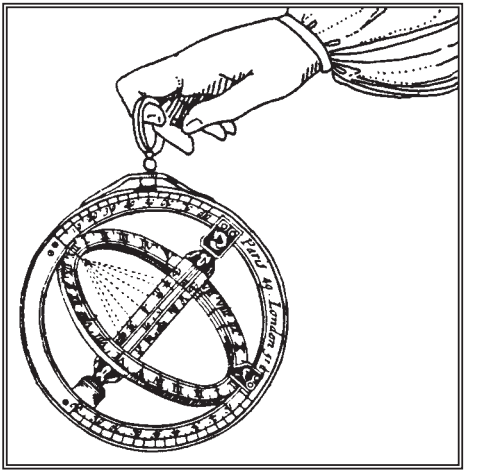


TESSERACT

Early Scientific Instruments

Catalogue One Hundred Nine

Summer, 2019 $10

CATALOGUE ONE HUNDRED NINE

CONDITIONS OF SALE

All items in this catalogue are available at the time of printing. *We do not charge* for shipping and insurance to anywhere in the contiguous 48 states. New York residents must pay applicable sales taxes. For buyers outside the 48 states, we will provide packing and delivery to the post office or shipper but you must pay the actual shipping charges. Items may be reserved by telephone, and will be held for a reasonable time pending receipt of payment. All items are offered with a 10-day money-back guarantee for any reason, but you pay return postage and insurance. We will do everything possible to expedite your shipment, and can work within the framework of institutional requirements.

The prices in this catalogue are net and are in effect through November, 2019. Payments by check, bank transfer, or credit card (Visa, Mastercard, American Express) are all welcome.

— David Coffeen, Ph.D.
— Yola Coffeen, Ph.D.

Members:
Scientific Instrument Society
American Association for the History of Medicine
Historical Medical Equipment Society
Antiquarian Horological Society
International Society of Antique Scale Collectors
Surveyors Historical Society
Early American Industries Association
The Oughtred Society
American Astronomical Society
International Coronelli Society
American Association of Museums

Co-Published :
RITTENHOUSE: The Journal of the American Scientific Instrument Enterprise
(http://www.etesseract.com/RHjournal/)

We are always interested in buying single items or collections.

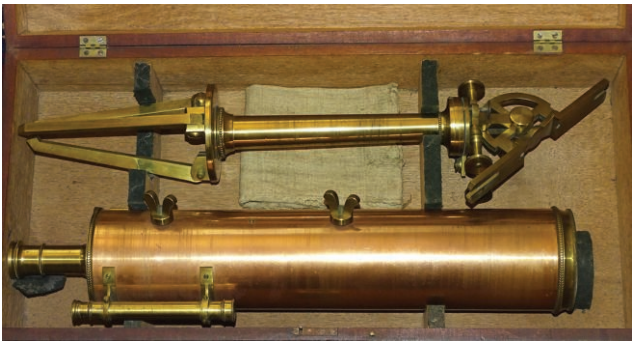
In addition to buying and selling early instruments, we can perform formal appraisals of your single instruments or whole collections, whether to determine fair market value for donation, for insurance, for loss, etc. We were recently engaged to appraise a medical collection of several hundred items being donated to an American museum, and to appraise a major European collection of early scientific instruments, being insured for a loan exhibition.

founded 1982

TESSERACT
Box 151
Hastings-on-Hudson
New York 10706 USA

telephone: 1-914-478-2594
e-mail: mail@etesseract.com
web site: http://www.etesseract.com

1. EXCEPTIONAL DUTCH REFLECTING TELESCOPE, c.1825, signed "S.J. Rienks." This impressive tabletop instrument is made of bright lacquered brass and copper, and is of the Gregorian design, using two figured mirrors of polished speculum metal, plus refractive eyepiece optics, and gives fine upright images of high magnification. There is a small finder telescope alongside the maintube, and geared fine motions in altitude and azimuth. There are brass end caps for both telescopes and screw-on dark solar filters for both. All is contained in a fitted wood case 23" (59 cm) wide, and is in excellent condition with no dents, etc., and very little if any use in the past 200 years.



Syds Johannesz Rienks (1770 - 1845) was an important optical instrument maker, and worked with many Dutch scientists and makers of the early 19th century. He produced telescopes for the Leiden Observatory, and constructed a remarkable vertical reflecting microscope purchased by Van Marum in 1825 (G. Turner & Levere, 1973, IV, p. 303). $4800.

2. LOVELY MIXED-MATERIAL MONOCULAR, c. third quarter 18th century, signed "Dollond, London." A diminutive 2-3/8" (6 cm) long (closed), it is crafted in a wonderful combination of materials typical of 18th century fashion, with wood main tube bound in green rayskin, drawtube bound in red-stained leather with floral designs stamped in gold and silver, and mounts of silver, horn, and dark wood. The Galilean optics give clear, upright images of low magnification. Condition is fine and functional, noting slight irregularity to one silver mount, and light wear to the leather. The Dollonds were, at the time, London's most prolific makes of telescopes. $1400.

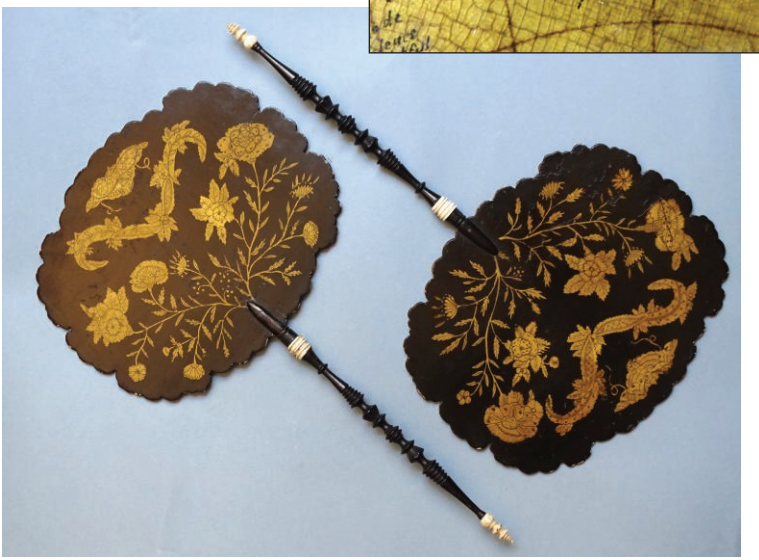
3. CARTOGRAPHIC FACE SCREENS, English, c. 1825, the two screens each 16" (41 cm) tall overall, constructed of very rigid card, with delicately turned handles of wood and bone. The screens are black with elaborate hand painted gold floral decor (similar but different on the two screens) and centered by 3-3/16" (8 cm) diameter hemispheric projections of the earth, as viewed from canted northerly and southerly perspectives respectively, with geographic and political details all done in manuscript in very minute detail. Condition is very fine noting slight darkening of the varnish, and tiny chips to the finish on the edges.

There are fascinating cartographic details, helping to date the screens. In the South Atlantic Ocean, we find two islands of the same name, one labeled "Gough's Is. according to Capt. Hodgson, 1783." And west of South America we find Davies Land (a phantom island, in fact) annotated "is said to be discovered by the Spaniards." We also find the "Missouri Territory," which existed by that name only from 1812 to 1821, as well as "South Shetland," discovered in 1819.

A remarkable cartographic pair of screens designed to use before the fireplace, to keep the genteel upperclass woman's face delicately pale. $4800.


discovered by
the Spaniards
O C E A N


O C E A N
Inaccessible
Nightingale Is.
decorating to
Capt. Hodgson
1783



4. LEATHER GLOBES IN A PORTABLE KIT, French, 1830's, signed "Brevet d'Invention, Globe Terrestre, dressé par Ambroise Tardieu d'après l'invention de A. Weinling & Cie, à Strasbourg chez Marin et Schmidt," and "Globe Céleste, Position des Etoiles fixes pour l'année 1840, dressé par Spies...." The 8" (20 cm) globes are lithographed on untanned calf leather, highly detailed, all in French, the terrestrial with hand colored outlining. The globes were originally made to be inflated with brass inlet and stopcock, the interior with natural pig's bladder as balloon. For preservation, each leather has now been mounted on a light rigid sphere.

The meridian and horizon rings, and quadrantal supports, are all of green-painted wood mounted with printed paper arcs giving degree scales, Zodiacal houses, terrestrial climates and thermal zones and latitudes and longitudes, and celestial right ascensions, declinations, elevations, etc. Each assembly is mounted atop a fine turned wood pillar and baseplate, the whole standing 19-3/4" (50 cm) tall.

The design is for significant globes in a compact portable kit. Base and pillar unscrew, the wooden arcs all have brass locking fittings, and with the globes deflated the whole could fit in a very low, round box. Condition is mixed, the stands very fine with minor soiling and only a few small nicks to the paper, the globes rather rough with soiling and wear and some restoration but now cleverly remounted.

Only a few examples of these leather globes are known. $9800.

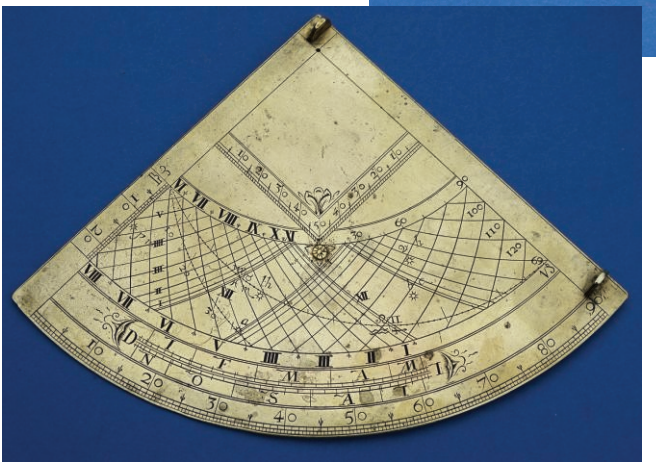
pig bladder

calf leather

* * *

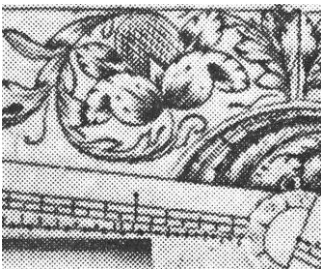
5. FAIENCE PLATE, DEPICTING "AN ANIMAL IN THE MOON," French, c. 1830, the octagonal dished plate 7-7/8" (20 cm) across, impressed with a scene and vignettes in black on a cream background, and bearing to the reverse the maker's impressions "Creil" and "Manuf'ur d'Impression sur Faience Porcelaine, &'c, Paris, Par Brevet d'Invention." Condition is only fair, with hairline cracks and edge chips. This is an example of the "faience fine" ceramic manufacture begun at Creil in northern France in 1797, and by 1840 employing hundreds of workers.

