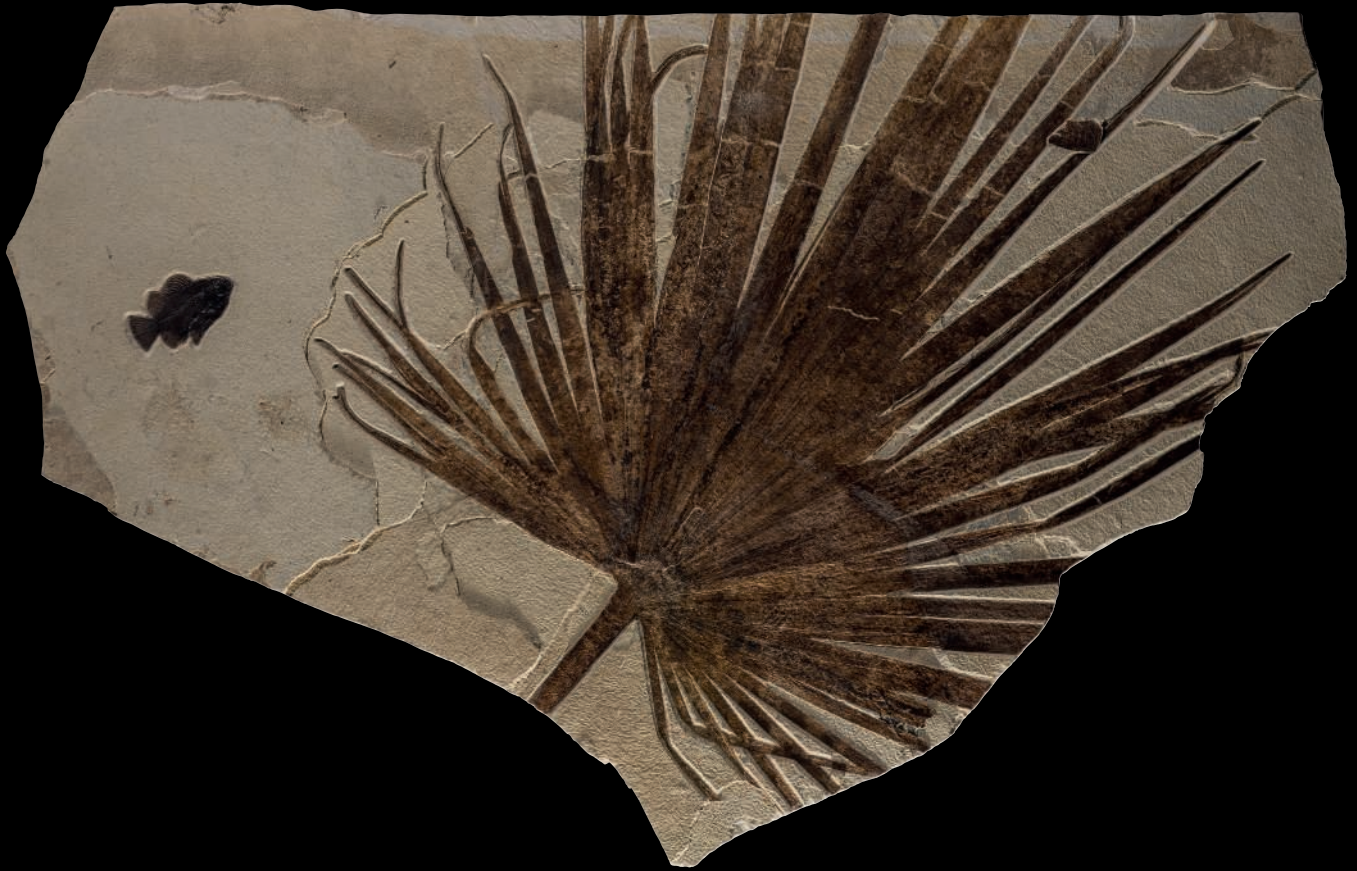
£10,000-15,000

US\$14,000-20,000

€12,000-17,000

Crinoids, also known as sealilies or feather stars, are examples of living fossils. They belong to the phylum Echinodermata, and are distantly related to the starfish, brittle star and sea urchin. Filter feeders, with crowns of pinnules that trap microscopic particles on which to feed, they sway back and forth on the ocean floor. Their fossil remains are found all over the world, but most beautiful and best preserved examples are those from the Posidonia shale beds of Holzmaden in southern Germany. The strong dark colour of the shale matrix serves as a beautiful background to the delicate serpentine neck of the fossil, highlighted by the subtle shimmer of pyritisation. The matrix itself has been prepared, to better the contrast with the superb three-dimensional detail of the fossil itself which stands out in high relief. This specimen remains attached to a piece of driftwood (not all species anchored themselves to the ocean floor, but floated through the oceans attached to drifting floral debris) and gathered around its holdfast are the remains of other members of the colony.





■\*140

# **A PARTIAL FOSSIL PALM FROND WITH FISH**

GREEN RIVER, WYOMING

From the Eocene (circa 50 million years ago), a partial specimen of *Sabalites* sp. in limestone matrix, *Priscacara* and other fragment of fish in the matrix. The reverse with wall mounting.

38 x 60in. (97 x 152cm.)

£10,000-15,000

US\$14,000-20,000

€12,000-17,000

The palms of the Green River Formation represent a flora bordering a warm freshwater lake 50 million years ago. Plant material is amongst the rarest in the fossil record, and these palms are amongst the largest and finest preserved, rarely surviving intact.





■\*141

**A TRIPTYCH OF FOSSIL FISH PLAQUES**

GREEN RIVER, WYOMING

From Eocene (circa 50 million years ago), the three panels with 14 placed fossil fish of various species the largest a *Diplomystus dentatus* arranged as if swimming through the rippling matrix. Wall mounting to reverse.

Each panel 48 x 24in. (122 x 61cm.)

£10,000-15,000

US\$14,000-20,000

€12,000-17,000





142

#### ■142

##### TWO FOSSIL FISH

GREEN RIVER, WYOMING

The 19-inch *Diplomystus dentatus* and rare 14-inch *Mioplosus labracoides* placed in matrix.

27½ x 59in. (70 x 150cm.)

£4,000-6,000

US\$5,300-7,800  
€4,700-6,900

#### ■143

##### A FOSSIL FISH PLAQUE

GREEN RIVER, WYOMING

The 18-inch *Diplomystus dentatus* from the Eocene (circa 50 million years ago).  
21 x 33½in. (53 x 85cm.)

£1,500-2,500

US\$2,000-3,300  
€1,800-2,900



143

111





■144

**A FOSSIL FISH PLAQUE**  
GREEN RIVER, WYOMING

From the Eocene (circa 50 million years ago) a 19-inch specimen of *Phareodus encaustus* showing fine dentition, with *Diplomystus* sp. *Priscacara* sp. and *Knightia* sp. placed in the matrix.

36 x 48in. (92 x 122cm.)

£4,000-6,000

US\$5,300-7,800

€4,700-6,900

144

■\*145

**A FOSSIL STINGRAY PLAQUE**  
GREEN RIVER, WYOMING

From the Eocene (circa 50 million years ago), 18-inch male *Heliobatis radians* showing fine preservation, placed in matrix with a small fish (*Knightia* sp.).

20¾ x 18¼in. (52.5 x 46.5cm.)

£3,000-5,000

US\$4,000-6,500

€3,500-5,800



145

112

In addition to the hammer price, a Buyer's Premium (plus VAT) is payable. Other taxes and/or an Artist Resale Royalty fee are also payable if the lot has a tax or λ symbol. Check Section D of the Conditions of Sale at the back of this catalogue.



■\*146

**A FOSSIL PALM FLOWER AND FISH**

GREEN RIVER, WYOMING

The flower of a *Sablites* sp. with three fish from the Eocene (circa 50 million years ago), the reverse with wall mounting.

48 x 27in. (122 x 69cm.)

£15,000-25,000

US\$20,000-33,000

€18,000-29,000







147

# ■147

## A FOSSIL NEEDLEFISH

LEBANON

From the Cenomanian, Upper Cretaceous (100-94 million years ago), the long *Rhynchodercetis* sp. in original matrix.  
26 x 10 x 1in. (67.5 x 26 x 2.5cm.)

£4,000-6,000

US\$5,300-7,800

€4,700-6,900

# ■148

## A PERMIAN DIAPSID

RANOHIRA, MADAGASCAR

From the Sankamena Formation (circa 265 million years ago) the near complete specimen of *Claudiosaurus gemaini* left in original position in limestone slab.

14 x 34in. (36 x 87cm.)

£12,000-18,000

US\$16,000-24,000

€14,000-21,000



148



149

**THE SLAB AND COUNTER SLAB OF A FOSSIL SHRIMP**

SOLNHOFEN, GERMANY

From the Jurassic (circa 150 million years ago) the 7½-inch specimen of *Mecochirus longimatus* preserved on both sides of original limestone matrix with possible remains of a trace fossil. Natural dendritic lines criss-cross the limestone.

Each 14½ x 9½in. (37 x 24cm.)

(2)

£2,000-3,000

US\$2,700-3,900

€2,400-3,500







**150**

**A FOSSIL DRAGONFLY**  
SOLNHOFEN, GERMANY

From the Jurassic (circa 150 million years ago) specimen of *Mesuropetala muensteri* with 5½-inch wingspan in original unbroken limestone matrix.  
13 x 12in. (33 x 30.5cm.)

£2,000-3,000

US\$2,700-3,900  
€2,400-3,500





**151**

**A FOSSIL DRAGONFLY**  
SOLNHOFEN, GERMANY

From the Jurassic (circa 150 million years ago) the finely preserved 6-inch specimen of *Urogomphus eximus* in original limestone matrix.  
14 x 20½in. (36 x 52cm.)

£2,500-3,500

US\$3,300-4,600  
€2,900-4,000





**152**

**THE SLAB AND COUNTER SLAB OF A FOSSIL GRASSHOPPER**

SOLNHOFEN, GERMANY

From the Jurassic (circa 150 million years ago) the 5½-inch specimen of *Pycnophlebia* finely preserved on both sides of original limestone matrix.  
12½ x 13 x ¾in. (32 x 33 x 2cm.)

(2)

£3,000-5,000

US\$4,000-6,500  
€3,500-5,800



153

**A FOSSIL LEAF**

GREEN RIVER, WYOMING

From the Eocene (circa 50 million years ago) the 6-inch sycamore leaf in original matrix.  
9 x 9½in. (23 x 24cm.)

£1,500-2,500

US\$2,000-3,300  
€1,800-2,900



153

■154

**A LARGE TRILOBITE**

MOROCCO

From the mid-Cambrian (509-497 million years ago), an 11-inch specimen of *Acadoparadoxides briareus* placed into slate.  
15 x 24 x 2½in. (38 x 61 x 6.5cm.)

£2,000-3,000

US\$2,700-3,900  
€2,400-3,500



154







A DODO SKELETON

MAURITIUS, BEFORE 1690

The near-complete composite skeleton from fossil remains from Mare-aux-Songes and rare bones found by Etienne Thirioux, a Mauritian naturalist active around the turn of the 19th century.

25 x 22 x 14in. (64 x 55 x 35cm.)

