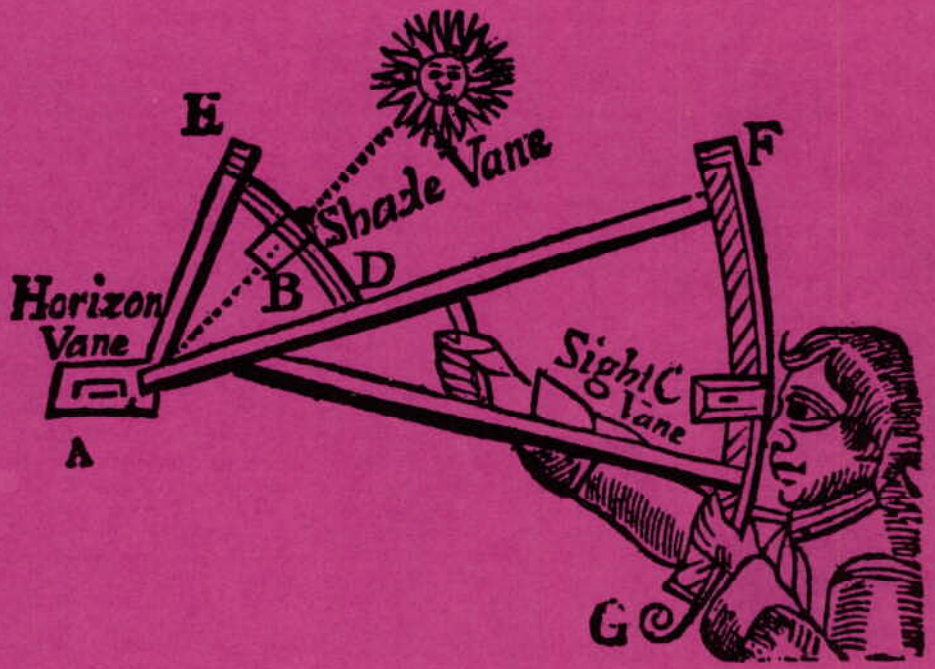
Fall 1977

Two Dollars

Historical Technology

Catalog 115



HISTORICAL TECHNOLOGY, INC. SAUL MOSKOWITZ, PRESIDENT
6 MUGFORD STREET MARBLEHEAD, MASSACHUSETTS 01945
(617) 631-2275

87. Cosimo Bartoli, "DEL MODO DI MISURARE LE DISTANTIE, le superficie, i corpi, le piante, le prouincie, le prospettiue, & tutte le altre cose terrene, che possono occurrere a gli huomini, secondo le vere regole d'Euclid & de gli altri piu Iodati scrittori", 2nd ed, Per Francesco Franceschi Sanese, Venice, 1589. Early vellum binding 9" h, 6 3/4" w; 148 leaves including fine woodcut title and portrait. 2 foldout plates, and over 100 woodcut diagrams in text. Fine overall condition with very minor worming in margin. This major Italian book on surveying (1st ed in 1564) is of particular interest because it illustrates the major surveying instruments of the period (the square with pivoted alidade, classical simple quadrant, and astrolabe) with many diagrams showing their use. Editions of this popular work were published into the 17th century. (In Italian) (postpaid) $ 225

88. William Davis, "A TREATISE ON LAND SURVEYING, BY THE CHAIN, CROSS & OFFSET STAFFS,In Four Parts. Also A Description of the Plan and Map Meters. To which is Added A SUPPLEMENT, containing METHODS BY THE PLANE TABLE & THEODOLITE, and Directions, For Conducting Subterraneous Surveys.", 5th ed, Anne Davis, London, 1813. Original board covers with paper backstrip (rough condition) 9" h, 5 3/4" w; pgs. xix, (1), 393, (1), 9 engraved plates (many foldout), the frontis portrait, and the foldout table. Pages uncut, contents in fine condition. (postpaid) $ 40

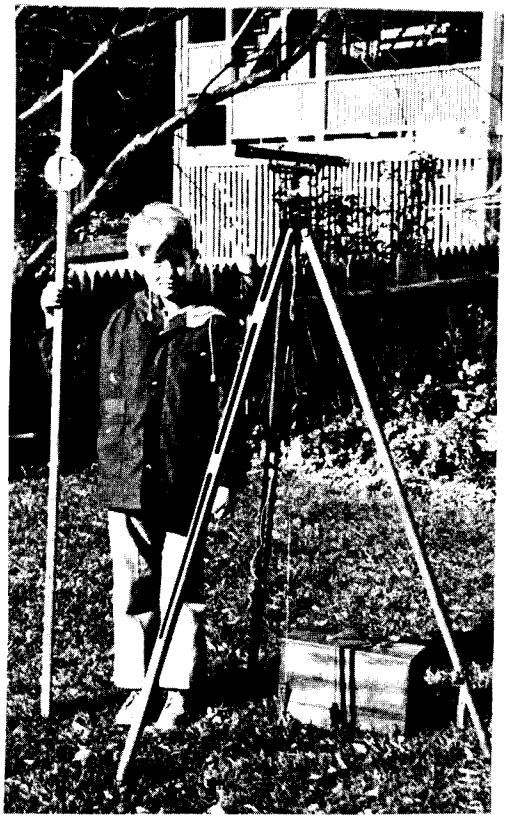
89. William Leybourn, "THE COMPLEAT SURVEYOR: Or, the WHOLE ART of SURVEYING OF LAND, BY A NEW INSTRUMENT lately invented; As also by the Plain Table, Circumferentor, the Theodolite as now improv'd, or by the Chain only. . . . Every Operation both Geometrical & Arithmetical being examine'd, AND AN Appendix Added to the WHOLE, Consisting of Practical Observations in Land Surveying, By SAMUEL CUNN.", 5th ed, Ballard, Ward, & Woodward, London, 1722. Original gold tooled leather binding (repaired at hinges) 12" h, 8" w; pgs. frontis portrait of Leybourn (somewhat discolored), title in red and black, (10), 1-45, (46,7 not included in numbering), 48-100, 166, 1-65, 62, 63, 68-155, (1), 14 foldout engraved plates. Fine condition, except as noted, with some page darkening (probably due to composition of paper); ex library copy. Leybourn (1626-1716) was a noted teacher and writer on astronomy, navigation, mathematics, surveying (he was one of the surveyors of London after the Great Fire of 1666), and dialling. This book was first published in 1653 with editions in 1657, 1674, 1679, and 1722 (this one). There were significant changes from edition to edition; only 5 engraved plates in the 3rd ed, 6 in the 4th, and 14 in this one. Samuel Cunn's Appendix of 51 pages appears here only. This is one of the major works on surveying in the English language. (postpaid) $ 265