The scene shows several well-dressed mustachioed gentlemen, in a setting of buildings, trees, and mountains. One is observing the moon in a partly cloudy sky, using a significant telescope on three legged stand. Around the plate's edge are eight images of goblets with grape vines, and eight roundels with eagles. The scene represents a complex allegory, one of the fables of LaFontaine. $395.



6. COMBINED HOROLOGICAL QUADRANT / HORIZONTAL SUNDIAL, English, c. fourth quarter 17th century, attributable to Edmund Culpeper. The front face of this 4-7/8" (12 cm) radius brass quadrant is finely engraved with the classic pattern invented by Edmund Gunter in 1618, published 1623. It has a projection of the sky (with several bright stars marked) crossed by curved hour lines and sun's azimuth lines, as well as arcs of the equator, tropics, horizon, and ecliptic. It is laid out for 51.5° north latitude. There is a folded calendar scale (still in the Julian system), a degree quadrant, and a shadow square. Edge sights allow time measurement as an altitude sundial. The reverse has a rotating plate with removable gnomon with leveling bob, forming a classic but rotatable direction dial, surrounded by a full degree circle. The apex spandrels and dial center are engraved with beautiful, exuberant flowering vines in various perspectives and in various states of openness. Condition is very fine noting light wear.

It was necessary to reattach the rivet, and concealed on the main plate we found doodles by the maker. Besides several numerals, a cursive "h", and a most exuberant



(signed Culpeper sector, in Tesseract Catalogue G)

"The" incorporating a spiral, there is a sketch of external male genitalia, a rather surprising 300 year old communication from this most exceptional 17th century London craftsman!

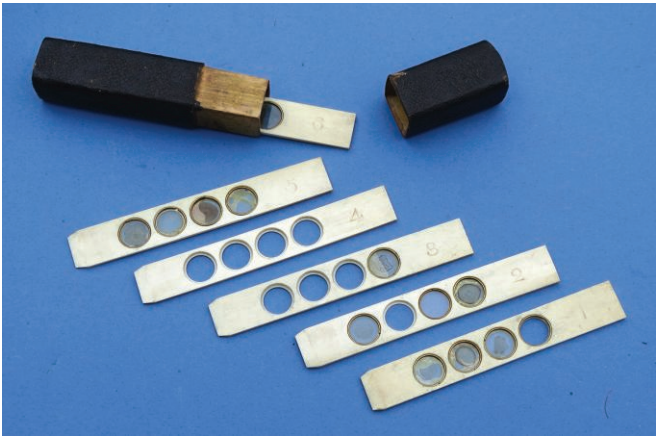
Few such combined instruments are known, one that of Walter Hayes (**Tesseract** Catalogue 104 Item 30). The present one is undoubtedly by Edmund Culpeper, apprenticed to Hayes in 1684, and signing his own products soon thereafter. We had a very early Culpeper drafting set (Catalogue G Item 55), and compare here the essentially identical flower engravings on the two items. And a signed quadrant in the Whipple Museum (illustrated in J. Brown) has exuberant doodles and floral decor quite similar to ours.

Here we have both a solar/stellar altitude dial in the form of a classic Gunter's quadrant, and a solar direction dial with angular readout. Cowham (2004) explains how the combination can be used, for example, in determining geographic north and thus performing angular surveying. A splendid early instrument. $19,500.

7. REMARKABLE WOODEN MICROSCOPE, Continental, c. mid-18th century. Measuring 6-1/16" (15 cm) tall, this lovely instrument has contrasting body, handle and eyesurround, probably ebony and fruitwood. Three (of six) lenses are set in interchangeable mounts of dark brown wood, each numbered twice (1:2, 3:4, 5:6). A brass specimen holder inserts in the body, and is adjustable with steel spike. All is contained in a fine domed and fitted wood case lined with reddish chamois leather with gold braid, and bound in leather with beautiful gilt stamping to the lid. Condition is very fine throughout.

This "simple" (i.e., not compound) microscope is most elegant, and of a form that relates back to that of Huygens (see the Pouilly example, **Tesseract** Catalogue 46 Item 8). The use of wood is unusual but is known in the Hartsoeker simple microscope form, and in various German microscopes including those of Brander. $9800.

* * *

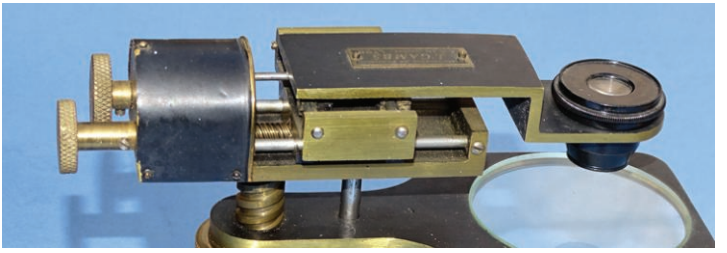


8. SET OF LARGE SPECIMEN SLIDERS, probably English, c. late 18th century. These six ivory sliders are each 4-5/16" (11 cm) long, with one end beveled, pierced with four 13mm diameter holes for mounting specimens between micas and secured by spring rings, and numbered sequentially 1 to 6. Of the 24 holes total, 15 are mounted with specimens, primarily botanic thin sections. The full set is contained in the original wood case bound in simulated fishskin. Condition is fine throughout.

An uncommon set, especially for its size. $295.

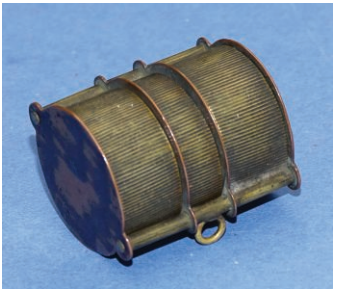
9. RARE FULLY-GEARED STAND FROM LYON, French, early 20th century, signed on a plaque "Instruments de Précision, J. Gambs, 8 Pl. des Jacobins, Lyon," and on the oculars "J. Gambs, Lyon." At minimum height this all brass microscope stands 4-3/4" (12 cm) tall, a narrow 2-1/2" (6 cm) wide and 6-5/8" (17 cm) long. The integral curved base and pillar support the flat stage with glass insert, and the complex lens arm whose motion is fully geared in three orthogonal directions. The smooth motions cover a large field and a long 1-3/4" range of focus. And the three interchangeable doublet lenses cover a wide range of magnifications, marked for 6x, 20x, and 40x. There is a yoke-mounted mirror, and the brass has contrasting black and clear lacquer finishes. Microscope and original mahogany case are in excellent condition.

This is a rare example of a fully mechanized dissecting microscope. Instruments by Gambs are uncommon, although Marcelin records a telescope so marked. An early postcard image shows Gambs' wonderful boutique in Lyon. $1750.



10. MAGNETIC ENTERTAINMENT THROUGH THE MICROSCOPE, English, c. fourth quarter 19th century, the 1" x 3" (25 x 75 mm) glass slide with the professional labels of "Norman Preparer," the specimen identified as "Magnetic Slide, Steel fused to a globular form; By placing a Magnet to the slide it will cause pretty Magnetic effects." A host of minute steel grains are encapsulated between glass, giving fascinating responses when approached by a magnet. In as new condition, it is the work of the famous mounter John Thomas Norman, c. 1814 - 1893 (see Bracegirdle, 1996, *Quekett Journal of Microscopy,* **37**, 514-535). $595.

*** * * * * DIALLING * * * * ***



11. JAPANESE POCKET COMPENDIUM, c. 19th century, the 1-1/4" (3 cm) tall standing metal tower with suspension ring and three swing-out milled cylindrical cups housing silvered (1) glazed magnetic compass, its rose with four cardinal directions and ring of 12 indications, (2) hemispherical scaphe sundial with vertical gnomon and five named hour lines with half-hour ticks, and (3) small glazed decorated "inspection" (?) chamber. Condition is fine throughout. Uncommon Japanese travelling instrumentation. $950.

12. COMPASS / SUNDIAL WITH UNUSUAL IMAGERY, English, c. early 18th century, the 3-1/4" (8 cm) diameter turned brass case containing glazed compass with finely shaped blued needle and printed 16-point rose with delicate floral and running leaf tip decoration plus circumferential scale of degrees. Overlying this is a brass sundial with chapter ring divided every 15 minutes from 4am until 8pm, and with hinged gnomon designed for 51° - 52° North latitude (thus that of London). Inside the lid is mounted a different, 32-point printed rose, with degree scale and wonderful central iconography of a winged sandglass on support, surmounted by a skull, all symbolic of the inevitability of the passage of time. Condition is very fine, seemingly untouched for 300 years, noting only the general brown patina to the brass. $1500.

13. THE POLARIZATION SUNDIAL-CLOCK OF CHARLES WHEATSTONE, English, mid-19th century, signed on an inset plaque "Darker, Lambeth." Two hinged mahogany frames are mounted to the 4-1/2" x 5-5/8" (11 x 14 cm) mahogany base. The lower frame is set with a dark plane reflecting glass, and latches at an inclination of 18° to the horizontal. The upper frame rises to 52° inclination, and is set with a doubled glass semicircular window bearing an internal scale of hours (every hour from 12 am to 12 pm to 12 am) and set every two hours with a sliver of transparent selenite. The design is attractive, craftsmanship is very fine, and condition is very fine noting a little cement separation at the edges of the doubled glass plate.