£400,000-600,000

US\$530,000-780,000

€470,000-690,000

PROVENANCE:

Paul Carié (1876-1930)

Thence by descent

LITERATURE:

Carié, P. 'Gisement ou fut trouve le Dronte', in Extrait de Bulletin Mensuel de la Société Linnéenne de Lyon. September 1976

COMPARATIVE LITERATURE:

Fuller, E. *Dodo: from extinction to icon* (London: 2002)

Hume, J., et al., 'How Owen 'stole' the Dodo: academic rivalry and disputed rights to a newly discovered subfossil deposit in nineteenth century Mauritius', *Historical Biology* vol. 21 (2009) pp.33-49

First recorded by Dutch sailors on the island of Mauritius in 1598, the Dodo was a flightless bird, standing about 30 inches tall, a distant relation of the pigeon family. Less than a century after its discovery sightings of it ceased. Errol Fuller records 16 contemporary written reports and 15 illustrations (a previously unrecorded watercolour subsequently sold in these rooms, 9 July 2009, lot 596). Together with these, a skull at the University Museum, Oxford, a foot at the British Museum (now lost) and a skull in Copenhagen constituted all the data available to ornithologists for the next two centuries.

Linnaeus provided the binomial name *Raphus cucullatus* in 1758 and then the charming synonym *Didus ineptus* in 1766. With no fossil remains yet discovered, some nineteenth century scholars even doubted the existence of the Dodo.

Then in 1865 George Clark (1807-73) obtained permission to dig in a marsh in south-east Mauritius called the Mare aux Songes, and it is from this excavation that the majority of sub-fossil remains derive. Richard Owen obtained the first shipment from the site and "wasted no time in publicly announcing the discovery, staging highly publicized lectures and public engagements in January 1866, before publishing the description of the Dodo's anatomy in October of that year" (Hume et al., p. 35). Fuller lists 25 institutions (to which we can add one) with holdings of Dodo material, but very little is now in private hands. And this specimen is the only complete skeleton to have been assembled in the 19th century still in private hands.

Paul Carié was a wealthy landowner in Mauritius, whose family owned the Mare aux Songes estate, and in the late 19th and early 20th centuries assembled more than one skeleton, some he sold to French museums and others he donated. One he kept, and it has remained with the family since. More than one of his descendants would go on to have a profession in natural history with interests in ornithology.

The dodo is now long extinct. Our access to it is through the reports of seventeenth-century explorers, the art they produced and inspired, and the bones that have come to us from Mauritius. Of its diet, habit and call we know almost nothing, and yet it remains one of the most iconic birds ever to have lived.



156

**MICHELE VITALONI (B. 1967)**

*"Lost"*

Sculpture of a Dodo (*Raphus cucullatus*), signed and dated 'Michele Vitaloni 2018' (on the underside, and on the foot).

Oil on wood and iron  
29½ x 19¼ x 15in. (75 x 50 x 38cm.)

£20,000-40,000

US\$27,000-52,000

€24,000-46,000



157

**MICHELE VITALONI (B. 1967)**

*Monarca butterflies*

signed and dated 'Michele Vitaloni 2012'  
Painted copper and bronze in Italian frame  
38 x 31½ x 3½in. (97 x 80 x 9cm.)

£6,000-10,000

US\$7,900-13,000

€7,000-12,000

157

122

In addition to the hammer price, a Buyer's Premium (plus VAT) is payable. Other taxes and/or an Artist Resale Royalty fee are also payable if the lot has a tax or λ symbol. Check Section D of the Conditions of Sale at the back of this catalogue.





**158**

**A LARGE FOSSIL CRAB**

ITALY

The 6½-inch wide *Harpactocarcinus* sp. from the Eocene (56-38 million years ago) the well preserved specimen with eight legs, on matrix. Fixed to wooden base with cover.

13¾ x 8½ x 7½in. (35 x 22 x 19cm.)

£3,000-5,000

US\$4,000-6,500  
€3,500-5,800

**159**

**A FOSSIL CRAB**

MADAGASCAR

The *Macrophtalmus* sp. from the Pliocene (5-3 million years ago), the finely preserved specimen with eyes on long stalks, prepped on original matrix. In display case.

13¾ x 8½ x 7½in. (35 x 22 x 19cm.)

£2,000-3,000

US\$2,700-3,900  
€2,400-3,500





**\*160**

**A LIGHT-GREY MEGALODON TOOTH**  
SOUTH CAROLINA

The 4½-inch tooth of a *Carcharocles megalodon* from the Langhian (16-14 million years ago), showing fine preservation and delicate mottled colour. 4½ x 3½ x 1in. (11 x 8 x 2.5cm.)

£2,000-3,000

US\$2,700-3,900  
€2,400-3,500



160

**\*161**

**A FINE MEGALODON TOOTH**  
SOUTH CAROLINA

The 4½-inch *Carcharocles megalodon* from the Langhian (16-14 million years ago) with a blue-grey colour, richer to edges of the elongated form. 4½ x 3¼ x 1½in. (11.5 x 8.5 x 3cm.)

£2,000-3,000

US\$2,700-3,900  
€2,400-3,500



161





**\*162**

**A RED MEGALODON TOOTH**  
NORTH CAROLINA

The 5-inch tooth of a *Carcharocles megalodon* from the Langhian (16-14 million years ago), Meherrin River, showing fine preservation and a rich, rarely seen, colour.  
5 x 3½ x 1¼in. (13 x 8.5 x 3cm.)

£5,000-8,000

US\$6,600-10,000  
€5,800-9,200





163

**\*163**

**A GROUP OF THREE MEGALODON TEETH**  
SOUTH CAROLINA

The 5½, 4¾ & 5½-inch teeth of *Carcharocles megalodon* from the Langhian (16-14 million years ago) with sharp serrations, all on custom stands. 8in. (20cm.) high the tallest stand. (3)

£10,000-15,000

US\$14,000-20,000  
€12,000-17,000



164

**164**

**A VERY LARGE MEGALODON TOOTH**  
SOUTH CAROLINA

The 6-inch tooth of a *Carcharocles megalodon* from the Langhian (16-14 million years ago), supported on custom stand. 7½ x 4 x 3½in. (19 x 10 x 9cm.)

£2,500-3,500

US\$3,300-4,600  
€2,900-4,000



**\*165**

**A LARGE MEGALODON TOOTH**

SOUTH CAROLINA, USA

6-inch tooth of a *Carcharocles megalodon* from the Langhian (16-14 million years ago), Hawthorn formation, supported on custom stand.  
7½in. (19cm.) high on stand

£3,000-5,000

US\$4,000-6,500

€3,500-5,800



**\*166**

**A RARE FOSSIL TURTLE WITH DINOSAUR TOOTH**

MONTANA, USA

From the Hell Creek Formation, Garfield County, late Cretaceous (68-65 million years ago) the shell of a *Baena hatcheri* on custom stand.  
12 x 10½ x 12in. (30.5 x 17 x 30.5cm.)

£3,000-5,000

US\$4,000-6,500

€3,500-5,800





■\*167

**A LARGE TRICERATOPS HORN**

MONTANA, USA

From the Hell Creek Formation, Maastrichtian, late Cretaceous (67-66 million years ago), a brow horn from a *Triceratops* sp., on custom stand.

36in. (92cm.) long

£10,000-12,000

US\$14,000-16,000

€12,000-14,000

With its three-horned head, the triceratops is one of the most famous species of dinosaur. They lived at the very end of the Cretaceous Period before the fatal mass-extinction triggered by the asteroid that caused the Chicxulub crater 65 million years ago. These 30-foot long herbivores, weighing 12 tonnes, roamed in an area that is now to the East of the Rocky Mountains in North America, which then had a mild climate. They lived contemporaneously with, and were preyed upon by, *Tyrannosaurus rex*.





■\*168

## THE TAIL OF A DUCK-BILLED DINOSAUR

MONTANA, USA

Fifteen tail vertebra of an *Edmontosaurus annectens* from the Hell Creek Formation, Late Cretaceous (66 million years ago), mounted as four sections on custom stand.

64in. (163cm,) long

£7,000-10,000

US\$9,200-13,000

€8,100-12,000

The most famous of the duck-billed dinosaurs, *Edmontosaurus* had short forelimbs, a long, pointed tail, feet fitted with three toes. The head was flat and ended with a beak. A herbivore, it chewed food with nearly a thousand small cheek teeth. Its size could reach 13 meters and weigh 3.5 tons.

The early specimens discovered in the 1890s were named *Claosaurus* by Othniel Charles Marsh, who illustrated them as being fully bipedal. Later research has suggested it could also walk on all four legs to graze low-lying vegetation. The stomach contents of the top carnivores of the time and bite marks found on tail bones strongly suggest that *Edmontosaurs* were firmly on the menu for late Cretaceous theropod dinosaurs.

Living alongside fellow giants *Triceratops* and *Tyrannosaurus rex*, it was one of the last dinosaurs to walk the earth before their mass extinction 65 million years ago.







# ■169

## **THE SKULL OF AN ENGLISH ICHTHYOSAUR** LYME REGIS, DORSET

From the Jurassic (201-145 million years ago) the skull of a large *Leptonectes tenuirostris*, excavated from its matrix and preserved in three dimensions, mounted vertically on stand.

41¾ x 11⅞ x 4¾ in. (106 x 30 x 12 cm.)

£30,000-50,000

US\$40,000-65,000

€35,000-58,000

The first complete Ichthyosaur skeleton was found at Lyme Regis in 1811 by Mary Anning (of "she sells sea-shells on the seashore" fame) . The order Ichthyosauria was introduced in 1840 by Sir Richard Owen, and today about 80 species are recognised. They take their name from the Greek for "fish lizards" and are an excellent example of convergent evolution. It is thought that they evolved from land-based lizards moving into the sea, eventually converging on the shape of the fish upon which they preyed.



■170

**A FOSSIL FISH**

SOLNHOFEN, GERMANY

From the Jurassic (circa 150 million years ago) the 7½-inch specimen of *Caturus furcatus* preserving teeth and some texture of the skin, in original matrix transected by several natural dendritic patterns. Wall mounting to reverse.

18½ x 32in. (47 x 82cm.)

£3,000-5,000

US\$4,000-6,500

€3,500-5,800



170



171

**\*171**

**A TRICERATOPS HORN WITH PARTIAL BEAK**

MONTANA, USA

From the Hell Creek Formation, Maastrichtian, late Cretaceous (68-65 million years ago), a brow horn with partial rostral bones from a *Triceratops prorsus*, on custom stand.

16 x 11 x 4in. (41 x 28.5 x 10.5cm.)

£3,000-5,000

US\$4,000-6,500

€3,500-5,800

**\*172**

**THE VERTEBRA OF A TRICERATOPS**

HELL CREEK FORMATION, MONTANA

From the Hell Creek Formation, Maastrichtian, late Cretaceous (67-66 million years ago), a large vertebra of a *Triceratops sp.*, on custom stand.

19½in. (49.5cm.) high

£2,500-3,500

US\$3,300-4,600

€2,900-4,000



172





■\*173

# A FOSSIL CROCODILE SKULL

MONTANA, USA

From the Hell Creek Formation, Garfield County, Maastrichtian, late Cretaceous (67-66 million years ago), the skull of a *Borealosuchus* sp. preserved showing three dimensionality, some areas cast in facsimile, supported on custom stand.

17 x 13 x 8 in. (43 x 33 x 20 cm.)

£12,000-18,000

US\$16,000-23,000

€14,000-21,000

Despite being their not-too-distant relatives o, the crocodilians survived the great extinction at the end of the Cretaceous (66 million year ago) that killed the Dinosaurs.





**\*174**

**A SMALL TRICERATOPS HORN**  
MONTANA, USA

From the Hell Creek Formation, Maastrichtian, late Cretaceous (68-65 million years ago), a brow horn from a juvenile *Triceratops* sp. on custom stand  
19 x 9 x 5 in. (48 x 23 x 12 cm.)

