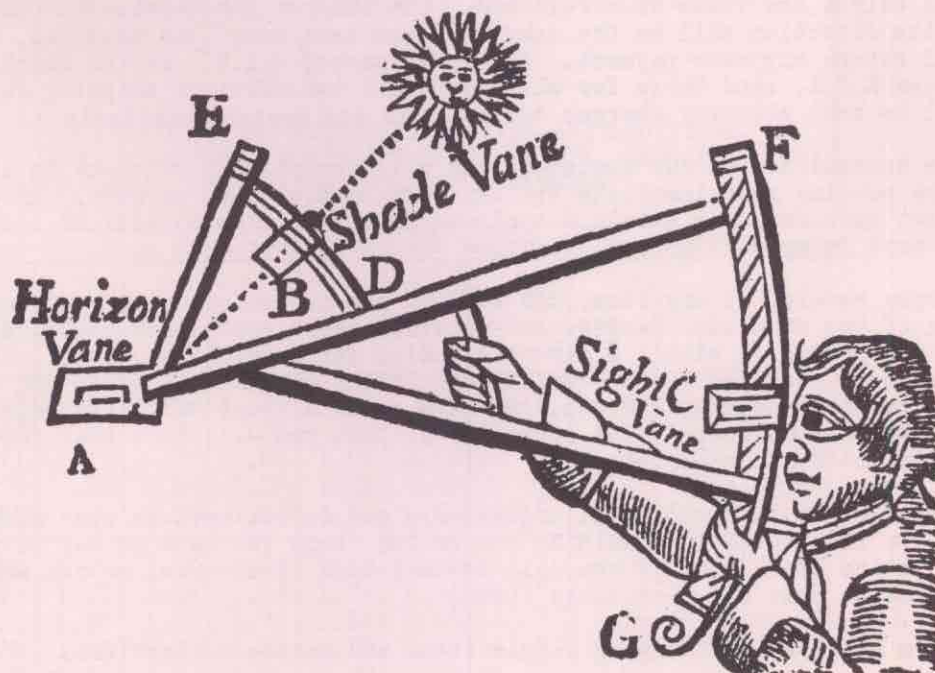


Historical Technology

Catalog 107

12 Lippard
94131



SAUL MOSKOWITZ INSTRUMENT ENGINEERING

6 MUGFORD STREET MARBLEHEAD, MASSACHUSETTS 01945

(617) 631-2275



1. GREAT IRON WAYWISER - English, 1st half 19th c, unsigned. Ten spoked iron wheel 22 3/4" d rolls 6 ft in one rev. Wrought iron frame 36" long with wooden handles gives 4 ft overall length. Brass case 3 3/4" sq, 1 3/4" thk with 2 3/4" d window contains differentially geared revolution counter dials. Top edge of box and glass window, replacements, all else original. The top dial turns once for 100 wheel revolutions and the bottom one with one gear tooth more (driven from the same worm) moves one division for each complete revolution of the upper dial. Some loss of original black enamel finish on the iron, still fine overall condition.

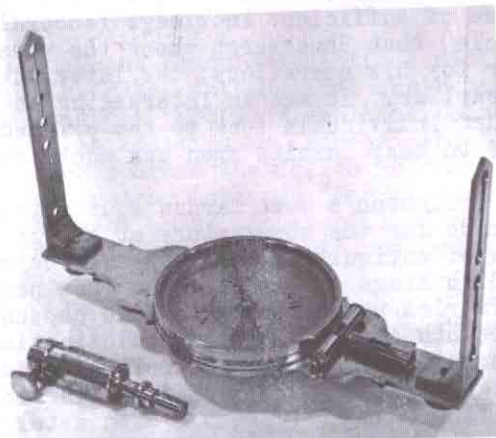
This is a rare form of a rare instrument; the way-wiser is virtually unknown in America. It was used for measuring lengths of roads and perimeters of land where the actual distance traveled was needed rather than lengths projected upon the horizontal plane.

(30 pounds UP, Air Freight)

\$ 485

2. SURVEYING IN BOSTON - American surveyor's compass, c. 1840's, signed "C. G. King/Boston". Bright brass, frame 15 1/4" long, compass 6" OD, silvered dial, 5" needle, screw-on sight vanes 8" h, overall ht 10" plus ball joint tripod mounting. Original tripod (not shown) with 52" mahogany legs. Original dovetailed mahogany case 15 3/4" x 7 1/2" x 3 3/4" h with C. G. King tradecard inside cover. Compass in very fine, tripod in fine, case in very good condition. All original except for one sight vane thumb screw, a modern replacement.

This unusually large surveying compass by Charles Gedney King (1808-58) is quite rare; he was primarily a maker of nautical instruments. His father, Gedney King (1777-1839) established the firm in Boston about 1800 after first having been apprenticed to his uncle Benjamin King of Salem. Thus this instrument is by the last member of what was probably the most noted family of instrument makers in all New England.