Invented by Wheatstone, this "clock" is based on a very simple principle, that the scattering of sunlight by molecules of air is partially linearly polarized, that the polarization is always perpendicular to the plane of scattering (i.e., the plane containing the sun, the bit of atmosphere, and the observer), and that this polarization is a maximum at 90° from the sun. In use one points the instrument at (or near) the north celestial pole, specifically at the point which all day long remains 90° from the sun. This is the point of maximum polarization. During the course of the day the plane of this polarization turns, as the earth turns and the sun appears to move from Eastern horizon, through the meridian, to the Western horizon; the *direction* of polarization is thus a measure of the hour of the day. In actual use one sets the instrument on a level surface, points the dial-

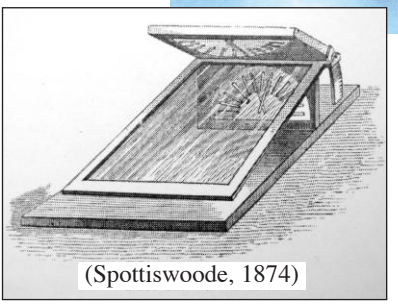

(Spottiswoode, 1874)

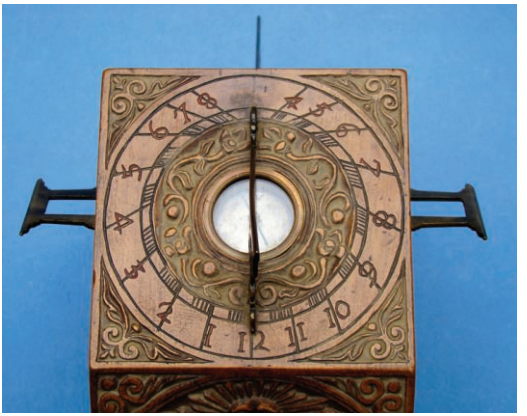
plate window northwards, and stands south of it looking at the reflection of the window in the black glass mirror. The window's inclination puts its plane perpendicular to earth's polar axis, so the scattered, polarized light from that direction passes thorough the window, through the several selenite optical retarder plates, and reflects from the black glass (which is inclined at its angle of maximum reflection polarization) to the user. The hour is given by the number closest to the selenite showing maximum color. For more details see Spottiswoode's 1874 book *Polarization of Light*, and A. Mills 1992 article in the *Bulletin of the Scientific Instrument Society,* No. 33. Wheatstone himself argued that this instrument had three advantages over an ordinary sundial: (1) only the north celestial pole need be visible in the sky, regardless of surrounding buildings, etc., (2) the polar clock would work even before sunrise and after sunset, as long as the sky was still illuminated by the sun, and (3) it would work even in partly hazy or cloudy conditions.

The maker was William H. Darker, optician and "optical lapidary" of 9 Paradise St., Lambeth, London, working 1846 - 1851 (see Clifton), and known for his inventive manufactures. Wheatstone worked extensively with Darker, including engaging him to fabricate the first experimental underwater telegraph cables.

This device is very rare. We note an identical one in the National Maritime Museum, and a more sophisticated version usable at all latitudes in **Tesseract** Catalogue 79. Included is a Nicol prism analyzer for casual polarization observations. $5800.

14. WONDERFUL POLYHEDRAL DIAL, probably from the Savoy (Northern Italy or SE France), c. early 18th century. Constructed from a large 6-1/2" x 4" x 4"(16.5 x 10 x 10 cm) block of boxwood, it is finely carved on six planes with twisting, flowing vines, and on five of them with sundials. The top has a small inset glazed compass, the lower front carved with a scallop shell. Two dials have wonderful sunfaces. The pierced brass gnomons include elegant twisting vines. Four shadow edges are parallel to the earth's axis (here designed for approximately 45°north latitude, and thus Turin, Grenoble, etc.); one is horizontal, whether by design or accident, but giving approximately the correct time even if not gnomonically sound. Condition is excellent.

The polyhedral dial represented, over the centuries, a tour-de-force of the dial maker's craft. A good Austrian one, in brass, is illustrated in Earle, *Sundials and Roses of Yesterday*, 1902, p. 133, and a fine Czech one is in Kassel (Hamel, 2000, item 9). $18,500.



* * *

15. MINIATURE SCAPHE DIAL IN A NETSUKE, Japanese, c. mid-19th century. This lovely little 1-7/8" (4.8 cm) diameter pancake-shaped netsuke is made of finely-grained wood, bearing a reddish-brown lacquered scene of a child riding on the back of an ox. It is pierced through the center, and constructed in halves, the base with inset compass (with 12 directionals) and tiny 7/16" (11 mm) diameter scaphe with pin gnomon and five black on gold numbered hour lines. In excellent condition, this is a rare example of a *kagami buta* type netsuke. This flattened disk form often conceals a mirror (from which derives its name) but here keeps handy, for the wearer, a time-keeper and direction-finder.
(ex: John Read collection). $1150.

16. EXTRAORDINARY HORIZONTAL SUNDIAL, possibly Swiss, probably 19th century, signed "Jacob Senebier" and with a "JS" pierced design in the gnomon. The main plate is a substantial smooth brass plate 6-5/8" x 7-1/4" (16 x 18 cm), pierced and engraved with an imposing crowned double-headed eagle design, and centered by a 4am-8pm horizontal dial set with lunar volvelle (with phases-of-the-moon window and twice-12 hour scale reading against 29-1/2 day calendar scale) and folding gnomon of thin black brass with upright stop in the shape of a symbolic double eagle. Condition is very fine throughout.

The principal design is similar to the coat of arms of the Holy Roman Empire. But the double headed eagle holds a sword in the right hand and the scepter of the law in the left (rather than an orb), as in the city arms of Cologne.

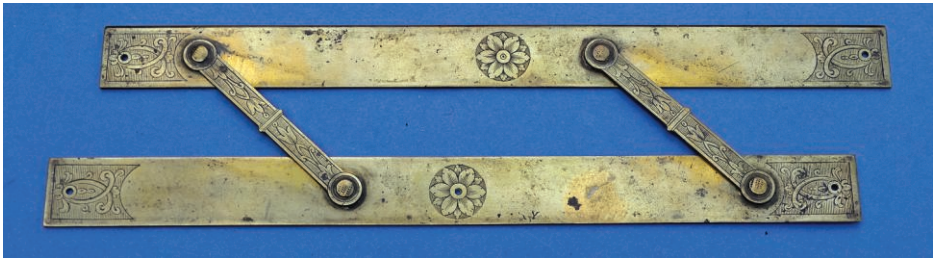
One Jacob Senebier is recorded by Marcelin, c. 18th century, for a perpetual calendar in the British Museum (and listed in Ward, item 385, acquired by the BM in 1891, and listed as item 273 in Derek Price's 1955 preliminary inventory of instruments at the BM). Another perpetual calendar was in the 1893 Spitzer sale (item 2889), and an eagle sundial extremely similar to ours, but with detailed differences in the engraving throughout, appeared in a recent sale.

The present dial is very well executed, but judging by the numeral shapes, design and construction details, etc., we feel it is a remarkable but late fabrication, probably late 19th century, capitalizing on the then demand for antiquities, and using the name of an earlier Swiss maker. $5750.

*** * * * * NAVIGATION * * * * ***

17. PROOF THE EARTH IS ROUND -- ON A MECHANICAL MAGIC LANTERN SLIDE, English, c. mid-19th century, signed "John Browning, London." Mounted within a 4-3/8" x 7" (11 x 18 cm) mahogany block are two 3" (7.6 cm) diameter hand painted glass disks. One disk is fixed and presents one planispheric projection of the earth, on which are standing three observers at different heights above the land surface. The other disk depicts two sailing ships (one with steam), and is rotated by hand crank with pinion drive to its circumferential ring gear. As a ship approaches the observer, the top of the mast is seen on the horizon first, until finally the complete vessel is seen down to water line. This occurs earlier the higher up the observer is, and none of this would happen if the earth were flat! Condition is very fine throughout, noting a hairline crack to the wood, and a little roughness to the gearing. John Browning was an important maker / retailer in the second half 19th century. The present slide could well be the product of Carpenter and Westley (see, e.g., **Tesseract** Catalogue 107 Item 22).

A wonderful demonstration. $550.



18. EXCEPTIONAL PARALLEL RULE, perhaps French, c. early 18th century, the brass rule measuring 9-1/4" (23.5 cm) long and opening to 3-3/16 (8 cm) high. It is pierced with five holes for securing to chart board, and is finely engraved with flowers and rococo curves on the bars and on the swinging hinges. Condition is fine noting a few stains and pitting.

Aside from its beauty, this is a particularly early surviving example of the parallel rule. Fabrizio Mordente is credited with its invention, this not until the 1580's. $1850.

19. EXTRAORDINARY CHARTING EQUIPMENT -- FOUR-LEGGED DIVIDERS PLUS PROTRACTOR, English, c. last quarter 19th century, signed on the 8" (20 cm) tall dividers " H. Hughes & Son, London, 543," and on the 5-3/4"(15 cm) wide protractor "H. Hughes & Son's Chart Protractor, 59 Fenchurch St., London, No. 831" and with the owner's name "E.E. Daldy." Construction is of electrum, but with screws and shaped points of steel.

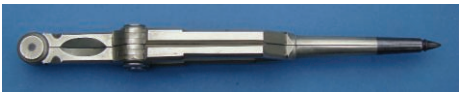
The divider legs open on a five-leaf hinge, each leg with a pair of arms opening symmetrically on twin geared three-leaf hinges. The result is enormous flexibility, all the while constraining the four points to define an isosceles trapezoid. Maximum length of the trapezoid's parallel sides is 11-3/4"; maximum separation of the parallel sides depends on their length, but ranges from 6-1/2" to 15-1/2". The instrument is superbly shaped and crafted throughout, and all five hinge joints have tension adjustment. Its parts are consistently numbered "7."

The protractor is finely divided every degree 0 - 90 - 0, and an inner beveled semicircular edge is divided in directionals 0 - 8 - 0 by quarter units, as for a 128-point compass rose. Included for the protractor is the shaped wood case bound in purple simulated shagreen and lined in purple silk and velvet. Both instruments are in excellent condition throughout.

Henry Hughes worked as instrument maker c. 1835 - 1875, specializing in nautical equipment. His retail premises apparently relocated to 59 Fenchurch St. c. 1859, remaining there well into the 20th century. The name changed to H. Hughes and Son (perhaps in 1879 at the death of Henry), and the firm incorporated as a limited company ("H. Hughes & Son Ltd") in 1903.

Remarkable instrumentation. $5500.