£6,000-9,000

US\$7,900-12,000  
€7,000-10,000





**\*175**

**THE TOOTH OF A TYRANNOSAURUS-REX**

MONTANA, USA

From the Hell Creek Formation, Maastrichtian, late Cretaceous (67-66 million years ago) the well preserved 2½-inch tooth of a *Tyrannosaurus rex*, on fitted stand.  
5in. (13cm.) high

£3,000-5,000

US\$4,000-6,500  
€3,500-5,800





**\*176**

**THE TOOTH OF A TYRANNOSAURUS-REX**

MONTANA, USA

From the Hell Creek Formation, Maastrichtian, late Cretaceous (67-66 million years ago) the well preserved 3-inch tooth of a *Tyrannosaurus rex*, on fitted stand.  
5½in. (14cm.) high

£6,000-8,000

US\$7,900-10,000  
€7,000-9,200

The most famous and iconic of all dinosaur species, the T-rex was first described by Henry Fairfield Osborn in 1905 from a skeleton found in 1902 from the Hell Creek Formation in Montana. Standing over 13ft tall and 40ft long, the T-rex was the top predator of the late Cretaceous, and amongst the last dinosaurs to walk the earth before their mass extinction.



177

**THE CLAW OF A TYRANNOSAURUS REX**  
MONTANA

From the Hell Creek Formation, Garfield County, Late Cretaceous (circa 69-66 million years ago) the 4 ½-inch dewclaw of *Tyrannosaurus rex* supported on fitted stand.

4 x 4 ¼ x 2in. (10 x 11 x 5cm.)

£10,000-15,000

US\$14,000-20,000  
€12,000-17,000

The most famous and iconic of all dinosaur species, the T-rex was first described by Henry Fairfield Osborn in 1905 from a skeleton found in 1902 from the Hell Creek Formation in Montana. Standing over 13ft tall and 40ft long, the T-rex was the top predator of the late Cretaceous, and amongst the last dinosaurs to walk the earth before their mass extinction.





**\*178**

**SET OF TRICERATOPS HORNS**

MONTANA, USA

From the Hell Creek Formation, Maastrichtian, late Cretaceous (68-65 million years ago), two small brow and a nasal horns from a *Triceratops prosus*. Each on custom stand.

16½in. (42cm.) the tallest on stand.

£10,000-12,000

US\$14,000-16,000

€12,000-14,000

With its three-horned head, the *Triceratops* is one of the most famous species of dinosaur. They lived at the very end of the Cretaceous Period before the fatal mass-extinction triggered by the asteroid that caused the Chicxulub crater 65 million years ago.

These 30-foot long herbivores, weighing 12 tonnes, roamed in an area that is now to the East of the Rocky Mountains in North America, which then had a mild climate. They lived contemporaneously with, and were predated upon by, *Tyrannosaurus rex*. The horns on the skull were probably used as a defense against this fearsome foe.

The first specimen discovered was a pair of horns that were mistaken for a Pliocene bison in 1887. Later realising his mistake the two species, *horridus* and *prosus*, were described by Othniel Charles Marsh in 1889-90. The first mounted skeleton was reconstructed by the Smithsonian in 1905 and has remained on display ever since. For over a century the triceratops has remained one of the most easily recognised and iconic species of dinosaurs.







■\*179

# **A FOSSIL ENTELODONT SKULL**

SOUTH DAKOTA

From the Brule Formation, Oligocene (34-30 million years ago), the skull of *Archaeotherium* sp. supported on turning wooden stand.  
14 x 17 x 11in. (36 x 44 x 28cm.)

£10,000-15,000

US\$14,000-20,000  
€12,000-17,000

Often termed "THE HOG FROM HELL" or a "KILLER PIG", these large omnivorous animals stood nearly two meters high, had ferocious dentition and would also have been able to run at great speed. Despite their common name, they may have been be more closely related to hippos than pigs.





**\*180**

**THE TOE CLAW OF A TYRANNOSAURUS-REX**  
MONTANA, USA

From the Hell Creek Formation, Maastrichtian, late Cretaceous (67-66 million years ago) the well preserved 4¼-inch hallux claw a *Tyrannosaurus rex*, on custom stand.  
5in. (13cm.) high on stand.

£7,000-10,000

US\$9,200-13,000  
€8,100-12,000

The most famous and iconic of all dinosaur species, the T-rex was first described by Henry Fairfield Osborn in 1905 from a skeleton found in 1902 from the Hell Creek Formation in Montana. Standing over 13ft tall and 40ft long, the T-rex was the top predator of the late Cretaceous, and amongst the last dinosaurs to walk the earth before their mass extinction.



■181

**THE EGGS OF A SAUROPOD DINOSAUR**

FRANCE

From the Late Cretaceous (101-66 million years ago) a fine example of a nest of *Cairanoolithus sp.* egg in their original matrix, supported on stand.

43 x 24 x 30in. (110 x 60 x 75cm.)

£15,000-25,000

US\$20,000-33,000

€18,000-29,000













## ■182

### AN IMPORTANT FULLY ADULT ICHTHYOSAUR

#### GERMANY

The complete and articulated skeleton of a female *Stenopterygius quadricissus* with remains of two juveniles, from the lower Jurassic (circa 184 million years ago) Posidonienschiefer Formation (Posidonia Shale, Lias epsilon), Lower Toarcian, zone of *Harpoceras falciferum*. In original matrix fragments supported as four sections with wall mounts. 11½ x 3¼ft. (350 x 100cm.)

£300,000-500,000

US\$400,000-650,000  
€350,000-580,000

#### PROVENANCE:

Excavated sometime between 1958-66

Private Collection, Germany

Whence acquired by current owner, 2018

#### LITERATURE:

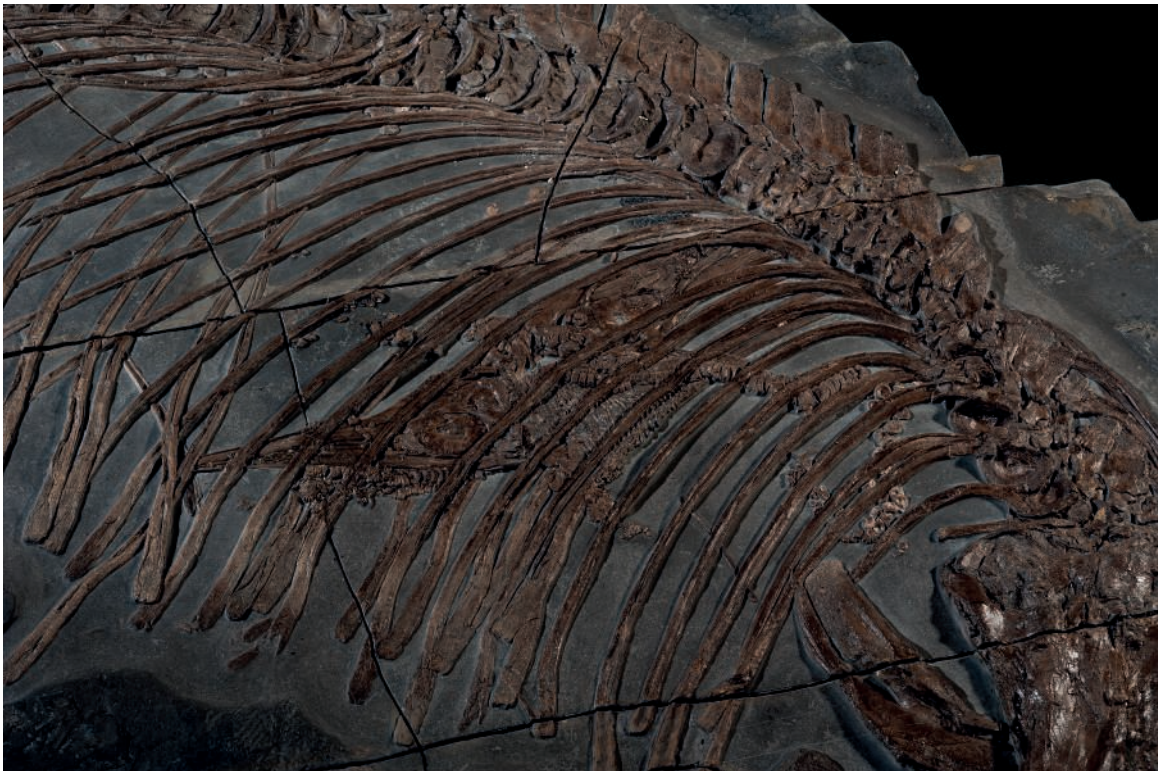
Böttcher, R. Neue 'Erkenntnisse über die Fortpflanzungsbiologie der Ichthyosaurier (Reptilia)', *Stuttgarter Beitr. Naturkde*, Ser. B, 164:1-52, (1990).  
Maisch, M.W. 'Revision der Gattung *Stenopterygius* Jaekel, 1904 emend. von Huene, 1922 (Reptilia: Ichthyosauria) aus dem unteren Jura Westeuropas' *Palaeodiversity*, 1: 227-271, (2008).  
Maisch, M.W. & Ansorge, J. 'The Liassic ichthyosaur *Stenopterygius* cf. *quadricissus* from the lower Toarcian of Dobbartin (northeastern Germany) and some considerations on lower Toarcian marine reptile paleobiogeography', *Paläontologische Zeitschrift*, **78**(1): 161-171 (Stuttgart: 2004).  
Maxwell, E.E. 'New metrics to differentiate species of *Stenopterygius* (Reptilia: Ichthyosauria) from the Lower Jurassic of southwestern Germany', *Journal of Paleontology*, 86: 105-115, (2012).  
Reisdorf, A.G.; et al. 'Float, explode or sink: postmortem fate of lung-breathing marine vertebrates', *Palaeobiodiversity and palaeoenvironments*, 92(1): 67-81, (Frankfurt: 2012).

The skull of this ichthyosaur shows an important and interesting taphonomy with the snout piercing into the underlying shale layers and the skull segment

being preserved at almost a right angle to the long axis of the vertebral column. This indicates that we are dealing with an animal which was embedded head-first in the soupy substrate of sediment as it fell to the sea floor, before the preservation of fossilization occurred.

The dorsal vertebral column and ribs are well-preserved and in good articulation. Below the anterior trunk vertebrae and within the rib cage, a very rarely seen example of remains of two small juvenile skeletons occurs. They are positioned unusually far anteriorly for embryos, but postmortal displacement of the embryonic skeletons cannot be excluded. Their good articulation (the skulls are virtually intact and most of the vertebral column is well articulated, even the forefins are partially articulated) and the small size of the specimen speak strongly against the juveniles being preyed on by the larger ichthyosaur and favours the interpretation as embryos.

The first complete Ichthyosaur skeleton was found at Lyme Regis in 1811 by Mary Anning (of "she sells sea-shells on the seashore" fame). The order Ichthyosauria was introduced in 1840 by Sir Richard Owen, and today about 80 species are recognised. They take their name from the Greek for "fish lizards" and are an excellent example of convergent evolution. It is thought that they evolved from land-based lizards moving into the sea, eventually converging on the shape of the fish upon which they preyed.















**ONE GIANT LEAP:**  
CELEBRATING SPACE EXPLORATION 50 YEARS AFTER APOLLO 11  
*New York, 18 July 2019*

**VIEWING**  
4-15 May 2019 | 20th-Century Week  
11-17 July 2019  
20 Rockefeller Plaza  
New York, NY 10020

**CONTACT**  
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[cgeiger@christies.com](mailto:cgeiger@christies.com)  
+1 212 636 2667

Other fees apply in addition to the hammer price. See Section D of our Conditions of Sale at the back of the Auction Catalogue



APOLLO 11	
LM TIMELINE BOOK	
PART NO	S / N
SKB32100080-388	1001

SEP  
DOI-PDI  
TD-3-T2ABORT  
FLIGHT PLAN  
MONITOR  
CSI-CDI  
TPE-DOCKING

*The Apollo 11 Lunar Module Timeline Book.*  
 [Houston:] Manned Spacecraft Center, Flight Planning Branch, June 19-July 12, 1969.  
 Flown aboard the Lunar Module *Eagle* and annotated by  
 Neil Armstrong and Buzz Aldrin as they landed on the moon.  
 \$7,000,000-9,000,000

CHRISTIE'S



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(a) If you are planning to bid on a **lot**, you should inspect it personally or through a knowledgeable representative before you make a bid to make sure that you accept the description and its **condition**. We recommend you get your own advice from a restorer or other professional adviser.