90. Josepho Liesganig (Societatis Jesu), "DIMENSIO GRADUUM MERIDIANI VIENNENSIS ET HUNGARICI", Augustinum Bernardi, Vienna, 1770. Original board covers with modern leather rebacking 9 3/4" h, 8" w; pgs. (20), 262, (2), with 10 large folding engraved plates, 4 of the precision surveying and astronomical instruments used for this work. Very fine overall condition except for some uneven foxing. This detailed effort by the Jesuits represents the first major attempt to establish a prime geodetic reference across Central Europe, similar to the work of General Roy in England (but predating him by 17 years) and that of the Cassinis in France. The text describes the instruments and their use and presents the measured and reduced data of the triangulations together with the resulting maps. Daumas points out that Schreibelmayer and Ramspeck, the two leading instrument makers in Vienna, constructed quadrants in 1772 for Leisganig probably for an extension of the work described in this book. (In Latin) (postpaid) $ 85

Very Early Edition of a Standard Work

91. John Love, "GEODAESIA; OR, THE ART OF SURVEYING AND Measuring of Land Made EASIE. . . .AS ALSO How to lay our New Lands in America or elsewhere:", 3rd ed with additions, W. Taylor, London, 1720. Original leather binding with early repairs 8" h, 4 3/4" w; pgs. (18), 196, (16), 17-19, (36), 8, with many text woodcut illustrations and diagrams. Fine overall condition with some stains. The 1st edition was published in 1688 just after Love had returned from surveying in America. Taylor 1 lists a (second) edition of 1715 and suggests that Love had died before this date. The popularity of the work is attested to by the number of editions issued throughout the 18th century in England and two at the end of the century in the United States. (postpaid) $ 165

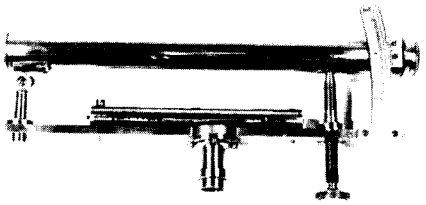
92. John Love, "GEODESIA: OR THE ART of SURVEYING AND MEASURING LAND made Easy. . . . A more Facile and Sure Way of Surveying by the CHAIN than has hitherto been taught. AS ALSO To lay out New Lands in AMERICA, or elsewhere: . . .", 9th ed, corrected and improved by Samuel Clark, J. Rivington, G. Keith, and Robinson & Roberts, London, 1771. Original leather binding (slightly weak at hinges) 8 1/2" h, 5 1/4" w; pgs. (18), 196, (16), 4, (36), 7, (1), many text woodcut illustrations and diagrams. Very fine plus overall condition. The contents of this copy are virtually identical to those of the 3rd edition which is 51 years earlier. It is not unlikely that there were no significant changes throughout the life of the book (1688 to at least 1796).thus showing that on one level, the ordinary surveyor remained in a technological rut for an entire century. (postpaid) $ 90



260. YANKEE SURVEYOR'S OUTFIT - American, the theodolite marked "YANKEE No 484/FROST & ADAMS Co./BOSTON, MASS./PAT. DEC. 17-12". The brass theodolite in black lacquer and bright lacquered brass finish is 7 1/2" h incl its 4-screw leveling base, has a rack focussing telescope 9 3/4" long with a 3 3/4" bubble level, vertical readout to 1 deg on a 1 1/2" rad sector scale of ± 70 deg length, horizontal readout by vernier to 5 arcmin on silvered scale of 3 1/2" d. Original mahogany case 14" x 6" c 9" h contains a sunshade, plumb bob, and post mounting screw as well. Original wooden tripod with 57" legs. Original leveling staff with 3 3/4" target is 66 1/2" long and extends for readings to 10 feet. Theodolite in very fine condition, all wooden pieces sound and in generally very good to fine appearance. Smart notes that on June 1, 1931 the Makepease Co. of Boston bought out the Frost & Adams Co., an old established Boston firm which was founded in 1835 and incorporated in 1895. This relatively simple outfit was probably adequate for much building contractor's and farm improvement work.