H.Hughes & Sons Chart Protractor
59 Fenchurch St London.
No831



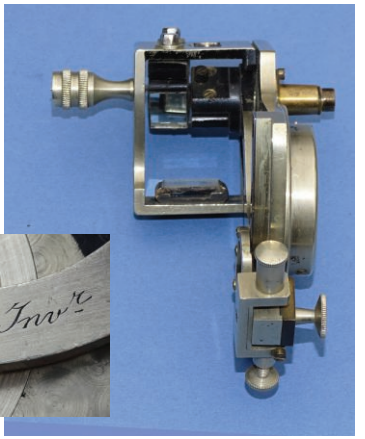

H.HUGHES & SON
LONDON 543


H.Hughes & Son's Chart Protractor
59 Fenchurch St. London.
No 831

20. ROBERTS' COURSE FINDER, English, c. 1876, signed "Roberts' Patent True Course Finder; Apps, Sole Manufacturer, 433 Strand, London." This fine brass calculator is 4-1/2" (11 cm) in diameter, with protective cover, silvered face, index arm, and scale magnifier. The face is finely engraved, using contrasting black and red infill, with circular scales (1) every degree from 0° to 90° in each quadrant readable against 15-arcminute vernier, and (2) 128-point compass rose labeled every four points (e.g., NWbN, SbE). Engraved instructions guide the use, e.g., "To find true Course Allow Westerly Variation & Deviation to Left." A rare device, in very fine condition throughout.

We have located one other example, that in the Science Museum in London. This course finder was patented by one W.H. Roberts in 1876, and permits accurate conversion between headings in degrees and direction points, with consideration of compass variation. Quoting from the 1877 museum listing, "The object of this instrument is to avoid arithmetical calculation in finding the true course from the compass or magnetic course, with corrections for lee-way, deviation, and variation. This instrument will give by three movements of the index the true course to fifteen minutes."

$1450.

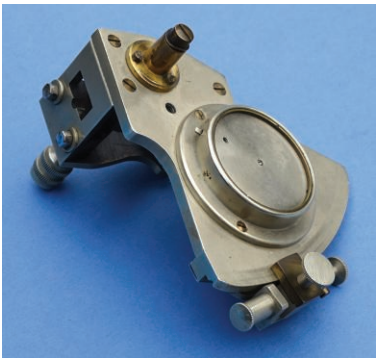


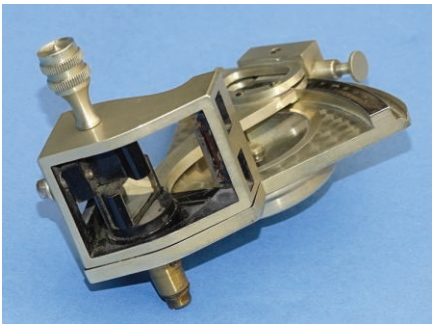
21. A TRIPLE-MIRROR SEXTANT -- THE "ANGULIMETRE," French, c. late 19th century, signed for the inventor "Coutureau Inv'r," and numbered "7" throughout, and scratch numbered "138." This tiny, substantial instrument is finely crafted of electrum (or plated bronze) and measures about 4" x 3-1/2" x 2-1/2" (10 x 9 x 6 cm) overall. The main plate carries the index arm (with clamp, fine tangent motion, and vernier reading to 0.05 grad), silver scale (divided every grad, where 360° is 400 grad, and usable to 150 grad, i.e., 135°), inset glazed compass (with edge bar needle with jeweled pivot, needle lifter, and 40-point compass-rose, the cardinal directionals labeled 0, 1, 2, 3), and directional arrow (for sighting?), and mirror block. The latter is fitted with horizon mirror and mount, with two pinholes for sighting, index mirror atop the index arm (as usual), and innovative *fixed* "index" mirror giving a simultaneous view at 90°. The mirror block is cut with various viewing and adjusting ports. Two locations are provided for the handle. Condition is very fine throughout, noting the small compass arrestor screw lacking.

This is a very rare example of Coutureau's Angulimètre, a form of extended range sextant. Related to this, but optically quite different, are the triple-mirror sextants of Collignon (**Tesseract** Catalogue 94 Item 24) and of Vedy (20/37).

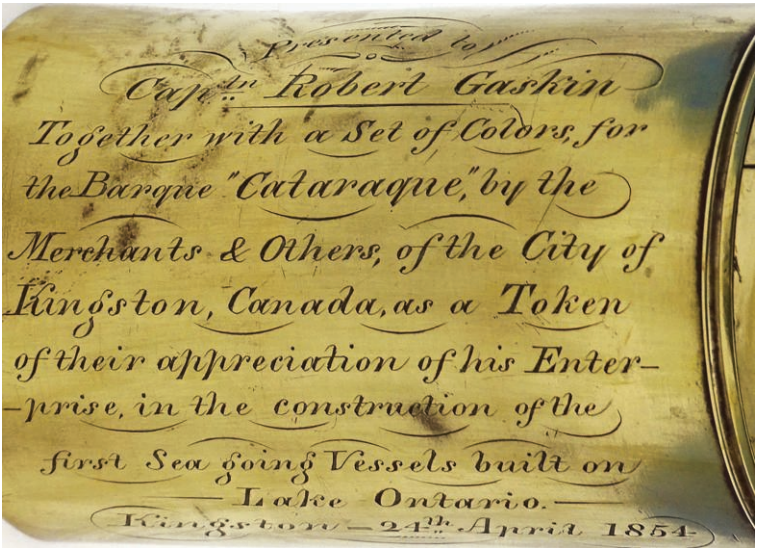
The present inventor is recorded for an 1885 patent of a surveying square, and there are 1908 advertisements for his Angulimètre. We have located two other examples of Coutureau's sextant, one in the Greenwich National Maritime Museum (#NAV1243)

$4500.





SIGNIFICANT CANADIAN PRESENTATION



22. TO THE PIONEER OF THE GREAT LAKES AND OCEAN TRADE, English/Canadian, mid-19th century. This sea-faring telescope opens from 20-1/2" to 38-1/2" (52 - 98 cm) with its single drawtube and objective extension. The brass end caps have sliding dust shutters, and it gives very good erect images with its achromatic objective. The drawtube is signed by the maker "Crichton, 112 Leadenhall St., London; Imp'd Day or Night." The objective tube is nicely engraved "Presented to Cap'tn Robert Gaskin, Together with a Set of Colors, for the Barque 'Cataraque,' by the Merchants & Others, of the City of Kingston, Canada, as a Token of their appreciation of his Enterprise, in the construction of the first Sea going Vessels built on Lake Ontario. -- Kingston, 24th April 1854." Condition is good noting a number of small dings to the brass, and shrinkage and wear to the leather binding of the main tube.

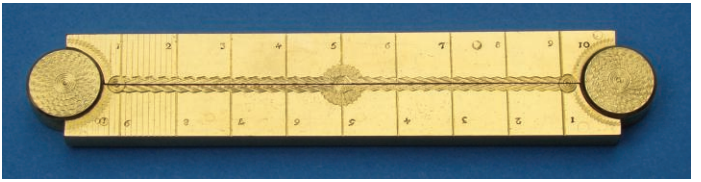
Robert Gaskin was a well-known Captain, ship owner (of, e.g., the schooner British Lion), etc. He was one of the first, and foremost, to sail cargo between the Great Lakes and Europe. The Cataraqui is listed as a schooner of 550 tons, which Gaskin captained from Kingston to Liverpool

An important Canadian survival.

$3950.

23. A RECTANGULAR "BARADELLE" BY BARADELLE, WITH SILVER INSTRUMENTS, French, c. 1745, signed indistinctly "Baradelle à Paris, No. 1321" and hallmarked twice (with the Paris silver discharge mark for 1744 - 1750). The rectangular wood pocket case is 5-1/4" x 1-1/2" x 3/4" (13 x 4 x 2 cm), bound in finely grained green shagreen and opening to compartments on both ends. One contains the signed silver inkwell with swing-away, clampable cover, the other the complete set of five drafting instruments, viz., a lovely signed and decorated folding rule with "Half the King's Foot" scale divided by inches and twelfths, with cross strut locking it at 90° and serving as a level, a double-ended octagonal drawing pen with similar edge scale and with extendable pencil and ink nib, one end with removable cap designed to serve as a silver plumb bob for the level, and finally a good pair of dividers, with interchangeable divider point, pencil lead holder, and ink point. Condition is very fine except for considerable wear to the shagreen.

This is a fine example of Rocca's Type 2 French drawing instrument case (see *SIS Bulletin,* **114**, 30-38), similar in contents to his cylindrical Type 3 "Baradelle." $3500.



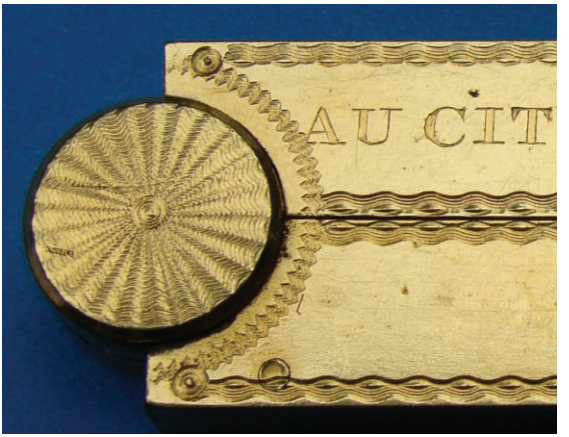
24. A "MAGIC" PRESENTATION RULE OF EXCEPTIONAL QUALITY, French, Revolutionary period, signed by the maker "Jacot, Mécanicien" and with the presentation "Au Cit. J. DeBry, Préfet du Dep't du Doubs." Exquisitely crafted, this finely gilt brass rule opens from 4-7/16" to 8-5/16" (11 - 21 cm), and is decorated with precise guilloché engraving (using a rose engine lathe), including varied sunbursts with microscopic detail. A scale is divided 0 - 10 cm twice, the last two centimeters subdivided in millimeters, and has punched numerals. And, as if by magic, the rule can be opened from either end, constructed with hinges at each end that seem to defy each other. There is no obvious explanation. The device is in superb condition throughout.

Several clockmakers with surname Jacot are recorded (not to mention the Jacot pivot lathe), both in Paris and in the area of Besançon in the Doubs (see Tardy). The latter is one of the 83 "départements" of France, created in 1790; its capital or "préfecture" is in fact Besançon, with reputation as the capital of the French watch industry, and its préfet, the recipient of this presentation, was indeed Jean Antoine Joseph DeBry (1760 - 1834).

DeBry had a significant presence throughout the period of the Reign of Terror in the 1790's, being member of, in succession, the Assemblée Législative, Convention Nationale, Conseil du Cinq-Cents, and Tribunat. As prefect of Doubs, one of his roles was the incarceration of Toussaint Louverture, the famous leader of the Haitian Revolution.