(b) Pre-auction viewings are open to the public free of charge. Our specialists may be available to answer questions at pre-auction viewings or by appointment.

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**Estimates** are based on the **condition**, rarity, quality and **provenance** of the **lots** and on prices recently paid at auction for similar property. **Estimates** can change. Neither you, nor anyone else, may rely on any **estimates** as a prediction or guarantee of the actual selling price of a **lot** or its value for any other purpose. **Estimates** do not include the **buyer's premium** or any applicable taxes.

### 6 WITHDRAWAL

Christie's may, at its option, withdraw any **lot** at any time prior to or during the sale of the **lot**. Christie's has no liability to you for any decision to withdraw.

### 7 JEWELLERY

(a) Coloured gemstones (such as rubies, sapphires and emeralds) may have been treated to improve their look, through methods such as heating and oiling. These methods are accepted by the international jewellery trade but may make the gemstone less strong and/or require special care over time.

(b) All types of gemstones may have been improved by some method. You may request a gemmological report for any item which does not have a report if the request is made to us at least three weeks before the date of the auction and you pay the fee for the report.

(c) We do not obtain a gemmological report for every gemstone sold in our auctions. Where we do get gemmological reports from internationally accepted gemmological laboratories, such reports will be described in the catalogue. Reports from American gemmological laboratories will describe any improvement or treatment to the gemstone. Reports from European gemmological laboratories will describe any improvement or treatment only if we request that they do so, but will confirm when no improvement or treatment has been made. Because of differences in approach and technology, laboratories may not agree whether a particular gemstone has been treated, the amount of treatment or whether treatment is permanent. The gemmological laboratories will only report on the improvements or treatments known to the laboratories at the date of the report.

(d) For jewellery sales, **estimates** are based on the information in any gemmological report or, if no report is available, assume that the gemstones may have been treated or enhanced.

### 8 WATCHES & CLOCKS

(a) Almost all clocks and watches are repaired in their lifetime and may include parts which are not original. We do not give a **warranty** that any individual component part of any watch or clock is **authentic**. Watchbands described as 'associated' are not part of the original watch and may not be **authentic**. Clocks may be sold without pendulums, weights or keys.

(b) As collectors' watches and clocks often have very fine and complex mechanisms, a general service, change of battery or further repair work may be necessary, for which you are responsible. We do not give a **warranty** that any watch or clock is in good working order. Certificates are not available unless described in the catalogue.

(c) Most watches have been opened to find out the type and quality of movement. For that reason, watches with water resistant cases may not be waterproof and we recommend you have them checked by a competent watchmaker before use.

Important information about the sale, transport and shipping of watches and watchbands can be found in paragraph H2(g).

## B REGISTERING TO BID

### 1 NEW BIDDERS

(a) If this is your first time bidding at Christie's or you are a returning bidder who has not bought anything from any of our salerooms within the last two years you must register at least 48 hours before an auction to give us enough time to process and approve your registration. We may, at our option, decline to permit you to register as a bidder. You will be asked for the following:

(i) for individuals: Photo identification (driving licence, national identity card or passport) and, if not shown on the ID document, proof of your current address (for example, a current utility bill or bank statement).

(ii) for corporate clients: Your Certificate of Incorporation or equivalent document(s) showing your name and registered address together with documentary proof of directors and beneficial owners; and

(iii) for trusts, partnerships, offshore companies and other business structures, please contact us in advance to discuss our requirements.

(b) We may also ask you to give us a financial reference and/or a deposit as a condition of allowing you to bid. For help, please contact our Credit Department on +44 (0)20 7839 9060.

### 2 RETURNING BIDDERS

We may at your option ask you for current identification as described in paragraph B1(a) above, a financial reference or a deposit as a condition of allowing you to bid. If you have not bought anything from any of our salerooms in the last two years or if you want to spend more than on previous occasions, please contact our Credit Department on +44 (0)20 7839 9060.

### 3 IF YOU FAIL TO PROVIDE THE RIGHT DOCUMENTS

If in our opinion you do not satisfy our bidder identification and registration procedures including, but not limited to completing any anti-money laundering and/or anti-terrorism financing checks we may require to our satisfaction, we may refuse to register you to bid, and if you make a successful bid, we may cancel the contract for sale between you and the seller.

### 4 BIDDING ON BEHALF OF ANOTHER PERSON

(a) **As authorised bidder.** If you are bidding on behalf of another person, that person will need to complete the registration requirements above before you can bid, and supply a signed letter authorising you to bid for him/her.

(b) **As agent for an undisclosed principal:** If you are bidding as an agent for an undisclosed principal (the ultimate buyer(s)), you accept personal liability to pay the **purchase price** and all other sums due, unless it has been agreed in writing with Christie's before commencement of the auction that the bidder is acting as an agent on behalf of a named third party acceptable to Christie's and that Christie's will only seek payment from the named third party.

### 5 BIDDING IN PERSON

If you wish to bid in the saleroom you must register for a numbered bidding paddle at least 30 minutes before the auction. You may register online at [www.christies.com](https://www.christies.com) or in person. For help, please contact the Credit Department on +44 (0)20 7839 9060.

### 6 BIDDING SERVICES

The bidding services described below are a free service offered as a convenience to our clients and Christie's is not responsible for any error (human or otherwise), omission or breakdown in providing these services.

#### (a) Phone Bids

Your request for this service must be made no later than 24 hours prior to the auction. We will accept bids by telephone for lots only if our staff are available to take the bids. If you need to bid in a language other than in English, you must arrange this well before the auction. We may record telephone bids. By bidding on the telephone, you are agreeing to us recording your conversations. You also agree that your telephone bids are governed by these Conditions of Sale.

#### (b) Internet Bids on Christie's Live™

For certain auctions we will accept bids over the Internet. For more information, please visit <https://www.christies.com/buying-services/buying-guide/register-and-bid/>. As well as these Conditions of Sale, internet bids are governed by the Christie's LIVE™ Terms of Use which are available on <https://www.christies.com/LiveBidding/OnlineTermsOfUse>.

#### (c) Written Bids

You can find a Written Bid Form at the back of our catalogues, at any Christie's office or by choosing the sale and viewing the **lots** online at [www.christies.com](https://www.christies.com). We must receive your completed Written Bid Form at least 24 hours before the auction. Bids must be placed in the currency of the saleroom. The **auctioneer** will take reasonable steps to carry out written bids at the lowest possible price, taking into account the **reserve**. If you make a written bid on a **lot** which does not have a **reserve** and there is no higher bid than yours, we will bid on your behalf at around 50% of the **low estimate** or, if lower, the amount of your bid. If we receive written bids on a **lot** for identical amounts, and at the auction these are the highest bids on the **lot**, we will sell the **lot** to the bidder whose written bid we received first.

## C CONDUCTING THE SALE

### 1 WHO CAN ENTER THE AUCTION

We may, at our option, refuse admission to our premises or decline to permit participation in any auction or to reject any bid.

### 2 RESERVES

Unless otherwise indicated, all lots are subject to a **reserve**. We identify **lots** that are offered without **reserve** with the symbol • next to the **lot** number. The reserve cannot be more than the **lot's low estimate**.

### 3 AUCTIONEER'S DISCRETION

The **auctioneer** can at his sole option:

- (a) refuse any bid;
- (b) move the bidding backwards or forwards in any way he or she may decide, or change the order of the **lots**;
- (c) withdraw any **lot**;
- (d) divide any **lot** or combine any two or more **lots**;
- (e) reopen or continue the bidding even after the hammer has fallen; and
- (f) in the case of error or dispute related to bidding and whether during or after the auction, to continue the bidding, determine the successful bidder, cancel the sale of the **lot**, or reoffer and resell any **lot**. If you believe that the **auctioneer** has accepted the successful bid in error, you must provide a written notice detailing your claim within 3 business days of the date of the auction. The **auctioneer** will consider such claim in good faith. If the **auctioneer**, in the exercise of his or her discretion under this paragraph, decides after the auction is complete, to cancel the sale of a **lot**, or reoffer and resell a **lot**, he or she will notify the successful bidder no later than by the end of the 7th calendar day following the date of the auction. The **auctioneer's** decision in exercise of this discretion is final. This paragraph does not in any way prejudice Christie's ability to cancel the sale of a **lot** under any other applicable provision of these Conditions of Sale, including the rights of cancellation set forth in section B(3), E(2)(i), F(4) and J(1).

### 4 BIDDING

The **auctioneer** accepts bids from:

- (a) bidders in the saleroom;
- (b) telephone bidders, and internet bidders through 'Christie's LIVE™' (as shown above in Section B6); and
- (c) written bids (also known as absentee bids or commission bids) left with us by a bidder before the auction.

### 5 BIDDING ON BEHALF OF THE SELLER

The **auctioneer** may, at his or her sole option, bid on behalf of the seller up to but not including the amount of the **reserve** either by making consecutive bids or by making bids in response to other bidders. The **auctioneer** will not identify these as bids made on behalf of the seller and will not make any bid on behalf of the seller at or above the **reserve**. If **lots** are offered without **reserve**, the **auctioneer** will generally decide to open the bidding at 50% of the **low estimate** for the **lot**. If no bid is made at that level, the **auctioneer** may decide to go backwards at his or her sole option until a bid is made, and then continue up from that amount. In the event that there are no bids on a **lot**, the **auctioneer** may deem such **lot** unsold.

### 6 BID INCREMENTS

Bidding generally starts below the **low estimate** and increases in steps (bid increments). The **auctioneer** will decide at his or her sole option where the bidding should start and the bid increments. The usual bid increments are shown for guidance only on the Written Bid Form at the back of this catalogue.

### 7 CURRENCY CONVERTER

The saleroom video screens (and Christies LIVE™) may show bids in some other major currencies as well as sterling. Any conversion is for guidance only and we cannot be bound by any rate of exchange used. Christie's is not responsible for any error (human or otherwise), omission or breakdown in providing these services.

### 8 SUCCESSFUL BIDS

Unless the **auctioneer** decides to use his or her discretion as set out in paragraph C3 above, when the **auctioneer's** hammer strikes, we have accepted the last bid. This means a contract for sale has been formed between the seller and the successful bidder. We will issue an invoice only to the registered bidder who made the successful bid. While we send out invoices by post and/or email after the auction, we do not accept responsibility for telling you whether or not your bid was successful. If you have bid by written bid, you should contact us by telephone or in person as soon as possible after the auction to get details of the outcome of your bid to avoid having to pay unnecessary storage charges.

### 9 LOCAL BIDDING LAWS

You agree that when bidding in any of our sales that you will strictly comply with all local laws and regulations in force at the time of the sale for the relevant sale site.

## D THE BUYER'S PREMIUM, TAXES AND ARTIST'S RESALE ROYALTY

### 1 THE BUYER'S PREMIUM

In addition to the **hammer price**, the successful bidder agrees to pay us a **buyer's premium** on the **hammer price** of each **lot** sold. On all **lots** we charge 25% of the **hammer price** up to and including £225,000, 20% on that part of the **hammer price** over £225,000 and up to and including £3,000,000, and 13.5% of that part of the **hammer price** above £3,000,000. VAT will be added to the **buyer's premium** and is payable by you. The VAT may not be shown separately on our invoice because of tax laws. You may be eligible to have a VAT refund in certain circumstances if the **lot** is exported. Please see the "VAT refunds: what can I reclaim?" section of "VAT Symbols and Explanation" for further information.