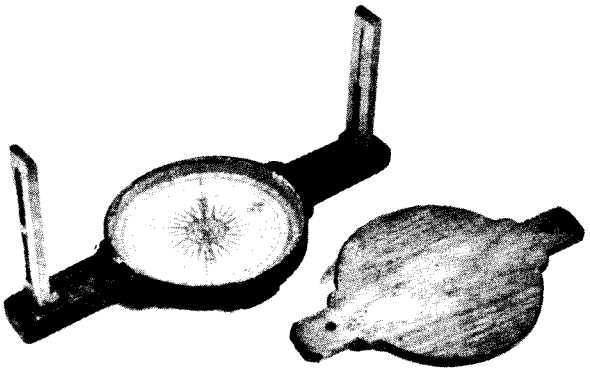
(2 UP packages, 20 & 15 lbs) $ 245

261. SCOTTISH CLINOMETER - between 1860-82, signed "GARDNER & Co./53 BUCHANAN ST./GLASGOW./ REGISTERED/No. 2602 DEC 28TH. 1850", and marked no. "207". Bright brass with some original lacquer finish, 12 1/2" long, 6" h, 6 1/4" bubble level and silvered Rise-Fall scale 3/4" w x 4" h. Telescope tube is 1 1/8" d with draw tube eyepiece focus. Original dovetailed pine case 13" long, 6 1/2" w, 2 3/4" h with trade label inside cover of Gardner & Co located at 53, Buchanan Street. Case in very good, instrument in very fine condition.



Although the trade label states "Established A. D. 1765", John Gardner's name first appears in the Glasgow Directory as a mathematical instrument maker in 1787. Gardner & Co. was at 44 Glassford St. 1837-38, 21 Buchanan St. 1839-59, 53 Buchanan St. 1860-82, and at 53 St. Vincent St. in 1883.

(9 lbs UP) $ 245

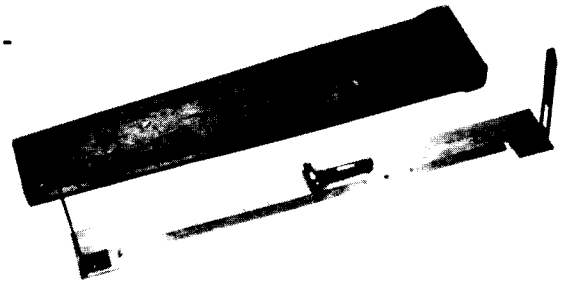


262. 18th CENTURY WOODEN SURVEYOR'S COMPASS - American, probably 3rd qtr 18th c, signed "Wm H(AR)T FECIT/PORTSMOUTH" on one arm. Walnut frame 11 3/8" long, central compass 5 3/8" d with 4 7/8" d engraved compass card (east to the right) and 4 1/2" needle. Maple sight vanes 4 1/2" h for overall ht of 6 1/4". Pine cover plate of early 19th c origin. Generally very fine condition for a wooden instrument of this date, the major imperfection being two holes drilled in the arms (one through the letters "AR" of the signature) for pegs of the later cover plate. No case or tripod.

Little is known about William Hart (1734-1812) of Portsmouth, New Hampshire except that he was one of the town's earliest, if not first, mathematical instrument makers and is buried in the old North Cemetery. Smart lists two other instruments by him, a wooden semi-circumferenter dated 1753 and an undated brass and wood surveyor's compass. A Davis quadrant by him predating the Revolution is also known.

(6 lbs UP) $ 545

263. LEATHER CASED SIGHT VANE ALIDADE - English, 4th qtr 19th c, signed "C. F. CASELLA & CO. LD./LONDON" and "ROYAL GEOGRAPHICAL SOCIETY". Brass rule 20" long, 2 3/8" w, with crossed bubble levels, 16" divided rule on one edge, 6" long engraved scale with diagonal divisions on face, and 5 1/4" h fold-down black oxidized sight vanes. Original lacquer finish. Leather case 20 1/4" long x 4" w. Case in very good and alidade in fine condition.



Casella & Co, founded by Louis Casella in 1848, produced this instrument for use by the Royal Geographical Society of London. Its engraved serial and RGS inventory numbers should permit one to determine on which expedition it was taken to some remote corner of the world; possibly in forbidden Tibet, or in search of the source of the Nile. This is a fine surveying item which may have been of great historical importance.

(8 lbs, UP, PS) $ 125

264. CYLINDRICAL CROSS ON JACOB'S STAFF - English, early 19th c, unsigned. Brass cylinder 2 3/4" d, 2 1/2" h, with sight slits cut every 90 deg, screwed on to brass end of 5 ft long Jacob's staff. Overall fine condition. The Jacob's staff was, at one time, the most common way of supporting a surveying instrument. However, its very simplicity, and the fact that many may have just been simple poles pointed at one end, has led to very few being kept and now any instrument-maker-produced examples are virtually unknown. The design of the instrument here predates William Jones' improved version of c. 1800 which provided azimuth readout through rotation of the cylinder with the 90 deg slits with respect to a fixed base. This model was intended for the direct layout of rectangular subdivisions within a larger surveyed plot.

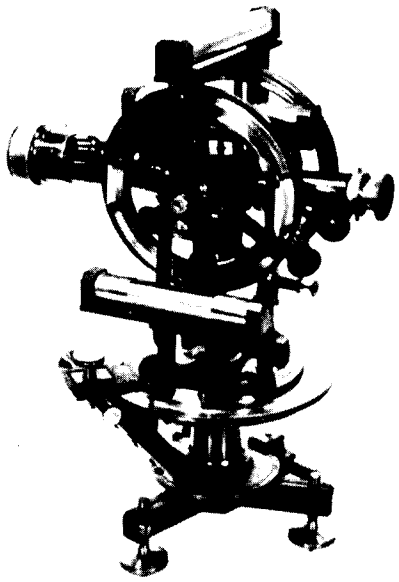
(14 lbs UP) $ 210

265. IMPROVED SURVEYOR'S CROSS FOR THE RUSSIAN MARKET - English or French, late 19th c, unsigned. All brass in blue-black oxidized finish with bright lacquered brass fittings, silvered compass and readout scales, black finish to center region of the 3 1/2" d compass, 8" h and lower sighting cylinder 4" d. Sighting slits 90 deg apart on upper rotating cylinder and 190 deg on lower fixed cylinder. Azimuth readout by vernier to 2 arcmin. Original walnut case 4 3/4" sq x 8 3/4". Case in very good, instrument in almost mint condition.