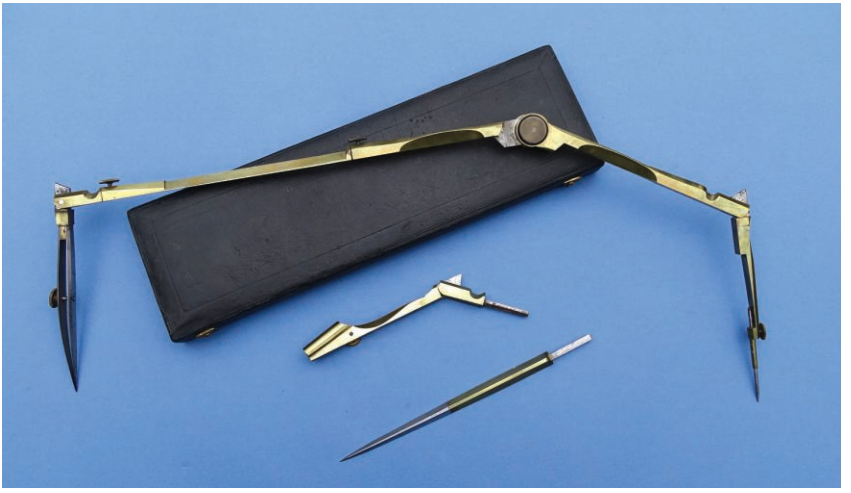
A remarkable device with a significant provenance.

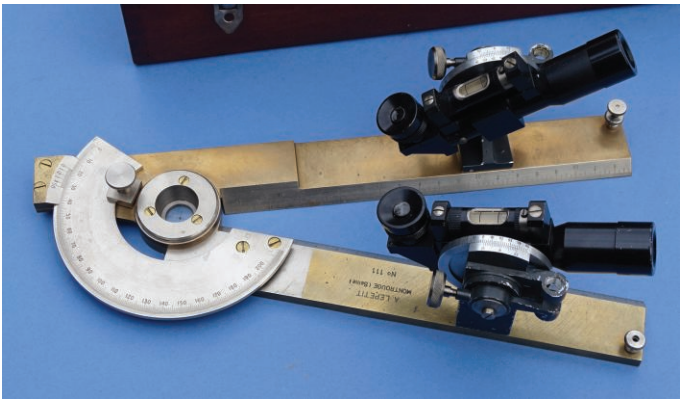
$7500.

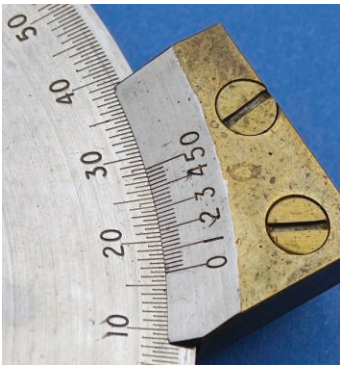


25. A MAJOR DRAWING COMPASS OUTFIT, French, c. 19th century, signed (indistinctly) in the fitted wood case "Optique et Mathematiques, Seguin & Prévost, 14 Boulevart St. Michel, Paris." Constructed of brass and steel, the large dividers are 11" (28 cm) tall, equipped with an adjustable center point on one (hinged) leg, and a range of fittings mountable on the other leg. Included are a rigid divider leg, an extension arm, a hinged pencil holder, and a hinged ink pen with adjustable thickness and very large reservoir. With it fully assembled, one can draw circles three feet in diameter! Condition is very fine, lacking only a tightening tool, the case good noting damage to some of the silk lining.

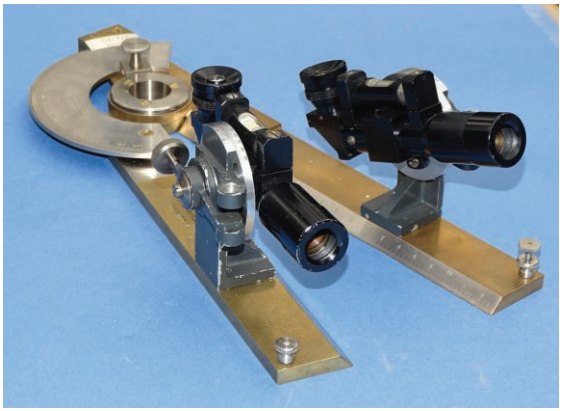
We have no further details on the makers / retailers, noting that they were located on the left bank in Paris. This is a most impressive professional outfit for large constructions on paper. $2200.

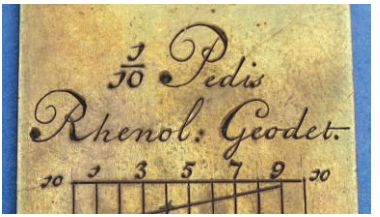






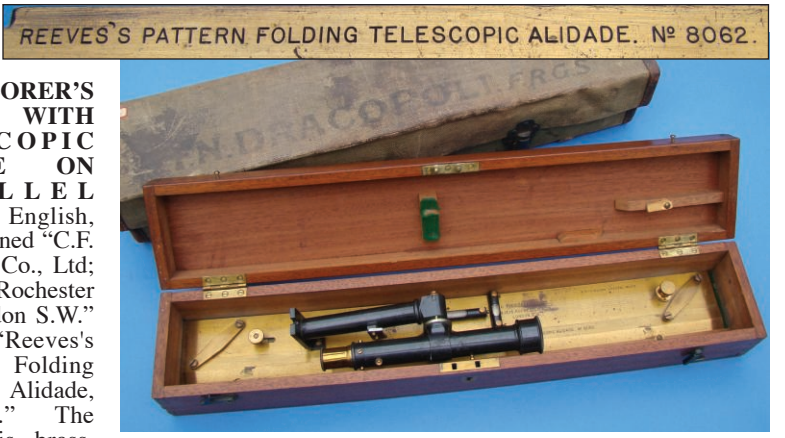
26. SOPHISTICATED SIGHTING SECTOR, French, c. 1930, signed "A. Lepetit, Montrouge (Seine)" and serial numbered 111, and bearing in the case the trade card of Etablissements Albert Lepetit, formerly Barthélemy, Lorieux and Ponthus. Measuring 11-3/4" (30 cm) long (closed), this precision instrument is constructed of bronze, electrum, and aluminum. It opens on a large sector hinge a full 180°, with scale divided 0(0.5)200 grads, vernier reading to 0.02 grad, clamp screw, and central plotting window. Each long arm is divided linearly every 0.5 mm, and carries a small right angle telescope with bubble level, the eyepieces focussing on reticles with nonlinear scales. The telescopes are adjustable in inclination over ±50, with vernier readout. Condition is good noting one push-pin lacking, a little scraping to the black enamel finish on the telescope mounts, *and* the loss of the telescopes' fine motion screws and springs. It is complete with the original wood case, and seems of limited manufacture and thus very rare. $1850.





27. EARLY COMPARISON TRANSVERSAL RULE, probably German, c. 1700, the 5-15/16" (15.1 cm) long brass rule with decorative hand-wrought termination and suspension hole, plus one stepped ruling edge. One side is divided with three scales (C, D, E) of equal parts, running to 130, 90, and 50 respectively. The other side is engraved with three grids for measurement and interpolation of local foot measures, beautifully labeled for 1/10 Pedis Rhenol. Geodet., 1/12 Pedis Rhenolandici, and 1/12 Pedis Parisiensis Regii. Condition is excellent

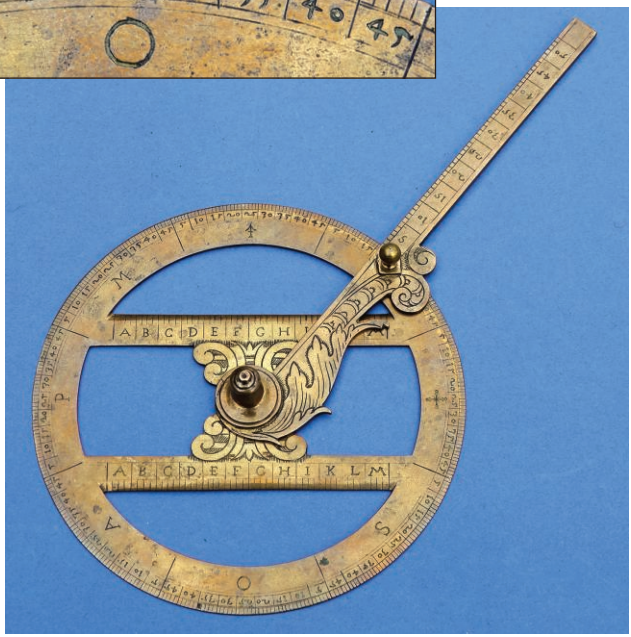
Numeral and letter shapes are similar to those found in, for example, Jacob Leopold's 1727 *Theatrum Arithmetico-Geometricum*. A special rule for the early architect or draftsman. $950.



28. AN EXPLORER'S OUTFIT, WITH TELESCOPIC ALIDADE ON PARALLEL RULE, English, c.1900, signed "C.F. Casella & Co., Ltd; 11, 13, 15 Rochester Row, London S.W." and "Reeves's Pattern Folding Telescopic Alidade, No. 8062." The platform is brass, 20" (51 cm) long, with parallel rule motion and twin spirit levels (one cracked) for use on a plane table. The hinged telescope has sliding focus to the eyepiece and objective lenses, reticle, and vertical arc with degree and tangent scales, and five arcminute vernier. Condition is very fine, complete with the original fitted mahogany case and sturdy outer canvas carrying case (stenciled for the owner "I.N. Dracopoli, F.R.G.S.")

Ignatius Nicolas Dracopoli (1887 - 1923) authored, in 1914, *Through Jubaland to the Lorian swamp; an adventurous journey... in the unknown Africa...* He had traveled on safari for four months through extremely difficult "closed" territory unseen by white man. Among his limited instrumentation taken overland, he lists one "Plane table with folding telescopic alidade." And we note that in 1912 he was writing of the advantage to explorers of taking courses in Geographical Surveying from a Mr. E.A. Reeves at the Royal Geographical Society in London. A splendid example of a less common exploration instrument, with remarkable provenance to very remotest Africa. $2950.

ONE OF TWO KNOWN EXAMPLES



29. EXTREMELY RARE "SQUADRA MOBILE" OF ANTONIO SANGIOVANNI, Italian, fourth quarter 17th century. Made of brass throughout, there is a pierced disk 4-5/8" (11.7 cm) in diameter and rotating alidade 6" (15.2 cm) long. The disk circumference is divided clockwise every degree 0° - 45° in each of eight zones marked with the wind directions: a symbolic arrow for Tramontana, G(reco), O(stro), A(ustro), P(onente), and M(aestro). The central area is engraved with scrolls, and supports two horizontal bars each with a beveled edge and divided linearly from A to M, each letter unit subdivided in quarters. There is a central thumb knob, for stability on a chart, and a second knob on the alidade for rotation. The alidade has fine shaping and floral engraving, and is subdivided linearly from 0 to 50 units, and numbered every five, leading outwards from the disk's outer edge. Condition is very fine noting very slight roughness to the disk edge.