## 2 TAXES

The successful bidder is responsible for all applicable tax including any VAT, sales or compensating use tax or equivalent tax wherever such taxes may arise on the **hammer price** and the **buyer's premium**. VAT charges and refunds depend on the particular circumstances of the buyer. It is the buyer's responsibility to ascertain and pay all taxes due. VAT is payable on the **buyer's premium** and, for some lots, VAT is payable on the **hammer price**. EU and UK VAT rules will apply on the date of the sale. If the UK withdraws from the EU without an agreed transition deal relating to the import or export of property, then UK VAT rules only will apply from 11pm (GMT) on 29 March 2019. If your purchased **lot** has not been shipped before 11pm (GMT) on 29 March 2019, your invoiced VAT position will retrospectively change and additional import tariffs will be due on your purchase. Further information can be found in the '**VAT Symbols and Explanation**' section of our catalogue.

For **lots** Christie's ships to the United States, sales or use tax may be due on the **hammer price**, **buyer's premium** and/or any other charges related to the **lot**, regardless of the nationality or citizenship of the purchaser. Christie's will collect sales tax where legally required. The applicable sales tax rate will be determined based upon the state, county, or locale to which the **lot** will be shipped. Successful bidders claiming an exemption from sales tax must provide appropriate documentation to Christie's prior to the release of the **lot**. For shipments to those states for which Christie's is not required to collect sales tax, a successful bidder may be required to remit use tax to that state's taxing authorities. Christie's recommends you obtain your own independent tax advice with further questions.

## 3 ARTIST'S RESALE ROYALTY

In certain countries, local laws entitle the artist or the artist's estate to a royalty known as 'artist's resale right' when any **lot** created by the artist is sold. We identify these **lots** with the symbol 'A' next to the **lot** number. If these laws apply to a **lot**, you must pay an extra amount equal to the royalty. We will pay the royalty to the appropriate authority on the seller's behalf.

The artist's resale royalty applies if the **hammer price** of the **lot** is 1,000 euro or more. The total royalty for any **lot** cannot be more than 12,500 euro. We work out the amount owed as follows:

*Royalty for the portion of the hammer price*

*(in euros)*

4% up to 50,000

3% between 50,000.01 and 200,000

1% between 200,000.01 and 350,000

0.50% between 350,000.01 and 500,000

over 500,000, the lower of 0.25% and 12,500 euro.

We will work out the artist's resale royalty using the euro to sterling rate of exchange of the European Central Bank on the day of the auction.

## E WARRANTIES

### 1 SELLER'S WARRANTIES

For each **lot**, the seller gives a **warranty** that the seller:

(a) is the owner of the **lot** or a joint owner of the **lot** acting with the permission of the other co-owners or, if the seller is not the owner or a joint owner of the **lot**, has the permission of the owner to sell the **lot**, or the right to do so in law; and

(b) has the right to transfer ownership of the **lot** to the buyer without any restrictions or claims by anyone else.

If either of the above **warranties** are incorrect, the seller shall not have to pay more than the **purchase price** (as defined in paragraph F1(a) below) paid by you to us. The seller will not be responsible to you for any reason for loss of profits or business, expected savings, loss of opportunity or interest, costs, damages, **other damages** or expenses. The seller gives no **warranty** in relation to any **lot** other than as set out above and, as far as the seller is allowed by law, all **warranties** from the seller to you and all other obligations upon the seller which may be added to this agreement by law, are excluded.

## 2 OUR AUTHENTICITY WARRANTY

We warrant, subject to the terms below, that the **lots** in our sales are authentic (our '**authenticity warranty**'). If, within five years of the date of the auction, you give notice to us that your **lot** is not **authentic**, subject to the terms below, we will refund the **purchase price** paid by you. The meaning of **authentic** can be found in the glossary at the end of these Conditions of Sale. The terms of the **authenticity warranty** are as follows:

(a) It will be honoured for claims notified within a period of five years from the date of the auction. After such time, we will not be obligated to honour the **authenticity warranty**.

(b) It is given only for information shown in **UPPERCASE type** in the first line of the **catalogue description** (the '**Heading**'). It does not apply to any information other than in the **Heading** even if shown in **UPPERCASE type**.

(c) The **authenticity warranty** does not apply to any **Heading** or part of a **Heading** which is **qualified**. **Qualified** means limited by a clarification in a **lot's catalogue description** or by the use in a **Heading** of one of the terms listed in the section titled **Qualified Headings** on the page of the catalogue headed 'Important Notices and Explanation of Cataloguing Practice'. For example, use of the term 'ATTRIBUTED TO...' in a **Heading** means that the **lot** is in Christie's opinion probably a work by the named artist but no **warranty** is provided that the **lot** is the work of the named artist. Please read the full list of **Qualified Headings** and a **lot's full catalogue description** before bidding.

(d) The **authenticity warranty** applies to the **Heading** as amended by any **Saleroom Notice**.

(e) The **authenticity warranty** does not apply where scholarship has developed since the auction leading to a change in generally accepted opinion. Further, it does not apply if the **Heading** either matched the generally accepted opinion of experts at the date of the sale or drew attention to any conflict of opinion.

(f) The **authenticity warranty** does not apply if the **lot** can only be shown not to be **authentic** by a scientific process which, on the date we published the catalogue, was not available or generally accepted for use, or which was unreasonably expensive or impractical, or which was likely to have damaged the **lot**.

(g) The benefit of the **authenticity warranty** is only available to the original buyer shown on the invoice for the **lot** issued at the time of the sale and only if, on the date of the notice of claim, the original buyer is the full owner of the **lot** and the **lot** is free from any claim, interest or restriction by anyone else. The benefit of this **authenticity warranty** may not be transferred to anyone else.

(h) In order to claim under the **authenticity warranty**, you must:

(i) give us written notice of your claim within five years of the date of the auction. We may require full details and supporting evidence of any such claim;

(ii) at Christie's option, we may require you to provide the written opinions of two recognised experts in the field of the **lot** mutually agreed by you and us in advance confirming that the **lot** is not **authentic**. If we have any doubts, we reserve the right to obtain additional opinions at our expense; and

(iii) return the **lot** at your expense to the saleroom from which you bought it in the **condition** it was in at the time of sale.

(j) Your only right under this **authenticity warranty** is to cancel the sale and receive a refund of the **purchase price** paid by you to us. We will not, in any circumstances, be required to pay you more than the **purchase price** nor will we be liable for any loss of profits or business, loss of opportunity or value, expected savings or interest, costs, damages, **other damages** or expenses.

(j) **Books**. Where the **lot** is a book, we give an additional **warranty** for 14 days from the date of the sale that if on collation any **lot** is defective in text or illustration, we will refund your **purchase price**, subject to the following terms:

(a) This additional **warranty** does not apply to:

(i) the absence of blanks, half titles, tissue guards or advertisements, damage in respect of bindings, stains, spotting, marginal tears or other defects not affecting completeness of the text or illustration;

(ii) drawings, autographs, letters or manuscripts, signed photographs, music, atlases, maps or periodicals;

(iii) books not identified by title;

(iv) **lots** sold without a printed estimate;

(v) books which are described in the catalogue as sold not subject to return; or

(vi) defects stated in any **condition** report or announced at the time of sale.

(b) To make a claim under this paragraph you must give written details of the defect and return the **lot** to the sale room at which you bought it in the same **condition** as at the time of sale, within 14 days of the date of the sale.

(k) **South East Asian Modern and Contemporary Art and Chinese Calligraphy and Painting**.

In these categories, the **authenticity warranty** does not apply because current scholarship does not permit the making of definitive statements. Christie's does, however, agree to cancel a sale in either of these two categories of art where it has been proven the **lot** is a forgery. Christie's will refund to the original buyer the purchase price in accordance with the terms of Christie's authenticity warranty, provided that the original buyer notifies us with full supporting evidence documenting the forgery claim within twelve (12) months of the date of the auction. Such evidence must be satisfactory to us that the **lot** is a forgery in accordance with paragraph E2(h)(ii) above and the **lot** must be returned to us in accordance with E2(h)(ii) above. Paragraphs E2(b), (c), (d), (e), (f) and (g) and (i) also apply to a claim under these categories.

## 3 YOUR WARRANTIES

(a) You **warrant** that the funds used for settlement are not connected with any criminal activity, including tax evasion, and you are neither under investigation, nor have you been charged with or convicted of money laundering, terrorist activities or other crimes.

(b) where you are bidding on behalf of another person, you warrant that:

(i) you have conducted appropriate customer due diligence on the ultimate buyer(s) of the **lot(s)** in accordance with all applicable anti-money laundering and sanctions laws, consent to us relying on this due diligence, and you will retain for a period of not less than 5 years the documentation evidencing the due diligence. You will make such documentation promptly available for immediate inspection by an independent third-party auditor upon our written request to do so;

(ii) the arrangements between you and the ultimate buyer(s) in relation to the **lot** or otherwise do not, in whole or in part, facilitate tax crimes;

(iii) you do not know, and have no reason to suspect, that the funds used for settlement are connected with, the proceeds of any criminal activity, including tax evasion, or that the ultimate buyer(s) are under investigation, or have been charged with or convicted of money laundering, terrorist activities or other crimes.

## F PAYMENT

### 1 HOW TO PAY

(a) Immediately following the auction, you must pay the **purchase price** being:

(i) the **hammer price**; and

(ii) the **buyer's premium**; and

(iii) any amounts due under section D3 above; and

(iv) any duties, goods, sales, use, compensating or service tax or VAT. Payment is due no later than by the end of the seventh calendar day following the date of the auction (the '**due date**').

(b) We will only accept payment from the registered bidder. Once issued, we cannot change the buyer's name on an invoice or re-issue the invoice in a different name. You must pay immediately even if you want to export the **lot** and you need an export licence.

(c) You must pay for **lots** bought at Christie's in the United Kingdom in the currency stated on the invoice in one of the following ways:

(i) Wire transfer

(ii) You must make payments to:

Lloyds Bank Plc, City Office, PO Box 217, 72 Lombard Street, London EC3P 3BT. Account number: 00172710, sort code: 30-00-02 Swift code: LOYDGB2LCTY. IBAN (international bank account number):

GB81 LOYD 3000 0200 1727 10.

(ii) Credit Card.

We accept most major credit cards subject to certain conditions. You may make payment via credit card in person. You may also make a 'cardholder not present' (CNP) payment by calling Christie's Post-Sale Services Department on +44 (0)20 7752 3200 or for some sales, by logging into your MyChristie's account by going to: [www.christies.com/mychristies](http://www.christies.com/mychristies). Details of the conditions and restrictions applicable to credit card payments are available from our Post-Sale Services Department, whose details are set out in paragraph (e) below.

If you pay for your purchase using a credit card issued outside the region of the sale, depending on the type of credit card and account you hold, the payment may incur a cross-border transaction fee. If you think this may apply to you, please check with your credit card issuer before making the payment.

Please note that for sales that permit online payment, certain transactions will be ineligible for credit card payment.

(iii) Cash

We accept cash subject to a maximum of £5,000 per buyer per year at our Cashier's Department Department only (subject to conditions).

(iv) Banker's draft

You must make these payable to Christie's and there may be conditions.

(v) Cheque

You must make cheques payable to Christie's. Cheques must be from accounts in pounds sterling from a United Kingdom bank.

(d) You must quote the sale number, lot number(s), your invoice number and Christie's client account number when making a payment. All payments sent by post must be sent to: Christie's, Cashiers Department, 8 King Street, St James's, London, SW1Y 6QT.

(e) For more information please contact our Post-Sale Service Department by phone on +44 (0)20 7752 3200 or fax on +44 (0)20 752 3300.

## 2. TRANSFERRING OWNERSHIP TO YOU

You will not own the **lot** and ownership of the **lot** will not pass to you until we have received full and clear payment of the **purchase price**, even in circumstances where we have released the **lot** to the buyer.