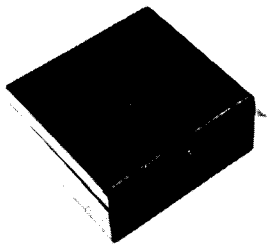
The original version of this instrument was developed by William Jones of W. & S Jones about 1800. It too had a beveled readout scale which was soon replaced by one directly on the cylindrical body, reducing the cost of fabrication. This is the only late 19th c example of this form of instrument we have had which returns to the beveled scale. The Cyrillic lettering on the compass dial suggests that it was intedded for use in Russia.

(8 lbs, UP, PS) $ 195

266. HIGH QUALITY FRENCH SURVEYOR'S TRANSIT - probably late 19th c, signed "H. Morin 11 Rue Dulong Paris". Brass construction in black oxidized finish, some fittings lacquered bright brass, nickel-silver (?) bubble tubes, inset silver scales, 14 1/2" h incl 3-screw leveling base. Opposing 20 arcsec verniers on 5 1/2" d azimuth and 4 1/2" d elevation circles, each with its own swingaway magnifier arm (2 magnifiers for 4 arms). North alignment compass in sighting tube mounted beneath the azimuth table. Telescope 10" long transits over eyepiece end. Removeable bubble levels for initial transverse and longitudinal alignment. Transit telescope and its vertical circle reverses in trunions. The two original stowage cases are 7" sq x 12" and 9" x 10 3/4" x 12 3/4". Cases sound but show field usage, the transit is in extremely fine condition with minor fading of the oxidized finish, one broken readout diffuser bracket and a broken off and missing locking screw. Although we have not been able to find any reference to the maker of this precision instrument, its function is rather clear. It would have been used for setting up primary bench marks for critical surveys over great distances. It can perform both triangulation measurements and celestial star transit sightings.



(50 lbs UP) $ 695

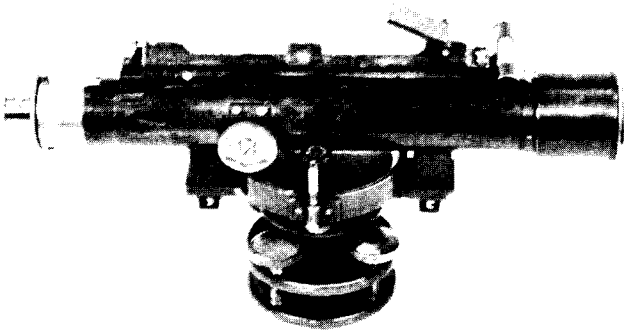


267. SMALL AND ELEGANT SURVEYOR'S CROSS - English, c. 1825, signed "W. & T. Gilbert London". Bright brass with original lacquer finish, silvered dial compass 3" d with 2" needle, four 2" h slide-on sight vanes 4 1/4" apart, mounting socket on bottom (locking screw lacking) resulting in 3 1/4" overall height. Original hand dovetailed mahogany case 4 5/8" sq x 2 1/8" h. Case is fine except for age crack and some lightly scribed circles on its lid, the instrument is extremely fine, almost excellent, except for some nicks in the edge of one sight vane.

The surveyor's cross in its simplest form, 2 pairs of sights at right angles, was one of the earliest forms of surveying instruments. Its use, however, was limited to laying out square cornered plots and not much else. The addition of a compass permits its use for general measurement (against a local magnetic reference of course). William Jones went further (with his improved cylindrical cross) designing an instrument capable of accurate relative bearing as well. The 3rd William Gilbert's firm became Gilbert & Son in 1810, and according to Taylor 2, W. & T Gilbert from 1820 to 1842. Thus this instrument is, in the large sense, an anachronism. Its appeal even when it was made, as well as today, must have been aesthetic rather than practical. It is as elegant a little item as one could hope to find.

(6 lbs UP) $ 425

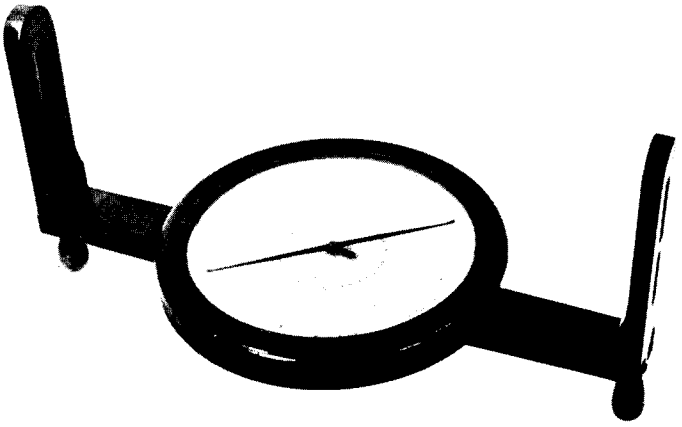
MASSACHUSETTS RESIDENTS: Please remember to add 5% sales tax to the purchase price of your order.



268. HIGH QUALITY DUMPY LEVEL WITH COMPASS - English, mid 19th c, signed "Troughton & Simms, London". All brass in green-black oxidized finish, 8" overall ht including 4-screw leveling base and removeable inclined mirror for rear viewing of leveling bubble, telescope 11" long extending by rack and pinion eyepiece focussing to 13", 3 3/4" d compass mounted below telescope. Main leveling bubble 6 1/2" long and cross bubble 2 1/4" long. Original dovetailed mahogany case 5" w, 4 3/4" h, 16 1/2" long. Level in almost fine condition with minor fading and wear of oxidized finish, rotating dust cover on lens hood a later replacement, case is sound with very good surfaces.