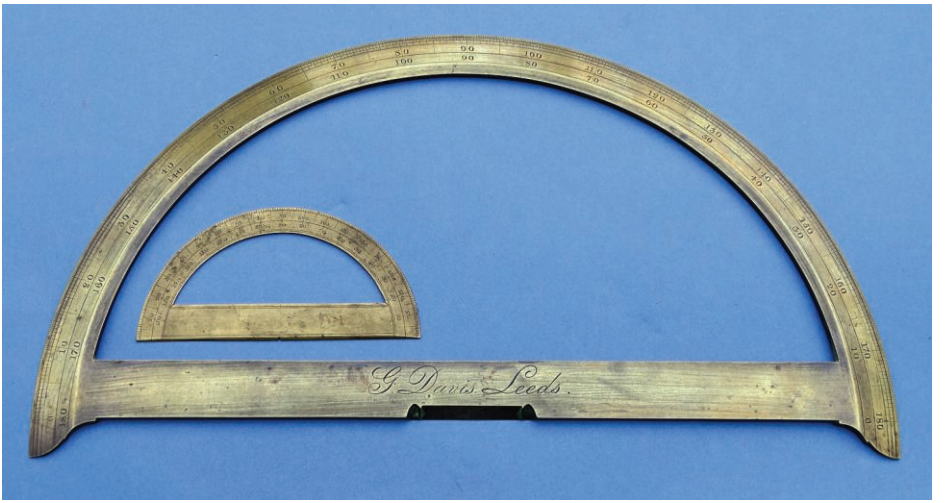
This is the "Seconda Squara Mobile," described by Sangiovanni (agronomist and mathematician of Vicenza in northern Italy) in 1686 in his *Seconda Squara Mobile et Aritmetica*. He explains, and describes, the first form as that of Fabri Veneziano (see Fabri's book **Tesseract** Catalogue 108 Item 43).

One of the most curious innovations in the present instrument is the "letter-line," which we know on no other instrument scale. Sangiovanni explains its great utility using letters to represent number positions, especially for laying out "vertical" (i.e., "North-South") Tramontana-Ostro lines by marking, by pin pricks on chart paper, at identical letter positions and their subdivisions. The author depicts his instrument with a central compass rather than an alidade. We know of only one other "Seconda," that in an Italian museum, and also with alidade as ours. $11,500.

ALPHA-NUMERIC PLOTTING

(Sangiovanni, 1686)

* * *



30. SMALL SEMICIRCULAR PROTRACTOR, probably English, late 18th century, brass, fully hand-engraved, 4" (10 cm) across, fine with light spotting. $95.

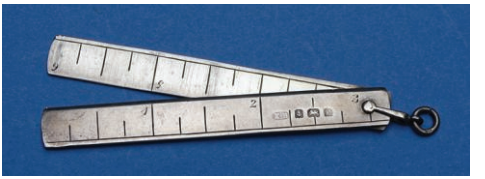
31. VERY LARGE PROTRACTOR, English, c. 1830, signed in lovely script "G. Davis, Leeds," a handsome brass instrument 12-1/8" (31 cm) wide, divided every 15 arcminutes and with hand-engraved numerals. In very fine condition with a light brown patina, it is the work of Gabriel Davis working in Leeds, England c. 1822 - 1847. $450.

VARIATIONS ON A DESIGN

PROPORTIONAL DIVIDERS BY CARY, English, c. early 19th century, signed "Cary, London," brass with inset steel points, 6" (15 cm) long, with proportional scales for Solids, Plans, Lines, and Circles. They are elegantly designed, in excellent condition, complete with original shaped Morocco leather bound case in worn condition. The maker was undoubtedly William Cary (c.1759 - 1825), who announced himself as "apprentice to Ramsden," and who, in 1789, established a business in the Strand which thrived until long after his death. Here we present two good early items by him.

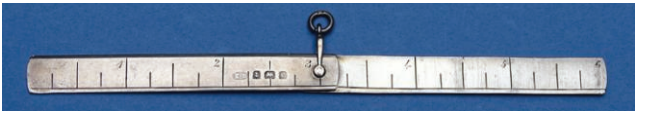
32. A FINE PAIR OF CLASSIC DESIGN $280.

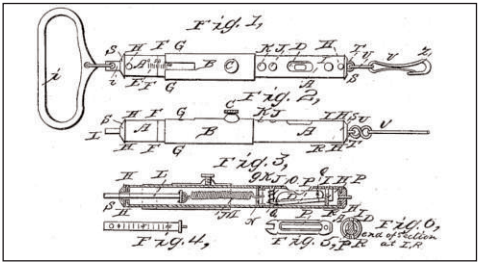
33. EXCEPTIONAL DIVIDERS WITH FINE ADJUSTMENT STABILIZING ARM. $695.



34. PENDANT SILVER RULE, English, 1902/3, the hinged rule opening to 6" (15 cm) long, and mounted with silver ring and yoke suspension. The rule is divided from 0 to 6 inches, by quarter-inches, and is stamped with hallmarks for Birmingham sterling 1902/3, maker "I.B."

An unusual inch rule, in fine condition. $350.

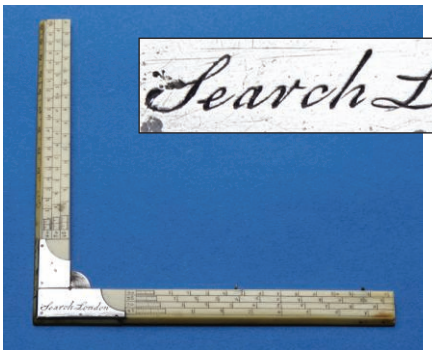


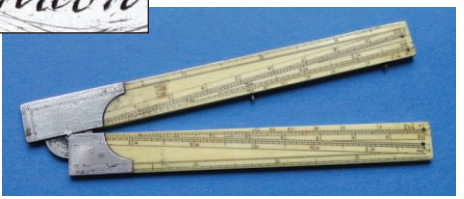


35. GRUMMAN'S PRECISION 100-LINK TWO-POLE SUSPENDED CHAIN, American, c. 1860's, signed on the brass handles "J.M. Grumman Patent, April 19, 1859, 50 Foot Steel No. 18, W. & L.E. Gurley, Troy, N.Y." Grumman's innovative chain is precision engineered and constructed to minimize errors, with its fine tempered steel wire links of graduated length (to compensate for sag) joined by round and elliptical eyes (to eliminate connecting rings), tiny brass tally tags, mercury thermometer in suspended brass housing, and lacquered brass housing containing spring balance, spirit level, and temperature adjustment collar. It is complete and in fine condition noting light oxidation throughout.

Manufactured exclusively by Gurley, this surveyor's chain of ultimate precision is described in an 1859 treatise by Grumman, as well as in his patent application, and more recently in **Rittenhouse 1**, p. 85ff. It is a remarkable but very rarely found chain, noting one example in the National Museum of American History. $1800.

*** * * * * CALCULATION * * * * ***



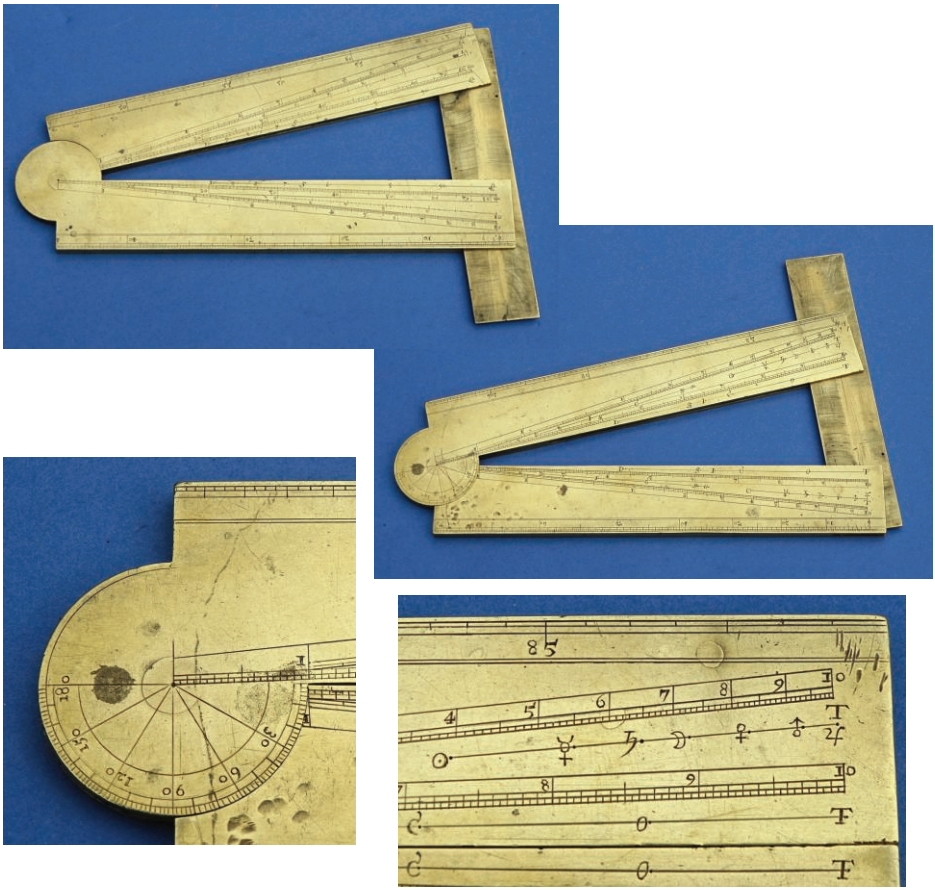


36. FOLDING COMBINATION RULE, English, c. 1775, signed "Search, London." Made of ivory with silver mounts, the rule opens to make a 5" x 5" (13 cm) right angle. On one side each leg is divided with different chart scales, viz., 25, 30, 35, & 40 per inch, and 45, 50, & 60 per inch. A beveled edge is divided 0(1)90 with a scale of chords. The other side is divided with double sector scales of L(iues), C(hords), and Pol(ygons). Condition is fine noting slight bending.