## 3 TRANSFERRING RISK TO YOU

The risk in and responsibility for the **lot** will transfer to you from whichever is the earlier of the following:

(a) When you collect the **lot**; or

(b) At the end of the 30th day following the date of the auction or, if earlier, the date the **lot** is taken into care by a third party warehouse as set out on the page headed 'Storage and Collection', unless we have agreed otherwise with you in writing.

## 4 WHAT HAPPENS IF YOU DO NOT PAY

(a) If you fail to pay us the **purchase price** in full by the **due date**, we will be entitled to do one or more of the following (as well as enforce our rights under paragraph F5 and any other rights or remedies we have by law):

(i) to charge interest from the **due date** at a rate of 5% a year above the UK Lloyds Bank base rate from time to time on the unpaid amount due;

(ii) we can cancel the sale of the **lot**. If we do this, we may sell the **lot** again, publicly or privately on such terms we shall think necessary or appropriate, in which case you must pay us any shortfall between the **purchase price** and the proceeds from the resale. You must also pay all costs, expenses, losses, damages and legal fees we have to pay or may suffer and any shortfall in the seller's commission on the resale;

(iii) we can pay the seller an amount up to the net proceeds payable in respect of the amount bid by your default in which case you acknowledge and understand that Christie's will have all of the rights of the seller to pursue you for such amounts;

(iv) we can hold you legally responsible for the **purchase price** and may begin legal proceedings to recover it together with other losses, interest, legal fees and costs as far as we are allowed by law;

(v) we can take what you owe us from any amounts which we or any company in the **Christie's Group** may owe you (including any deposit or other part-payment which you have paid to us);

(vi) we can, at our option, reveal your identity and contact details to the seller;

(vii) we can reject at any future auction any bids made by or on behalf of the buyer or to obtain a deposit from the buyer before accepting any bids;

(viii) to exercise all the rights and remedies of a person holding security over any property in our possession owned by you, whether by way of pledge, security interest or in any other way as permitted by the law of the place where such property is located. You will be deemed to have granted such security to us and we may retain such property as collateral security for your obligations to us; and

(ix) we can take any other action we see necessary or appropriate.

(b) If you owe money to us or to another **Christie's Group** company, we can use any amount you do pay, including any deposit or other part-payment you have made to us, or which we owe you, to pay off any amount you owe to us or another **Christie's Group** company for any transaction.

(c) If you make payment in full after the **due date**, and we choose to accept such payment we may charge you storage and transport costs from the date that is 30 calendar days following the auction in accordance with paragraphs Gd(i) and (ii). In such circumstances paragraph Gd(iv) shall apply.

## 5 KEEPING YOUR PROPERTY

If you owe money to us or to another **Christie's Group** company, as well as the rights set out in F4 above, we can use or deal with any of your property we hold or which is held by another **Christie's Group** company in any way we are allowed to by law. We will only release your property to you after you pay us or the relevant **Christie's Group** company in full for what you owe. However, if we choose, we can also sell your property in any



way we think appropriate. We will use the proceeds of the sale against any amounts you owe us and we will pay any amount left from that sale to you. If there is a shortfall, you must pay us any difference between the amount we have received from the sale and the amount you owe us.

## G COLLECTION AND STORAGE

- (a) You must collect purchased **lots** within thirty days from the auction (**but note that lots will not be released to you until you have made full and clear payment of all amounts due to us**).
- (b) Information on collecting **lots** is set out on the Storage and Collection page and on an information sheet which you can get from the bidder registration staff or Christie's Post-Sale Services Department on +44 (0)20 7752 3200.
- (c) If you do not collect any **lot** within thirty days following the auction we can, at our option:
- (i) charge you storage costs at the rates set out at [www.christies.com/storage](http://www.christies.com/storage).
- (ii) move the **lot** to another Christie's location or an affiliate or third party warehouse and charge you transport costs and administration fees for doing so and you will be subject to the third party storage warehouse's standard terms and to pay for their standard fees and costs.
- (iii) sell the **lot** in any commercially reasonable way we think appropriate.
- (d) The Storage Conditions which can be found at [www.christies.com/storage](http://www.christies.com/storage) will apply.

## H TRANSPORT AND SHIPPING

### 1 TRANSPORT AND SHIPPING

We will enclose a transport and shipping form with each invoice sent to you. You must make all transport and shipping arrangements. However, we can arrange to pack, transport and ship your property if you ask us to and pay the costs of doing so. We recommend that you ask us for an **estimate**, especially for any large items or items of high value that need professional packing before you bid. We may also suggest other handlers, packers, transporters or experts if you ask us to do so. For more information, please contact Christie's Art Transport on +44 (0)20 7839 9060. See the information set out at [www.christies.com/shipping](http://www.christies.com/shipping) or contact us at [arttransport\\_london@christies.com](mailto:arttransport_london@christies.com). We will take reasonable care when we are handling, packing, transporting and shipping a **lot**. However, if we recommend another company for any of these purposes, we are not responsible for their acts, failure to act or neglect.

### 2 EXPORT AND IMPORT

Any **lot** sold at auction may be affected by laws on exports from the country in which it is sold and the import restrictions of other countries. Many countries require a declaration of export for property leaving the country and/or an import declaration on entry of property into the country. Local laws may prevent you from importing a **lot** or may prevent you selling a **lot** in the country you import it into. We will not be obliged to cancel your purchase and refund the **purchase price** if your **lot** may not be exported, imported or it is seized for any reason by a government authority. It is your responsibility to determine and satisfy the requirements of any applicable laws or regulations relating to the export or import of any **lot** you purchase.

(a) You alone are responsible for getting advice about and meeting the requirements of any laws or regulations which apply to exporting or importing any **lot** prior to bidding. If you are refused a licence or there is a delay in getting one, you must still pay us in full for the **lot**. We may be able to help you apply for the appropriate licences if you ask us to and pay our fee for doing so. However, we cannot guarantee that you will get one.

For more information, please contact Christie's Art Transport Department on +44 (0)20 7839 9060. See the information set out at [www.christies.com/shipping](http://www.christies.com/shipping) or contact us at [arttransport\\_london@christies.com](mailto:arttransport_london@christies.com).

#### (b) Lots made of protected species

**Lots** made of or including (regardless of the percentage) endangered and other protected species of wildlife are marked with the symbol ~ in the catalogue. This material includes, among other things, ivory, tortoiseshell, crocodile skin, rhinoceros horn, whalebone, certain species of coral, and Brazilian rosewood. You should check the relevant customs laws and regulations before bidding on any **lot** containing wildlife material if you plan to import the **lot** into another country. Several countries refuse to allow you to import property containing these materials, and some other countries require a licence from the relevant regulatory agencies in the countries of exportation as well as importation. In some cases, the **lot** can only be shipped with an independent scientific confirmation of species and/or age and you will need to obtain these at your own cost. If a **lot** contains elephant ivory, or any other wildlife material that could be confused with elephant ivory (for example, mammoth ivory, walrus ivory, helmeted hornbill ivory), please see further important information in paragraph (c) if you are proposing to import the **lot** into the USA. We will not be obliged to cancel your purchase and refund the **purchase price** if your **lot** may not be exported, imported or it is seized for any reason by a government authority. It is your responsibility to determine and satisfy the requirements of any applicable laws or regulations relating to the export or import of property containing such protected or regulated material.

#### (c) US import ban on African elephant ivory

The USA prohibits the import of ivory from the African elephant. Any **lot** containing elephant ivory or other wildlife material that could be easily confused with elephant ivory (for example, mammoth ivory, walrus ivory, helmeted hornbill ivory) can only be imported into the US with results of a rigorous scientific test acceptable to Fish & Wildlife, which confirms that the material is not African elephant ivory. Where we have conducted such rigorous scientific testing on a **lot** prior to sale, we will make this clear in the **lot** description. In all other cases, we cannot confirm whether a **lot** contains African elephant ivory, and you will buy that **lot** at your own risk and be responsible for any scientific test or other reports required for import into the USA at your own cost. If such scientific test is inconclusive or confirms the material is from the African elephant, we will not be obliged to cancel your purchase and refund

the **purchase price**.

#### (d) Lots of Iranian origin

Some countries prohibit or restrict the purchase and/or import of Iranian-origin 'works of conventional craftsmanship' (works that are not by a recognised artist and/or that have a function, for example: carpets, bowls, ewers, tiles, ornamental boxes). For example, the USA prohibits the import of this type of property and its purchase by US persons (wherever located). Other countries only permit the import of this property in certain circumstances. As a convenience to buyers, Christie's indicates under the title of a **lot** if the **lot** originates from Iran (Persia). It is your responsibility to ensure you do not bid on or import a **lot** in contravention of the sanctions or trade embargoes that apply to you.

#### (e) Gold

Gold of less than 18ct does not qualify in all countries as 'gold' and may be refused import into those countries as 'gold'.

#### (f) Jewellery over 50 years old

Under current laws, jewellery over 50 years old which is worth £39,219 or more will require an export licence which we can apply for on your behalf. It may take up to eight weeks to obtain the export jewellery licence.

#### (g) Watches

Many of the watches offered for sale in this catalogue are pictured with straps made of endangered or protected animal materials such as alligator or crocodile. These lots are marked with the symbol ♀ in the catalogue. These endangered species straps are shown for display purposes only and are not for sale. Christie's will remove and retain the strap prior to shipment from the sale site. At some sale sites, Christie's may, at its discretion, make the displayed endangered species strap available to the buyer of the **lot** free of charge if collected in person from the sale site within one year of the date of the sale. Please check with the department for details on a particular **lot**.

For all symbols and other markings referred to in paragraph H2, please note that **lots** are marked as a convenience to you, but we do not accept liability for errors or for failing to mark **lots**.

## I OUR LIABILITY TO YOU

(a) We give no **warranty** in relation to any statement made, or information given, by us or our representatives or employees, about any **lot** other than as set out in the **authenticity warranty** and, as far as we are allowed by law, all **warranties** and other terms which may be added to this agreement by law are excluded. The seller's **warranties** contained in paragraph E1 are their own and we do not have any liability to you in relation to those **warranties**.

(b) (i) We are not responsible to you for any reason (whether for breaking this agreement or any other matter relating to your purchase of, or bid for, any **lot**) other than in the event of fraud or fraudulent misrepresentation by us or other than as expressly set out in these Conditions of Sale; or

(ii) We do not give any representation, **warranty** or guarantee or assume any liability of any kind in respect of any **lot** with regard to merchantability, fitness for a particular purpose, description, size, quality, condition, attribution, authenticity, rarity, importance, medium, provenance, exhibition history, literature, or historical relevance. Except as required by local law, any **warranty** of any kind is excluded by this paragraph.

(c) In particular, please be aware that our written and telephone bidding services, Christie's LIVE™, **condition** reports, currency converter and saleroom video screens are free services and we are not responsible to you for any error (human or otherwise), omission or breakdown in these services.

(d) We have no responsibility to any person other than a buyer in connection with the purchase of any **lot**.

(e) If, in spite of the terms in paragraphs (a) to (d) or E2(i) above, we are found to be liable to you for any reason, we shall not have to pay more than the **purchase price** paid by you to us. We will not be responsible to you for any reason for loss of profits or business, loss of opportunity or value, expected savings or interest, costs, damages, or expenses.

## J OTHER TERMS

### 1 OUR ABILITY TO CANCEL

In addition to the other rights of cancellation contained in this agreement, we can cancel a sale of a **lot** if: (i) any of your warranties in paragraph E3 are not correct; (ii) we reasonably believe that completing the transaction is or may be unlawful; or (iii) we reasonably believe that the sale places us or the seller under any liability to anyone else or may damage our reputation.