This instrument appears to follow Troughton's "Improved Level" in design sequence. It is functionally identical but has design changes which made it easier to manufacture and, even more importantly, easier to adjust in the field. Troughton & Simms was established in 1826 when William Simms was taken in as a partner so that the firm could continue, Edward Troughton having no family and his brothers having died years earlier.

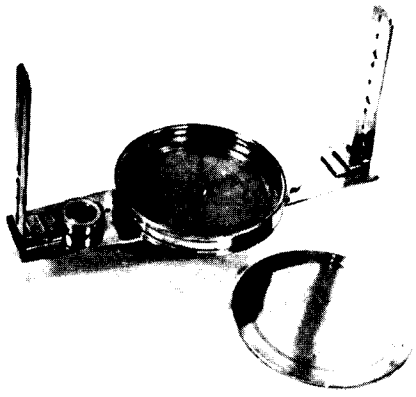
(16 lbs UP) $ 270



269. VERY LARGE WOODEN SURVEYOR'S COMPASS - American, c. 1800, unsigned. Deeply varnished pine construction, 11" d compass with 8" needle and hand drawn (in ink) compass face and readout scale, 20" long base, 7 1/2" h screw-on sight vanes with wooden attachment screws, and fitted with original primitive needle lifter. Original 8-sided wooden stowage case 21 1/4" x 12" x 3 1/2" h. Case in fine condition except for some paint drips on its cover, compass is very fine with age crack in outside rim of compass.

Bedini writes, *"An interesting fact concerning the instruments produced by 18th-century craftsmen is the relatively high incidence of instruments constructed of wood instead of brass or other metals. . . . Most common of these mathematical instruments is the surveying compass, possibly the instrument most needed and produced in America. . . . a substantial number of these were being produced simultaneously by skilled craftsmen who at the same time were making similar instruments in brass. . . . Finally, from a study of the surviving examples of wooden surveying compasses comes the interesting and perhaps significant fact that all known makers were from New England."* The unusually large example here was found a number of years ago in Wiscaset, Maine and there is no reason to doubt that it was in use in that region. The original hand drawn compass card and details of construction lead us to believe that, contrary to Bedini's implications, this instrument was not the product of a regular instrument maker (we have found others for which we hold the same opinion) but rather by a local craftsman working to fill a specific need or request. It may well be that he never made another like it.

(15 lbs UP) $ 625

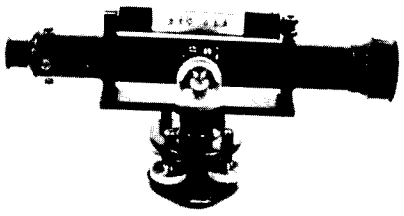


270. VERNIER COMPASS OF RARE CONSTRUCTION - American, 3rd qtr 19th c, unsigned. Bright brass, base 13 1/2" long with screw-on vanes 6 3/4" h, circular bubble level (fluid now lacking), and readout scale for vernier. Compass 6" d with silvered face and edge scale divided by 1/2 degrees, 5" needle, press-on cover. Generally fine condition although with wear from use, solder repairs to the compass cover, and the knob for the needle lifter is a modern restoration.

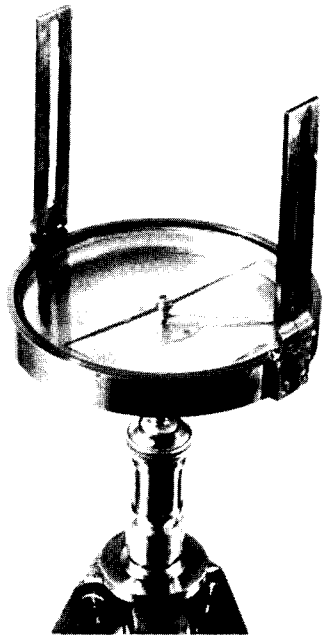
Although unsigned, it is our opinion that this is an early example of the work of Arnold & Co. of Chicago (founded 1863). It is similar in design to the signed instrument listed as Item 114 in our Catalog 103. There are a number of features which suggest that it could be one of the earlier works of a firm far removed from the industrialized north-east. The vanes are built of pieces of brass plate riveted together, the central portion of the dial is scribed rather than engraved as are the vernier scales, and the knobs of the vane and vernier rotation locking screws appear to have been turned on a primitive lathe.

(10 lbs UP) $ 290

271. WELL MADE BUILDER'S LEVEL - English, c. 1900, unsigned, of a design made by Stanley and possibly others. Brass in black lacquered finish 10" long by 5 1/4" h including 4-screw leveling base. Rack and pinion objective lens focussing. 4" level bubble adjusts with respect to the telescope, the telescope mount is rigid. Original mahogany case 11" x 6 1/2" x 3 1/4" h. Case in very good (crack in cover) and level in almost fine condition. There are post WWII repair labels in the cover of the case but design considerations (i. e. 4-screw base) date the instrument to the turn of the century.