This is an uncommon form of architect's scale rule and calculating sector. James Search is recorded as mathematical instrument maker in London 1771 - 1781, having taken over from John Bennett. $950.

37. ORIGINAL SET OF NAPIER'S CALCULATING RODS, English, late 17th / early 18th century, all in boxwood, comprising nine rods, the tabulat carrier, case and slide-off lid. Each 1-5/8" (4.1 cm) long rod is four-sided, stamped with corresponding multiplication tables (two rods each of 0369, 1278, 1458, and 3456, and one of 0229, the duplicate rod of the latter lacking). Each rod has the useful marking of little numbers giving the digits on either side, to help in searching for a digit (noting the maker's error on one rod which calls for a 7's column but on which he placed the 2's column twice). Also included is the double sided square root / cube root block, as supplied only in the more elaborate sets. Careful inspection of the hand-punched numerals reveals small defects (e.g., the weak horizontal of the "4") and idiosyncrasies (e.g., the shape and seraphs of the "5") which recur on all the bones, evidence they are all original to the set. All is contained in the lovely original 3-5/16" x 2-3/16" x 7/16" (8.4 x 5.3 x 1.1 cm) *book-form* case, the spine carved with panels separated by raised bands, the "covers" incised with lovely geometric decoration, in the form known in the antiquarian book world as "Cambridge panel binding." Condition is very fine noting shrinkage cracks to the case.

In 1617 John Napier (1550 - 1617), of Merchiston, Scotland, published *Rabdologiae*, in which he revealed his newly invented calculating rods capable of rapid multiplication of very large numbers. Each "bone" is finely punched with a multiplication table for the integer on top multiplied by 1, 2, ...9. Diagonal lines show how to carry the second and further digits. The four sides of each bone present tables for four different integers. Thus one can multiply numbers up to 9 digits long with this set! The bones were a convenient portable digital calculator for multiplication, division, and roots, and assumed major importance in the 17th century. $14,500.



38. A PROTRACTING SECTOR -- EARLY ENGLISH MATHEMATICS AND GEOMETRY, c. early 17th century, the brass instrument measuring 1-15/16" x 6-9/16" (5 x 16.7 cm) overall, opening to 12" (30.5 cm) long and with perpendicular cross strut. This sector follows the basic design of the early English ones, as specified by Gunter (*Description and Use of the Sector,* 1623), and as produced by Elias Allen (e.g., see **Tesseract** Catalogue 37 Item 40, also G. Turner *Elizabethan Instrument Makers).* But it has various features which make it unique, and difficult to attribute to the known contemporary makers. The outside edge of one leg has a scale of English inches to twentieths, typical of this time period. But the edge of the other leg has a strongly nonlinear 0 - 66 scale. On one side the hinge area has a 0(1)180 degree scale, allowing the sector to be used as a protractor. The numeral and letter shapes are good early 17th century forms, but the craftsman did not have the sureness of Whitwell, etc. He (or she) was particularly challenged by the S, C, and 8 forms, as well as by the small zeros, which were engraved not punched. And various characters required repeated strokes in the formation. Condition is good, the brass quite cleaned but the engraving still crisp, and noting a number of dents on one side.

An unusual early mathematical tool, perhaps by a newly discovered, but not yet identified, maker. (ex: Spottiswoode collection) $3950.

39. EARLY CONVERSION RULE, English, 1730, signed "Iohn * Oliphant, 1730." Opening to 12" (30 cm), this ivory rule has brass hinge and end plates, and is stamped on both sides with conversion tables, and on the edge with an inch rule by eighths. On one side, on one leg, there are columns of I (increasing from 2 to 14) against F (decreasing nonlinearly from 313 to 2). The other leg has F vs I, both varying rather erratically between 0 and maximum of 11. To the reverse are columns of Inc (14-1/2 to 22-1/2 linearly), F (fixed at 1), C(0 and 1), 9 (1 to 3 nonlinearly), and II (2-3/4 minimum to 27-1/4 maximum, in repeating steps). Condition is fine noting light wear, one short age crack, and a small (unmarked) corner chipped.

This is a particularly early and unusual conversion table. At first attempt, one side seems to relate pennyweights and grains and sovereigns, and thus useful for weighing gold coins, but the calculations break down. So after one hundred attempts, we leave it as a wonderful mystery of early 18th century conversions and calculations. One bright colleague studied it and finally concluded "the most probable theory is that John Oliphant was a sadistic madman who knew this rule would be discovered 300 years later and had it inscribed with total gibberish!" The maker seems unrecorded, but a James Oliphant is found in 1738 as an apprentice to William Radford, at the sign of the Great Golden Spectacle in the Strand. $3500.

*** * * * * DEMONSTRATION, EXPERIMENTATION, ETC. * * * * ***

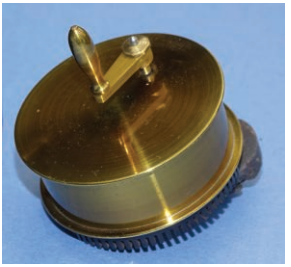
40. ANEMOMETER REGISTERING MAXIMUM AIR VELOCITY, English, c. 1875, signed "W. A. Martin, London, Improved Self Registering Anemometer." Made of contrasting patterned bright lacquered and chemically darkened brass, this usual uni-directional anemometer has a 5-1/2" (14 cm) wide base plate and large 4" x 4-1/2" (10 x 11.5 cm) counterbalanced swinging windvane. It has adjustable low-friction supports, and a protected handle above. Adjacent to the vane is a quadrant with scales in feet per second (155 - 1600) and in degrees (0° - 85°), with notches every degree. Attached to the vane is a clip which can be lowered to engage the notches, and thus register the maximum tilt of the vane and so the maximum velocity. All is in very fine condition.

We find discussions by W.A. Martin & Co., in the 1870's and 80's, of their ability to measure high velocities of air intake to large boilers, including on locomotives, and of the study of efficient coal combustion. The Martin company was very active in the field, but this is the only such self-registering anemometer we have seen. $1800.

41. POCKET SAMPLER OF NATURAL MINERALS, German, c. early 20th century. This compact 5-1/2" x 4" (14 x 10 cm) panel presents, under a celluloid window and with printed identifications, fragments of 30 minerals, gemstones, and semiprecious stones from ruby and sapphire to malachite and bloodstone. The set is complete and all original, having been preserved in the panel. Condition is excellent, accompanied by its little descriptive booklet (fair only). $180.

42. CHESHIRE'S WAVE SLIDE, English, c. late 19th century, signed "Sole Makers, Newton & Co., Opticians, 3 Fleet Street, London." This 4" x 6-1/2" (10 x 16.5 cm) mahogany block is set with a 3-1/8" (8 cm) glass disk rotatable by hand crank to ring gearing. This black disk bears a series of transparent eccentric circles precisely placed and of precise diameters. Mounted in front of this is a fixed solid metal disk pierced with a horizontal slot and mounted with two sliding shutters to isolate various sections of slot, the sections defined by five setting points labeled A through E. Thus the only image visible through the slide, and projectable on a screen, is that of the linear slot with a series of short vertical lines whose spacings vary as the glass disk is rotated. A printed paper label explains five different wave patterns. For example, if section A though B is isolated, the visible wave motion is that of "a closed organ pipe sounding the fundamental, or a rod vibrating longitudinally and clamped at one end." Condition is fine, the crankwork operating smoothly, noting a couple of stains to the wood and some wear to the label.

Frederic Cheshire (1860 - 1939) published his disk design in *Nature* in 1892. It is related to Terquem's slide and Crova's disk (see **Tesseract** Catalogue 101 Item 34), and is very rare. We have in fact located one other example, that in the George Eastman Museum in Rochester, N.Y. $2200.



43. WHEATSTONE'S PERSISTENCE-OF-VISION PHOTOMETER, French, mid-19th century, signed "Secretan à Paris." The 2" (5 cm) diameter cylindrical brass case houses a gear reduction linkage. When the crank is turned slowly, an arm on the other side rotates rapidly, driving a small polished sphere in an epicyclic path. The sphere is bright against the blackened background. With persistence of vision, the observer can intercompare the brightness of two light sources seen reflected in the patterns of the moving sphere, and adjust their positions for equal intensity. Distance measurements then give a quantitative determination of brightness ratios. Invented by Charles Wheatstone (1802 - 1875), this rare photometer lacks two of the small pins which stab the sphere's cork support pad, but otherwise is in excellent condition with its golden lacquer finish. It is complete with hand crank, cork pad, sphere, and case. $1400.

44. GOOD CANNONBALL WEIGHT, probably Swiss, c. 17th century, marked simply with three notches on the handle. This 2-5/8" (6.7 cm) diameter iron ball has been mounted in wrought iron with hook branching to three straps which carry a ring below. The ball has freedom of movement within the cage. Overall height is 5" (13 cm), total weight 1440 grams (about 3.2 pounds). Condition is fine, the iron pitted and with a dark patina.

Rarely seen today, it was a reuse to create a serviceable weight for use in commerce, and forms a rather talismanic object, full of history. $1450.

45. RARE RATION WEIGHT, French, c. 19th century, the rectangular block of iron 1-1/8" (28 mm) long by 1/2" (13 mm) square, stamped on various sides "Guerre" (war), " Pain" (bread), 41.250g(rams), "1/2 Portion,:" and "E, H, M." Condition is fine, the iron dark. Interestingly, the weight is actually 36grams (about 1.3 ounces). This very rare weight apparently corresponds to the specifications of the French Ministère de la Guerre, and gives the weight for a soldier's bread ration! Evidentally 36g of flour produced 41.25g of dense, low-moisture-retention, extremely durable "biscuits de guerre" or "pain de guerre" (like English or American "hardtack"). A very similar weight, slightly larger and weighing 39.9g, is recorded by Rochesnard and Lugan (*Catalogue General des Poids*, 1955). $350.

*** * * * * ARTS AND TECHNOLOGY * * * * ***

46. CHARLES LINDBERGH BOOKENDS, probably American, c. 1930, and bearing the manufacturer's label. Standing 5-1/2" (14 cm) overall, the bookends are made of hollow bronzed metal, the design showing the Earth rising above tumultuous waves or clouds, with the single-engine "Spirit of St. Louis" aircraft rising above the Earth. It is a rather Art Deco sculpture, and in fine condition.

Lindbergh achieved the first solo non-stop flight across the Atlantic in 1927, crossing from Long Island, New York, to Paris, France.