### 2 RECORDINGS

We may videotape and record proceedings at any auction. We will keep any personal information confidential, except to the extent disclosure is required by law. However, we may, through this process, use or share these recordings with another **Christie's Group** company and marketing partners to analyse our customers and to help us to tailor our services for buyers. If you do not want to be videotaped, you may make arrangements to make a telephone or written bid or bid on Christie's LIVE™ instead. Unless we agree otherwise in writing, you may not videotape or record proceedings at any auction.

### 3 COPYRIGHT

We own the copyright in all images, illustrations and written material produced by or for us relating to a **lot** (including the contents of our catalogues unless otherwise noted in the catalogue). You cannot use them without our prior written permission. We do not offer any guarantee that you will gain any copyright or other reproduction rights to the **lot**.

### 4 ENFORCING THIS AGREEMENT

If a court finds that any part of this agreement is not valid or is illegal or impossible to enforce, that part of the agreement will be treated as being deleted and the rest of this agreement will not be affected.

## 5 TRANSFERRING YOUR RIGHTS AND RESPONSIBILITIES

You may not grant a security over or transfer your rights or responsibilities under these terms on the contract of sale with the buyer unless we have given our written permission. This agreement will be binding on your successors or estate and anyone who takes over your rights and responsibilities.

## 6 TRANSLATIONS

If we have provided a translation of this agreement, we will use this original version in deciding any issues or disputes which arise under this agreement.

## 7 PERSONAL INFORMATION

We will hold and process your personal information and may pass it to another **Christie's Group** company for use as described in, and in line with, our privacy notice at [www.christies.com/about-us/contact/privacy](http://www.christies.com/about-us/contact/privacy).

## 8 WAIVER

No failure or delay to exercise any right or remedy provided under these Conditions of Sale shall constitute a waiver of that or any other right or remedy, nor shall it prevent or restrict the further exercise of that or any other right or remedy. No single or partial exercise of such right or remedy shall prevent or restrict the further exercise of that or any other right or remedy.

## 9 LAW AND DISPUTES

This agreement, and any non-contractual obligations arising out of or in connection with this agreement, or any other rights you may have relating to the purchase of a **lot** will be governed by the laws of England and Wales. Before we or you start any court proceedings (except in the limited circumstances where the dispute, controversy or claim is related to proceedings brought by someone else and this dispute could be joined to those proceedings), we agree we will each try to settle the dispute by mediation following the Centre for Effective Dispute Resolution (CEDR) Model Mediation Procedure. We will use a mediator affiliated with CEDR who we and you agree to. If the dispute is not settled by mediation, you agree for our benefit that the dispute will be referred to and dealt with exclusively in the courts of England and Wales. However, we will have the right to bring proceedings against you in any other court.

## 10 REPORTING ON WWW.CHRISTIES.COM

Details of all **lots** sold by us, including **catalogue descriptions** and prices, may be reported on [www.christies.com](http://www.christies.com). Sales totals are **hammer price plus buyer's premium** and do not reflect costs, financing fees, or application of buyer's or seller's credits. We regret that we cannot agree to requests to remove these details from [www.christies.com](http://www.christies.com).

## K GLOSSARY

**auctioneer**: the individual **auctioneer** and/or Christie's.

**authentic**: a genuine example, rather than a copy or forgery of:

(i) the work of a particular artist, author or manufacturer, if the **lot** is described in the **Heading** as the work of that artist, author or manufacturer;

(ii) a work created within a particular period or culture, if the **lot** is described in the **Heading** as a work created during that period or culture;

(iii) a work for a particular origin source if the **lot** is described in the **Heading** as being of that origin or source; or

(iv) in the case of gems, a work which is made of a particular material, if the **lot** is described in the **Heading** as being made of that material.

**authenticity warranty**: the guarantee we give in this agreement that a **lot** is **authentic** as set out in section E2 of this agreement.

**buyer's premium**: the charge the buyer pays us along with the **hammer price**.

**catalogue description**: the description of a **lot** in the catalogue for the auction, as amended by any saleroom notice.

**Christie's Group**: Christie's International Plc, its subsidiaries and other companies within its corporate group.

**condition**: the physical **condition** of a **lot**.

**due date**: has the meaning given to it in paragraph F1(a).

**estimate**: the price range included in the catalogue or any saleroom notice within which we believe a **lot** may sell. **Low estimate** means the lower figure in the range and **high estimate** means the higher figure. The **mid estimate** is the midpoint between the two.

**hammer price**: the amount of the highest bid the **auctioneer** accepts for the sale of a **lot**.

**Heading**: has the meaning given to it in paragraph E2.

**lot**: an item to be offered at auction (or two or more items to be offered at auction as a group).

**other damages**: any special, consequential, incidental or indirect damages of any kind or any damages which fall within the meaning of 'special', 'incidental' or 'consequential' under local law.

**purchase price**: has the meaning given to it in paragraph F1(a).

**provenance**: the ownership history of a **lot**.

**qualified**: has the meaning given to it in paragraph E2 and **Qualified Headings** means the section headed **Qualified Headings** on the page of the catalogue headed 'Important Notices and Explanation of Cataloguing Practice'.

**reserve**: the confidential amount below which we will not sell a **lot**.

**saleroom notice**: a written notice posted next to the **lot** in the saleroom and on [www.christies.com](http://www.christies.com), which is also read to prospective telephone bidders and notified to clients who have left commission bids, or an announcement made by the **auctioneer** either at the beginning of the sale, or before a particular **lot** is auctioned.

**UPPER CASE type**: means having all capital letters.

**warranty**: a statement or representation in which the person making it guarantees that the facts set out in it are correct.



# VAT SYMBOLS AND EXPLANATION

You can find a glossary explaining the meanings of words coloured in bold on this page at the end of the section of the catalogue headed 'Conditions of Sale' VAT payable

Symbol	
No Symbol	We will use the VAT Margin Scheme. No VAT will be charged on the <b>hammer price</b> . VAT at 20% will be added to the <b>buyer's premium</b> but will not be shown separately on our invoice.
†	We will invoice under standard VAT rules and VAT will be charged at 20% on both the <b>hammer price</b> and <b>buyer's premium</b> and shown separately on our invoice.
θ	For qualifying books only, no VAT is payable on the <b>hammer price</b> or the <b>buyer's premium</b> .
*	These <b>lots</b> have been imported from outside the EU for sale and placed under the Temporary Admission regime. Import VAT is payable at 5% on the <b>hammer price</b> . VAT at 20% will be added to the <b>buyer's premium</b> but will not be shown separately on our invoice.
Ω	These <b>lots</b> have been imported from outside the EU for sale and placed under the Temporary Admission regime. Customs Duty as applicable will be added to the <b>hammer price</b> and Import VAT at 20% will be charged on the Duty Inclusive <b>hammer price</b> . VAT at 20% will be added to the <b>buyer's premium</b> but will not be shown separately on our invoice.
α	The VAT treatment will depend on whether you have registered to bid with an EU or non-EU address: • If you register to bid with an address <b>within</b> the EU you will be invoiced under the VAT Margin Scheme (see No Symbol above). • If you register to bid with an address <b>outside</b> of the EU you will be invoiced under standard VAT rules (see † symbol above)
‡	For wine offered 'in bond' only. If you choose to buy the wine in bond no Excise Duty or Clearance VAT will be charged on the <b>hammer</b> . If you choose to buy the wine out of bond Excise Duty as applicable will be added to the <b>hammer price</b> and Clearance VAT at 20% will be charged on the Duty inclusive <b>hammer price</b> . Whether you buy the wine in bond or out of bond, 20% VAT will be added to the buyer's premium and shown on the invoice.

## VAT refunds: what can I reclaim?

If you are:

<b>A non VAT registered UK or EU buyer</b>		<b>No VAT refund is possible</b>
<b>UK VAT registered buyer</b>	No symbol and α	<b>The VAT amount in the buyer's premium cannot be refunded.</b> However, on request we can re-invoice you outside of the VAT Margin Scheme under normal UK VAT rules (as if the <b>lot</b> had been sold with a † symbol). Subject to HMRC's rules, you can then reclaim the VAT charged through your own VAT return.
	* and Ω	Subject to HMRC's rules, you can reclaim the Import VAT charged on the <b>hammer price</b> through your own VAT return when you are in receipt of a C79 form issued by HMRC. The VAT amount in the <b>buyer's premium</b> is invoiced under Margin Scheme rules so cannot normally be claimed back. However, if you request to be re-invoiced outside of the Margin Scheme under standard VAT rules (as if the <b>lot</b> had been sold with a † symbol) then, subject to HMRC's rules, you can reclaim the VAT charged through your own VAT return.
<b>EU VAT registered buyer</b>	No Symbol and α	<b>The VAT amount in the buyer's premium cannot be refunded.</b> However, on request we can <b>re-invoice</b> you outside of the VAT Margin Scheme under normal UK VAT rules (as if the <b>lot</b> had been sold with a † symbol). See below for the rules that would then apply.
	†	If you provide us with your EU VAT number we will not charge VAT on the <b>buyer's premium</b> . We will also refund the VAT on the <b>hammer price</b> if you ship the <b>lot</b> from the UK and provide us with proof of shipping, within three months of collection.
	* and Ω	<b>The VAT amount on the hammer and in the buyer's premium cannot be refunded.</b> However, on request we can <b>re-invoice</b> you outside of the VAT Margin Scheme under normal UK VAT rules (as if the <b>lot</b> had been sold with a † symbol). See above for the rules that would then apply.
<b>Non EU buyer</b>		If you meet <b>ALL</b> of the conditions in notes 1 to 3 below we will refund the following tax charges:
	No Symbol	We will refund the VAT amount in the <b>buyer's premium</b> .
	† and α	We will refund the VAT charged on the hammer price. VAT on the buyer's premium can only be refunded if you are an overseas business. The VAT amount in the buyer's premium cannot be refunded to non-trade clients.
	‡ (wine only)	No Excise Duty or Clearance VAT will be charged on the <b>hammer price</b> providing you export the wine while 'in bond' directly outside the EU using an Excise authorised shipper. VAT on the <b>buyer's premium</b> can only be refunded if you are an overseas business. <b>The VAT amount in the buyer's premium cannot be refunded to non-trade clients.</b>
	* and Ω	We will refund the Import VAT charged on the <b>hammer price</b> and the VAT amount in the <b>buyer's premium</b> .

1. We **CANNOT** offer refunds of VAT amounts or Import VAT to buyers who do not meet all applicable conditions in full. If you are unsure whether you will be entitled to a refund, please contact Client Services at the address below **before you bid**.  
 2. No VAT amounts or Import VAT will be refunded where the total refund is under £100.

3. In order to receive a refund of VAT amounts/Import VAT (as applicable) non-EU buyers must:  
 (a) have registered to bid with an address outside of the EU; **and**  
 (b) provide immediate proof of correct export out of the EU within the required time frames of: 30 days via a 'controlled export' for \* and Ω **lots**. All other **lots** must be exported within three months of collection.

4. Details of the documents which you must provide to us to show satisfactory proof of export/shipping are available from our VAT team at the address below. We charge a processing fee of £35.00 per invoice to check shipping/export documents. We will waive this processing fee if you appoint Christie's Shipping Department to arrange your export/shipping.

5. If you appoint Christie's Art Transport or one of our authorised shippers to arrange your export/shipping we will issue you with an export invoice with the applicable VAT or duties cancelled as outlined above. If you later cancel or change the shipment in a manner that infringes the rules outlined above we will issue a revised invoice charging you all applicable taxes/charges.

6. If you ask us to re-invoice you under normal UK VAT rules (as if the **lot** had been sold with a † symbol) instead of under the Margin Scheme the **lot** may become ineligible to be resold using the Margin Schemes. **Movement within the EU must be within 3 months from the date of sale.** You should take professional advice if you are unsure how this may affect you.