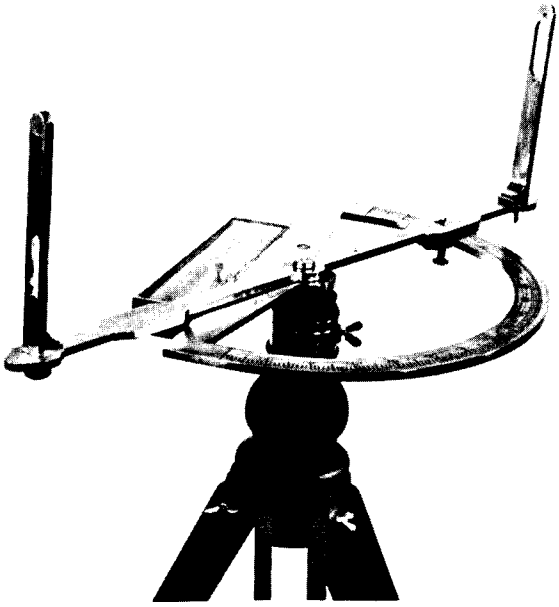
(10 lbs, UP, PS) $ 125



272. SURVEYOR'S POCKET VERNIER COMPASS - American, 4th qtr 19th c, signed "W. & L. E. Gurley, Troy, N. Y.". All brass, still retaining original lacquer finish, compass 5 3/4" d, 4 1/2" needle, folding sight vanes 4 1/2" h. Silvered dial, with inset bubble levels 1 1/4" long, and outer ring (divided by half degrees). Outside edge of compass cylinder engraved with scale and 1 arcmin vernier for setting in the magnetic variation. Universal ball joint. All original except for tripod coupling which is a modern replacement. Original mahogany case 8" w, 2" h, 6 1/2" deep. Original tripod with mahogany legs 38" long. All in very fine condition. This is an example of the fine instruments produced by probably America's best known maker of surveying instruments.

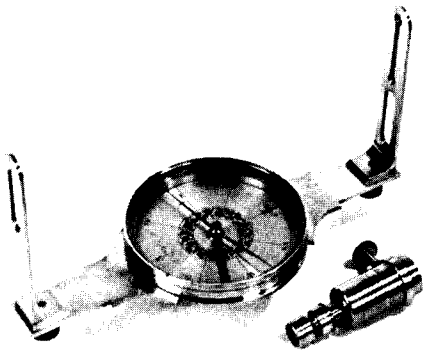
(15 lbs UP) $ 245

273. VERY LARGE CASED BRASS SEMICIRCUMFERENTOR ON TRIPOD - American, 18th or early 19th c, unsigned. Bright lacquered brass, the pivoted arm 25" long with 7 3/8" screw-on sight vanes and ivory indicator plate, the divided semicircle 15 3/4" d, and the box compass 2 3/8" w x 9" long with 8" needle. The center post extends 4" below the bottom of the semicircle. The scale is divided to degrees. The darkened pine tripod has 49" long legs below a 7" h head with brass clamping ring. The strongly contoured stowage case (not pictured) is 26 3/4" long, 13" w, 2 3/4" h and stands on 3 turned legs 2 1/2" h each. A turned wooden fitting for the instrument post on the bottom of the case is badly damaged. The instrument is in extremely fine display condition with the lacquer finish a modern restoration and some of the screws early but not original. The tripod is in very fine condition and although found with the instrument and in our opinion used with it at some point in time, is of later origin. A ball and socket joint which would have properly mounted the instrument on the tripod was not found and in our opinion should be considered missing. The case which clearly was made for the instrument is, in our opinion, by the maker of the tripod, and hence not original either, although of 19th c origin. It is in very fine condition except as noted.



The American semi-circumferentor should not be confused with the classical European graphometre which had a pair of fixed vanes along the diameter of the semicircle as well as the pair on the pivoted arm and when made with a compass had one with 360 degree readout rather than one of box form. The usual semi-circumferentor (see Figs. 32, 34, and 59 of Bedini) is quite a bit smaller than the one here and made with a wooden body upon which the scale was marked and within which was set the box compass. The form of the one here is virtually unknown, and in our opinion, the instrument is unique. The details of construction suggest that it was made by someone without proper metal working tools (not even a lathe) and that it was the first such made as well. The scale is crudely engraved, the degree divisions are not uniform and the zero line at one end seems to have been put in incorrectly and a correct line then marked over it. The numerals are from stamps made for use on wood. The screws seem to be either hand-cut, or part formed in crude dies and part hand-cut. Thus the instrument appears to date from the 18th c (its case and tripod from the 19th c) but it may also be a product of 18th c technology employed in the early 19th c. We can not tell.

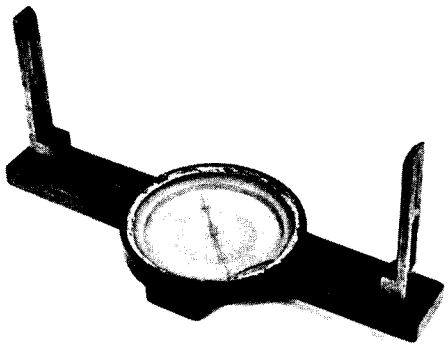
(2 UP packages, 30 lbs & 20 lbs) $ 1,295



274. SURVEYOR'S COMPASS FROM NEW YORK CITY - American, between 1820 and 34, signed "R. Patten N. York" with his very elaborate trade card inside the cover of the case giving a 180 Water St. address. Bright brass with restored lacquer finish, 4 9/16" d compass (with decoratively engraved and silvered face) on 10 3/4" long frame with screw-on 5 1/8" h sight vanes, for an overall ht of 6 3/4" (not including the original ball & socket joint). The hand dovetailed mahogany case is 5 3/4" x 11 1/4" x 2 3/4" h and is in fine condition except for some screw holes in the sides where a carrying strap was once added. The compass is in extremely fine restored condition and complete except for a post locking screw on the bottom bracket . The needle lifter screw appears to be of later origin. Interestingly, faint machining marks are found on the brass surfaces.

Richard Patten (1792-1865) first appeared in 1813 in the NYC Directory at 350 Water St.; in 1815 at 184 Water St; from 1820 to 1834 at 180 Water St; then at various addresses through 1840. In 1841 he moved to Washington, D. C., then to Baltimore in 1849. In 1860 he returned to Washington. Patten is best remembered for having teamed up with Isaac Greenwood in 1822 to try to drive Blunt out of business by charging him with plagarism. This backfired, Blunt brought suit for libel, won, and was awarded $ 750. In 1828 Blunt again brought suit against Patten and again won.