A fine desktop reminder of that success. $275.

47. MECHANICAL PELICAN OUTFIT, Continental, c. late 18th century, stamped with the maker's anchor mark, measuring 5-3/4" (14.5 cm) overall, of steel and ebony. This fine pelican tooth extractor has an arcuate serrated bolster on curved arm, and two claws (usable interchangeably) driven simultaneously by long screw using steel knob below. Any of six different claws can be mounted on the pelican; some have straight shafts, some curving to the right, some to the left, and of somewhat different lengths. It is a comprehensive outfit for tooth extraction, in fine condition throughout.

A similar, but single-claw, pelican is illustrated by Perret (1771, *L'Art du Coutelier;* see **Tesseract** Catalogue 78 Item 39). And Colyer shows a similar double clawed one published 1803 by J.J.J. Serre, the important dentist of Vienna and Berlin. $3500.

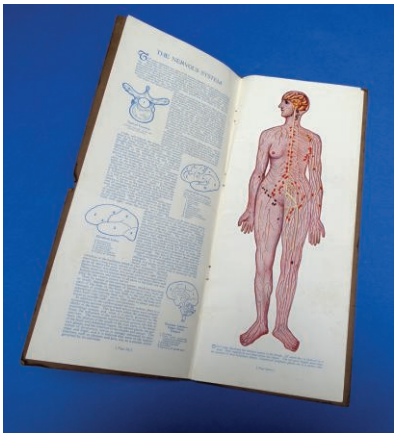
48. CRANE'S BILL (OR CROW'S BILL) FORCEPS FOR DENTAL EXTRACTION, Continental, c. late 18th century, stamped with the anchor mark of the maker. With their comfortable design, these 5-3/8" (14 cm) long steel forceps have twin points on each claw, and no spring between the handles. In fine condition, this is exactly the design recommended by Pierre Fouchard (1728, *Le Chirurgien Dentiste*), who argued against the inclusion of a spring as it diminishes the force of the hand, when a strong grip is required for removal of stubborn roots. $595.

49. FINE SILVER-CASED AMERICAN SPRING-FLEAM, c. mid-19th century, signed "Gemrig, Phila." This 2-1/8" (5.4 cm) long phlebotomy (bleeding) device has a silver body with criss-cross trim decoration, steel blade, cocking lever, and release button. The slide-off cover reveals the strong recurved spring and firing mechanism. Complete with its fitted case and green-leather-covered outer sleeve with gilt stamping, the scarificator is in very fine condition noting small edge chips to the blade.

The Gemrig family of surgical instrument makers was active in Philadelphia c. 1840 - 1900, working with the major surgeons of the day, and fulfilling government contracts for manufactures during the Civil War. We note a fine Gemrig set acquired by the prominent Joseph Pancoast (**Tesseract** Catalogug 34 Item 69). $750.

50. SIMPSON'S STRAIGHT HYSTEROTOME - METROTOME, French, c. third quarter 19th century, signed "Gasselin." This long straight surgical instrument is made of iron with eight-sided checkered ebony handle, and measures 16-1/4" (41 cm) overall. The smooth shaft tapers down to a point, and conceals a sharp blade which exits by a controlled amount (up to 1-11/16"or 44 mm) activated by a large thumb grip and limited by a set screw. Condition is fine, the metal with a fine dark patina.

This is an example of a single-bladed "bistouri caché" or "hidden knife" designed for incising the interior of the cervical canal. Similar instruments have served as lithotomes and to treat urethral strictures (see Gaujot & Spillman, *Arsenal de la Chirurgie Contemporaine,* 1872). The device was invented in the 1840's by Prof. Simpson of Edinburgh, and here manufactured by Gasselin in Paris. $750.



51. "PORTFOLIO OF ANATOMICAL MANIKINS," American, 1929, by Dr. David H. Keller. This 28-page 6-1/4" x 14-1/2" (16 x 37 cm) oblong booklet has card covers, and presents many plates of male and female anatomy, lithographed in red and blue, and with extensive semi-technical text designed for the intelligent public. It is complete, in good condition, noting various folds. $98.

52. ANATOMICAL MAN IN MINIATURE, probably German, c. 19th century, the 11-3/4" (30 cm) tall plaster model is presented in its 10-1/4" x 15" (26 x 38 cm) blackened wood case under glass, numbered "Taf(el) I." The realistic form displays the skeletal musculature in three dimensions, hand-painted white, red, and blue for contrast between elements, and applied with dozens of tiny printed paper labels of single letters as identifications. Condition is very fine noting several hairline cracks.

A most unusual, aesthetic presentation of human anatomy, reminiscent of the full-figure images in early anatomy books. $3950.

RITTENHOUSE JOURNALS AND TESSERACT CATALOGUES

53. RITTENHOUSE, JOURNAL OF THE AMERICAN SCIENTIFIC INSTRUMENT ENTERPRISE, 1987-2009, the complete 23-year run of volumes 1 through 23 (70 issues total). A FEW FULL SETS STILL AVAILABLE. $900.

54. SCIENCE AND EARLY JAMESTOWN, 2007, a RITTENHOUSE 80-page special with in-depth studies of scientific instruments and activities in this first English settlement in the New World (published on Jamestown's 400th anniversary). $30.

55. SICU2 CONFERENCE PAPERS, 2008, a RITTENHOUSE special volume consisting of two 112-page issues, edited by S. Turner, with authors Nasser, Raposo, Mills, Cocquyt, Atzema, Buskes, Andersson, Kwan, Winkler, Granato, Kremer, and Brenni. Subjects cover a wide range, dealing with both research and teaching using university historic scientific instrument collections. $60.

56. TESSERACT CATALOGUES, back issues still available: -,-,C,D,E,F,-,H,9,10,11,12,13, 14,15,16,17,18,19,20,21,22,23,24,25,-,-,-,29,30,31,32,33,-,35,36,37,38,-,40,41,42,43, 44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,62,63,64,65,66,67,68,69,70, 71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,91,92,93,94,95,96,97, 98,99,100,101,102,103,104,105,106,107,108. $6.ea.

* * * * * * * * * * * * * * * * * * * *

The most recent catalogues may be downloaded, e.g. www.etesseract.com/C108.pdf

* * * * * * * * * * * * * * * * * * * *

eTesseract for on-line sales of other items...

Our primary business continues to be carried out through our printed catalogues, mailed out several times per year. But our **eTesseract** web site offers us the opportunity to list additional items, including recent acquisitions, listings still available from back catalogues, less expensive items, reference books, etc. A number of items are presently on offer at **www.etesseract.com**, all fully illustrated, described, and priced.

* * * * * * * * * * * * * * * * * * * *

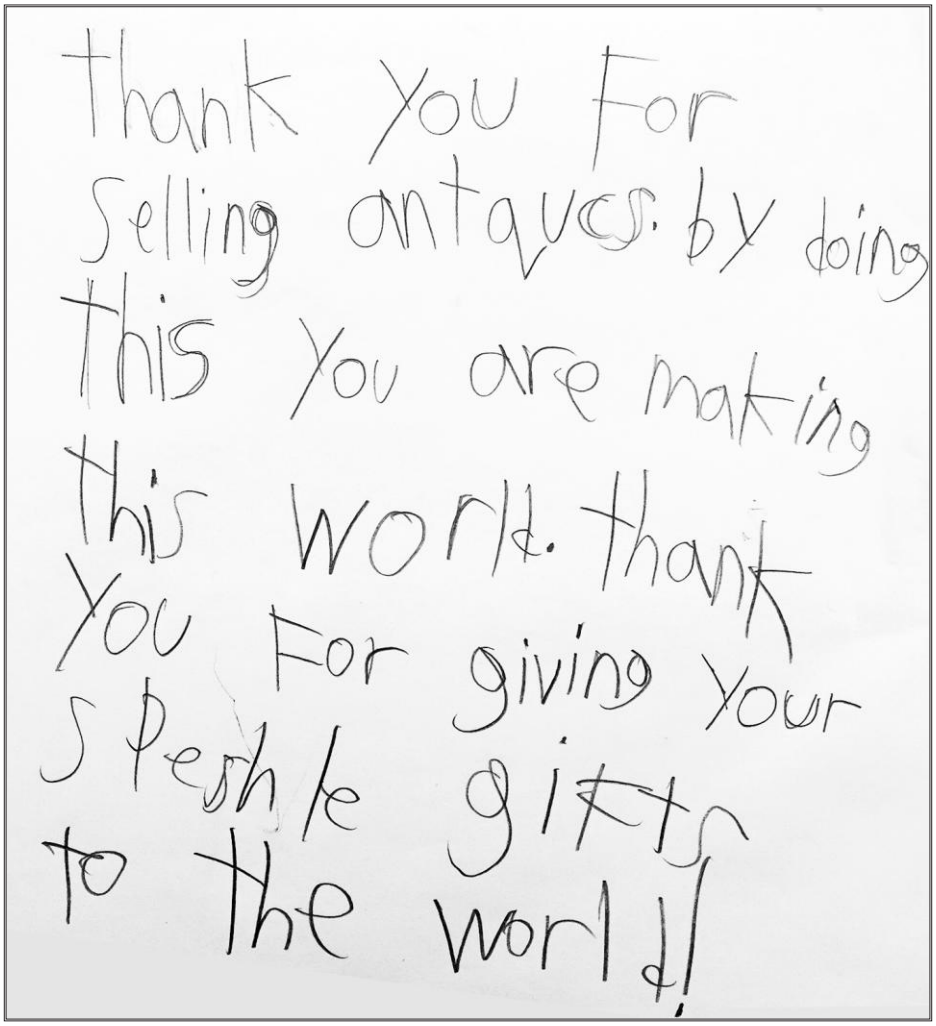
RITTENHOUSE, THE JOURNAL OF THE AMERICAN SCIENTIFIC INSTRUMENT ENTERPRISE, completed *twenty-three* years of print publication. This journal, which we co-published, was dedicated to articles about the history of instruments made, sold, and/or used in the Americas. All 70 issues, featuring many dozens of articles on all types of scientific instruments, are still available, either singly or by volume. The journal continued for several years as the online publication eRittenhouse.

* * * * * * * * * * * * * * * * * * * *

TESSERACT CATALOGUE SUBSCRIPTIONS -- $35 for the next four issues.

* * * * * * * * * * * * * * * * * * * *

We would be pleased to send complimentary copies of the current catalogue to your interested friends.



A RECENT UNSOLICITED TESTIMONIAL
FROM A YOUNG COLLECTOR