7. All re-invoicing requests must be received within four years from the date of sale. If you have any questions about VAT refunds please contact Christie's Client Services on info@christies.com  
 Tel: +44 (0)20 7389 2886.  
 Fax: +44 (0)20 7389 1611.



## SYMBOLS USED IN THIS CATALOGUE

The meaning of words coloured in **bold** in this section can be found at the end of the section of the catalogue headed 'Conditions of Sale'.

o

Christie's has a direct financial interest in the **lot**. See Important Notices and Explanation of Cataloguing Practice.

Δ

Owned by Christie's or another **Christie's Group** company in whole or part. See Important Notices and Explanation of Cataloguing Practice.

◆

Christie's has a direct financial interest in the **lot** and has funded all or part of our interest with the help of someone else. See Important Notices and Explanation of Cataloguing Practice.

λ

Artist's Resale Right. See Section D3 of the Conditions of Sale.

•

**Lot** offered without **reserve** which will be sold to the highest bidder regardless of the pre-sale estimate in the catalogue.

~

**Lot** incorporates material from endangered species which could result in export restrictions. See Section H2(b) of the Conditions of Sale.

ψ

**Lot** incorporates material from endangered species which is shown for display purposes only and is not for sale. See Section H2(g) of the Conditions of Sale.

†, \*, Ω, α, ‡

See VAT Symbols and Explanation.

■

See Storage and Collection Page.

Please note that **lots** are marked as a convenience to you and we shall not be liable for any errors in, or failure to, mark a **lot**.

## IMPORTANT NOTICES

### CHRISTIE'S INTEREST IN PROPERTY CONSIGNED FOR AUCTION

#### Δ Property Owned in part or in full by Christie's

From time to time, Christie's may offer a **lot** which it owns in whole or in part. Such property is identified in the catalogue with the symbol Δ next to its **lot** number.

#### o Minimum Price Guarantees

On occasion, Christie's has a direct financial interest in the outcome of the sale of certain lots consigned for sale. This will usually be where it has guaranteed to the Seller that whatever the outcome of the auction, the Seller will receive a minimum sale price for the work. This is known as a minimum price guarantee. Where Christie's holds such financial interest we identify such **lots** with the symbol o next to the **lot** number.

#### o◆ Third Party Guarantees/Irrevocable bids

Where Christie's has provided a Minimum Price Guarantee it is at risk of making a loss, which can be significant, if the **lot** fails to sell. Christie's therefore sometimes chooses to share that risk with a third party. In such cases the third party agrees prior to the auction to place an irrevocable written bid on the **lot**. The third party is therefore committed to bidding on the **lot** and, even if there are no other bids, buying the **lot** at the level of the written bid unless there are any higher bids. In doing so, the third party takes on all or part of the risk of the **lot** not being sold. If the **lot** is not sold, the third party may incur a loss. **Lots** which are subject to a third party guarantee arrangement are identified in the catalogue with the symbol o◆.

In most cases, Christie's compensates the third party in exchange for accepting this risk. Where the third party is the successful bidder, the third party's remuneration is based on a fixed financing fee. If the third party is not the successful bidder, the remuneration may either be based on a fixed fee or an amount calculated against the final **hammer price**. The third party may also bid for the **lot** above the written bid. Where the third party is the successful bidder, Christie's will report the final **purchase price** net of the fixed financing fee.

Third party guarantors are required by us to disclose to anyone they are advising their financial interest in any **lots** they are guaranteeing. However, for the avoidance of any doubt, if you are advised by or bidding through an agent on a **lot** identified as being subject to a third party guarantee you should always ask your agent to confirm whether or not he or she has a financial interest in relation to the **lot**.

### Other Arrangements

Christie's may enter into other arrangements not involving bids. These include arrangements where Christie's has given the Seller an Advance on the proceeds of sale of the **lot** or where Christie's has shared the risk of a guarantee with a partner without the partner being required to place an irrevocable written bid or otherwise participating in the bidding on the **lot**. Because such arrangements are unrelated to the bidding process they are not marked with a symbol in the catalogue.

### Bidding by parties with an interest

In any case where a party has a financial interest in a **lot** and intends to bid on it we will make a saleroom announcement to ensure that all bidders are aware of this. Such financial interests can include where beneficiaries of an Estate have reserved the right to bid on a **lot** consigned by the Estate or where a partner in a risk-sharing arrangement has reserved the right to bid on a **lot** and/or notified us of their intention to bid.

Please see <http://www.christies.com/financial-interest/> for a more detailed explanation of minimum price guarantees and third party financing arrangements.

Where Christie's has an ownership or financial interest in every **lot** in the catalogue, Christie's will not designate each **lot** with a symbol, but will state its interest in the front of the catalogue.

### POST 1950 FURNITURE

All items of post-1950 furniture included in this sale are items either not originally supplied for use in a private home or now offered solely as works of art. These items may not comply with the provisions of the Furniture and Furnishings (Fire) (Safety) Regulations 1988 (as amended in 1989 and 1993, the 'Regulations'). Accordingly, these items should not be used as furniture in your home in their current condition. If you do intend to use such items for this purpose, you must first ensure that they are reupholstered, restuffed and/or recovered (as appropriate) in order that they comply with the provisions of the Regulations.



# STORAGE AND COLLECTION

## COLLECTION LOCATION AND TERMS

Specified **lots** (sold and unsold) marked with a filled square (■) will, at our option, be removed to Christie's Park Royal (details below). Christie's will inform you if the **lot** has been sent offsite.

If the **lot** is transferred to Christie's Park Royal, it will be available for collection from 12.00 pm on the second business day following the sale.

Please call Christie's Client Service 24 hours in advance to book a collection time at Christie's Park Royal. All collections from Christie's Park Royal will be by pre-booked appointment only.

Tel: +44 (0)20 7839 9060  
Email: [cscollectionsuk@christies.com](mailto:cscollectionsuk@christies.com)

If the **lot** remains at Christie's, 8 King Street, it will be available for collection on any working day (not weekends) from 9.00 am to 5.00 pm.

## COLLECTION AND CONTACT DETAILS

**Lots** will only be released on payment of all charges due and on production of a **Collection Form** from Christie's. Charges may be paid in advance or at the time of collection. We may charge fees for storage if your **lot** is not collected within thirty days from the sale. Please see paragraph G of the Conditions of Sale for further detail.

Tel: +44 (0)20 7839 9060  
Email: [cscollectionsuk@christies.com](mailto:cscollectionsuk@christies.com)

## SHIPPING AND DELIVERY

Christie's Post-Sale Service can organise local deliveries or international freight. Please contact them on +44 (0)20 7752 3200 or [PostSaleUK@christies.com](mailto:PostSaleUK@christies.com).

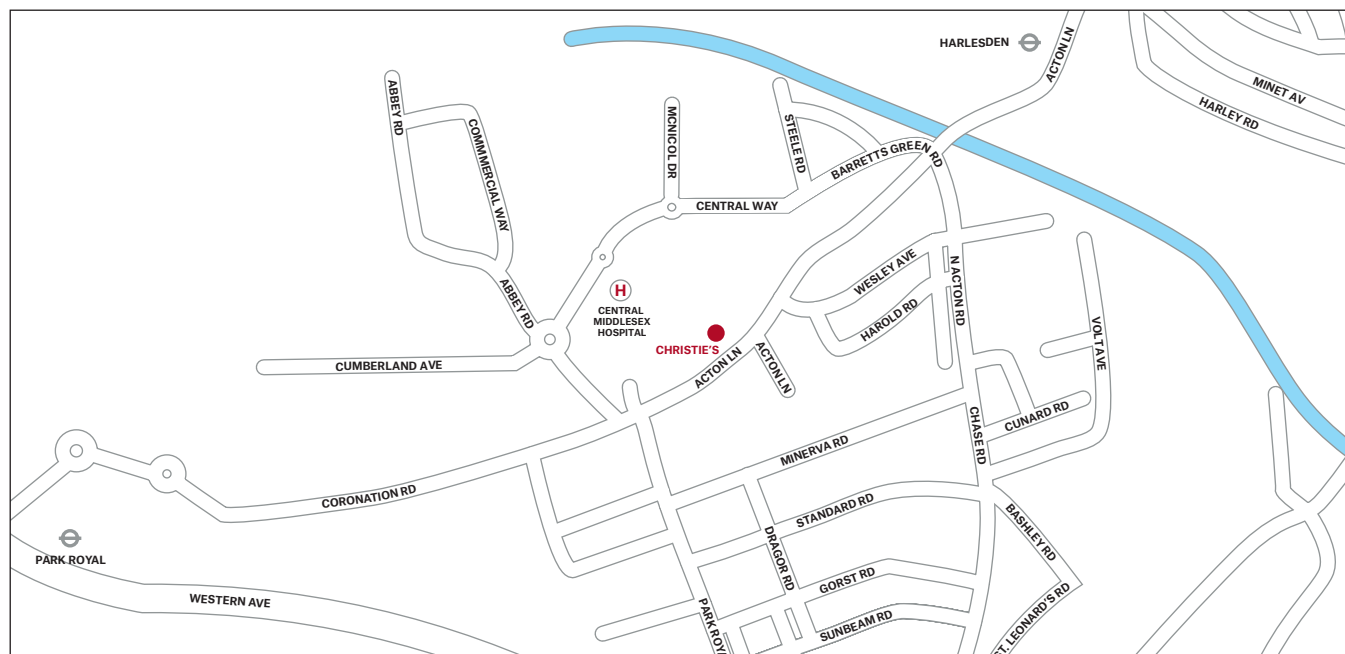
## CHRISTIE'S PARK ROYAL

Unit 7, Central Park  
Acton Lane  
London NW10 7FY

**Vehicle access via Central Park only.**

## COLLECTION FROM CHRISTIE'S PARK ROYAL

Please note that the opening hours for Christie's Park Royal are Monday to Friday 9.00am to 5.00pm and lots transferred are not available for collection at weekends.

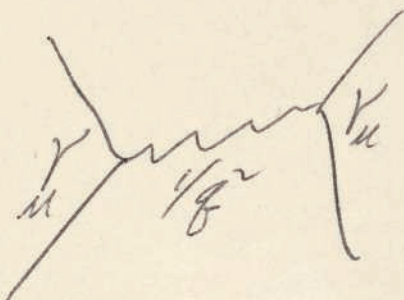




**AUTOGRAPH OF:**

**DR. RICHARD P. FEYNMAN**

*Richard P. Feynman*



**1965  
NOBEL PRIZE  
PHYSICS**

RICHARD FEYNMAN (1918-1988).  
Autograph diagram signed ('Richard P. Feynman'), n.d.

**A rare autograph example of Richard Feynman's eponymous diagrams, his revolutionary offering to 20th-century theoretical physics, along with his signature: the first signed 'Feynman diagram' to appear at international auction.**

£10,000 – 15,000

**ON THE SHOULDERS OF GIANTS:  
MAKING THE MODERN WORLD**

*Online Auction, 16-23 May 2019*

**CONTACT**

Sophie Hopkins  
shopkins@christies.com  
+44 207 752 3144

Other fees apply in addition to the hammer price. See Section D of our Conditions of Sale at the back of the Auction Catalogue

**CHRISTIE'S**



# CHRISTIE’S

**CHRISTIE’S INTERNATIONAL PLC**

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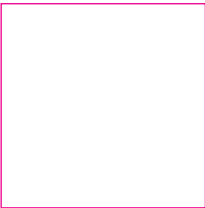
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UK£5,000 to UK£10,000	by UK£500s
UK£10,000 to UK£20,000	by UK£1,000s
UK£20,000 to UK£30,000	by UK£2,000s
UK£30,000 to UK£50,000	by UK£2,000, 5,000, 8,000 (eg UK£32,000, 35,000, 38,000)
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