(12 lbs UP) $ 385

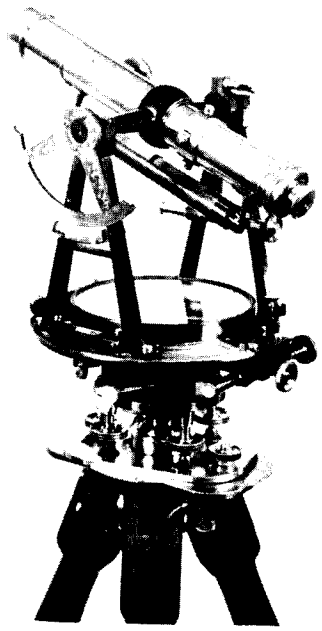


275. WAS THE "AMERICAN" WOODEN SURVEYOR'S COMPASS REALLY AN ENGLISH INVENTION? - 18th c, engraved compass card signed "MADE BY G. ADAMS IN FLEET STREET, LONDON". Mahogany body with center section 5 5/8" d, 2" w x 3/4" thk arms extending to both sides for overall length of 14 3/8", slip-in sight vanes 5 1/2" h giving overall ht of 7 1/4". The compass well with early, probably original, glass cover contains a brass ring of 4 7/8" OD divided to degrees, an engraved paper compass card of 4 1/4" d and a 4 1/8" long compass needle. The mounting bar on the bottom has its original wooden thumb screw. General fine condition noting that there is a crack in the glass along one edge, some of the original putty around the glass has chipped off, one of the two sighting vanes appears to be old but not original, and there is an age crack in the wooden frame.

The wooden surveyor's compass has often been considered a uniquely American instrument. Yet here is one signed by George Adams of London; the younger instrument maker of this name having died in 1795 and his father in 1772. In our opinion, we do not believe that either of these two made the complete instrument. Rather that the compass card, needle, glass, and (highly unusual) graduated brass ring came from one of their instruments, possibly a globe, which had been damaged beyond repair and converted in America to its present form. It is difficult to equate the sophisticated work anship of the interior of the compass with the remainder of the item. Thus we answer our original question with a "No" pending the finding of further evidence on the matter.

(6 lbs UP) $ 495

276. UNUSUALLY MOUNTED AMERICAN TRANSIT ON TRIPOD - c. 1900, signed "F. C. Knight & Co./692/Makers Phild". Brass construction, in original color combination of black oxidized trunions and some other parts and lacquered bright brass, standing 10 5/8" h with 10 3/4" telescope and 6" bubble level, 5 1/4" d compass on 7 3/4" d base plate, 6 1/4" d silver azimuth scale with opposing 1 arcmin verniers. Original tripod with 55" long mahogany legs and brass head to which the transit is attached by 2 bolts rather than a central threaded collar (the design typical of all other American transits we have seen). Original wooden stowage case 12 1/2" x 9 1/2" x 12 1/2" h. The case is sound although with rough exterior, the tripod is fine although the legs show the abuse of many years use in the field, while the transit is in extremely fine display condition, all the bright brass parts of the transit and tripod having been cleaned, polished and relacquered so that they have the same appearance as when new.



Smart lists Frank Campion Knight (1856-1923) of Philadelphia noting that he advertised that he succeeded Edmund Draper in 1882 and that he was in the Philadelphia directories from 1880-1895 under his own name and in the 1917 and 1918 directories as "& Co." The so-called "floating mount" was a design first used by the English firm of Troughton & Simms in the 1830's. Its purpose was to allow the final positioning of the plumb-bob without moving the tripod. It seems not to have proven popular and is rarely found on either side of the Atlantic.

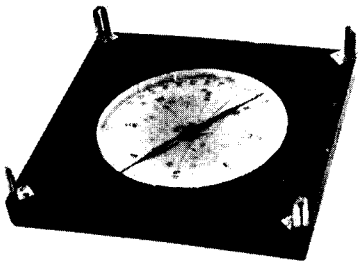
(2 UP packages, 35 lbs & 16 lbs) $ 475

277. A VERY SMALL THEODOLITE - French, 4th qtr 19th c, unsigned, with the trade label of "Mon. RICHER/GUYARD & CANARY Aîné succrs./15, Rue de la Cérisaie, près la Bastille, PARIS" within the lid of the case. Brass construction with silvered scales, much in original black lacquer finish, various screws and knobs in bright lacquered brass, standing 7 1/4" h on 3 leg leveling base. Horizontal scale 4" d with dual vernier readouts to 100 parts of 1 metric degree (400 to the full circle) and tangent screw fine motion. Vertical sector scale with vernier reading to 50 parts of 1 metric degree. The telescope is 8" long and without bubble level although there is a single traverse one located on the azimuth table between trunnions. The 4 5/8" long tube below the azimuth table contains an optical readout north orienting compass needle. Original wooden case with machine cut joints 9 1/2" x 7" x 7 3/4" h in fine condition. The theodolite is very fine plus although no attempt has been made to determine how well it now works. The basic design of this instrument is quite similar to that of the Morin surveyor's transit offered by us but we do not have sufficient information to identify the actual maker.

(18 lbs UP) $ 395

278. PLANE TABLE BOX COMPASS - c. 1900, unsigned or marked. Boxwood body 6" x 1 3/4" x 9/16" h fitted with glass window, 4 3/8" long compass needle, and needle lifter. Threaded holes for attaching to surveyor's plane table. Fine to very fine overall condition.

(2 lbs, UP, PS) $ 15



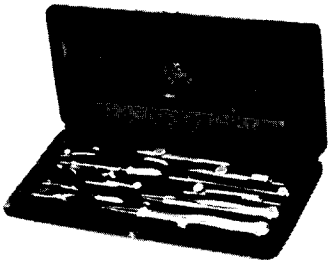
279. UNUSUAL WOODEN SURVEYOR'S CROSS - English, possibly 18th c, unsigned. Mahogany body 9" sq x 1" h, 6 1/2" d inset compass with pen and ink drawn compass card, 5 7/8" needle. Four 1 1/4" h lacquered brass sight vanes in the corners. Signs of a mounting bar on the underside (now lacking but easily restored if so desired). Generally fine condition except for age warping which has cracked the original cover glass.

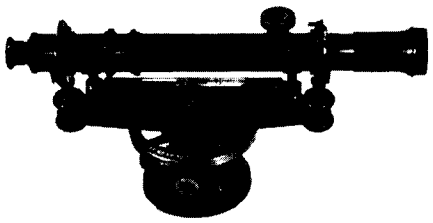
The simple surveyor's cross (pairs of sights at right angles) was already in use in the 16th century for laying out rectangular plots. The addition of the compass (as with this example) greatly extends its utility because it can then be used for taking relative bearings as well, and even mapping against the magnetic azimuth reference. This example could have been made either by a local surveyor or under his direction. It does not seem to follow a standard design.

(6 lbs, UP, PS) $ 170

280. LEATHER CASED DRAWING INSTRUMENTS - Danish, late 19th c (?), signed "CORN. KNUDSEN. KJOBENHAVN". Black leather case 4" x 9" x 1" thk containing 12 pieces in brass, steel, and ivory including a 6 1/2" long brass diagonal scale rule, the divisions of which are neither in English nor Metric units. The set is complete except for the little case for pencil leads and extra points. The case is sound although showing wear, the instruments in very fine condition.

(5 lbs, UP, PS) $ 90



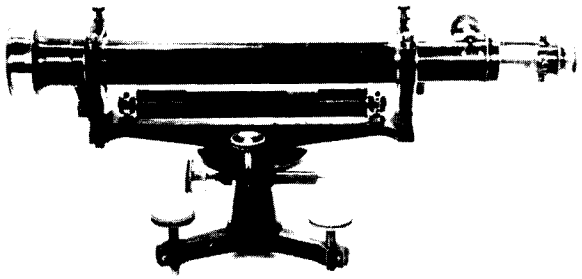


281. ARCHITECT'S Y LEVEL - American, early 20th c (1912), signed "KEUFFEL & ESSER CO./NEW YORK/25593". Brass in black oxidized finish, telescope 11" long with 1" extension of objective by rack and pinion focusing. 5" bubble level, 3" d silvered azimuth circle divided to degrees with vernier readout to 5 minutes. Triangular base plate for plane table use. Original field case 12 1/4" x 5 1/4" x 8 1/2" h. Case in fair, level in fine condition with minor wear to oxidized finish.

These small levels were also known as "Builders Y Levels" and were intended for use in the construction of buildings rather than land surveying. The example here was designated model no. 5110 and appears to have been a standard K & E instrument from the late 19th century onward.

(15 lbs, UP, PS) $ 160

282. SPANISH EGAULT'S LEVEL - probably toward the latter 19th c, signed "VDA DE AMADO LAGUNA ING./No. 1440/ ZARAGOZA". Brass instrument with purple-black oxidized finish on most surfaces, bright lacquered screws and adjustment knobs, 18 1/2" long (max extension) 7 1/2" h including 3-screw leveling base. Objective lens 1 1/2" d, rack and pinion focus of eyepiece, 6 3/4" bubble level, tangent screw on azimuth rotation. Telescope reverses in wyes. Original dovetailed mahogany case 17" x 9 1/2" x 7 1/2" h. Case in generally sound condition although it has seen field use, instrument in fine to very fine condition with minor fading/rubbing of oxidized finish.

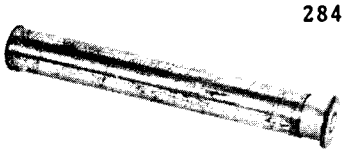


This instrument of French design is an unusual combination of wye and Dumpy levels. The bubble level is attached to the frame (can be adjusted) while the telescope by itself can be reversed in the wyes, one of which is screw adjustable. The 3-screw base permits its use on a plane table with a screw hole for tripod mounting. This form of instrument is virtually unknown in our country.

(25 lbs UP) $ 270

283. SMALLISH SURVEYOR'S COMPASS WITH FOLDING VANES - (Not Illustrated) - American or English, early 19th c, unsigned. Bright lacquered brass with silvered compass 4" d on 8 3/4" long base with 4 1/4" h fold-down sight vanes, 3 1/2" compass needle. The compass housing is made of formed sheet brass apparently riveted together rather than from a machined casting. The field stowage case was hand carved from a pine block for the bottom and an oak block for the top and is held together with leather thongs (a modern restoration). It measures 4 5/8" w, 10 3/4" long, 1 7/8" h, and is in fine condition. The compass is very fine although one vane appears to have been slightly deformed and then repaired. The case is typically American but the compass presents problems of identification which we have not been able to solve.

(7 lbs UP) $ 270



284. SOLAR ECLIPSE TELESCOPE - English, 19th c, unsigned. Brass tube 3/4" d x 5" long (unextended) with single draw tube eyepiece. Clear aperture 1/2" d with Galilean eyepiece giving approx 2x power. Very dark filter glass mounted in eyepiece to reduce the intensity of the sun's rays. Generally fine condition with some spotting of original lacquer finish. An interesting little item, probably made just prior to a solar eclipse. (Two examples available.)

(2 lbs, UP, PS) $ 40