(2 pieces, 15 lbs each, UP, Air Freight)

\$ 270

3. IMPROVED SURVEYOR'S CROSS - English, c. 1880, signed "W. F. STANLEY/3 & 5 Gt. Turnstile. London W. C." Brass cylinder 3 1/2" d, 4 1/2" h on staff mounting post for 7 1/4" overall ht. Silvered outer compass ring, black interior dial, 2 5/8" needle. Lower portion of cylinder rotates with respect to upper; sighting slits in both. Inset silver azimuth scale with vernier reads to 1 arcmin. Original oak case 4 1/4" sq, 8 1/4" h. Instrument in excellent and case in fine condition. This form of instrument was designed by William Jones of W. & S. Jones and according to Rees', "Where no great accuracy is required, this small pocket instrument unites the advantages of a cross, circumferentor, and a small theodolite."

(8 pounds, UP, PS)

\$ 150

4. ANOTHER, SIMILAR TO THE ABOVE - (Not Illustrated) - English, unsigned, but identical to the above in workmanship and age, for the French market (black enamel compass face marked with "O" for west). Bright brass cylinder 3" d, 4" h on staff mountingpost for 7" overall ht. 2 1/4" compass needle, a modern replacement. Original walnut case 8" h by 4" sq. Instrument in excellent, case in very fine condition.

(8 pounds, UP, PS)

\$ 140

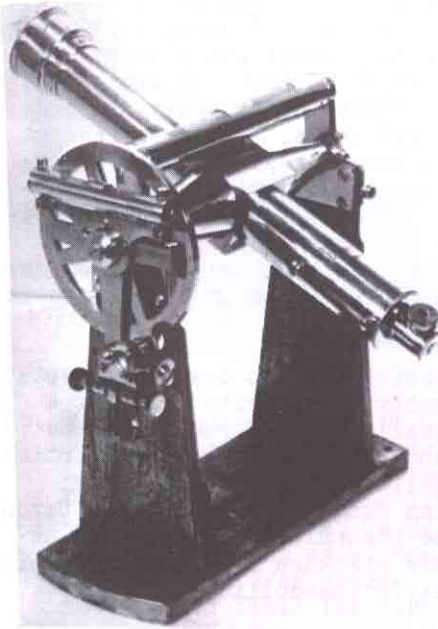


5. ENGINEER'S LEVEL - English, early 19th c, unsigned. All brass 11 5/8" long, 3 1/2" h, bubble 6" long. Slide tube focusing of 7/8" d objective. Inverted image. Extremely fine condition with original lacquer finish. Such instruments were intended for use during construction work. Without wyes for reversal this is, in many ways, an early form of the basic "dumpy level".



(5 pounds, UP, PS)

\$ 80



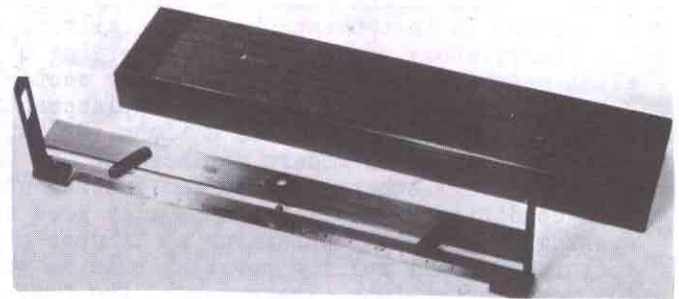
6. A PORTABLE TRANSIT INSTRUMENT - English, c. 1870, signed "JOHN BROWNING/LONDON". Ht (as shown) 14"; brass telescope 14" long, 1 5/8" d objective, right angle eyepiece for zenith sightings, 5" d readout scale with 2 5/16" rad vernier reading to 1 arcmin; removable 8" long set-up bubble level; 4 1/4" fixed bubble on readout circle. The entire telescope assembly lifts off iron stand with 4 1/2" x 12" base and dual uprights 9 1/2" h, 7 1/2" apart. Original fitted dovetailed wooden case 16" x 13" x 9". Case is sound although surface is as to be expected from field use. Telescope assembly and stand in excellent condition.

John Browning was the last in the line of instrument makers which had been established a century earlier as Spencer, Browning, & Rust. He was noted for his spectroscopic instruments, although he produced other high quality items too, as this example and others in this and earlier catalogs show quite clearly. This transit instrument follows basic Troughton design concepts as described by Frederick Simms (Treatise on Prin. Mathematical Instr., 1834) and "is a meridional instrument, employed, in conjunction with a clock or chronometer, for observing the passage of celestial objects across the meridian, ... affords the best means of determining the difference of longitude between any two places where corresponding observations may have been made ... It also may be employed very successfully in determining the latitude."

(45 pounds, UP, Air Freight)

\$ 625

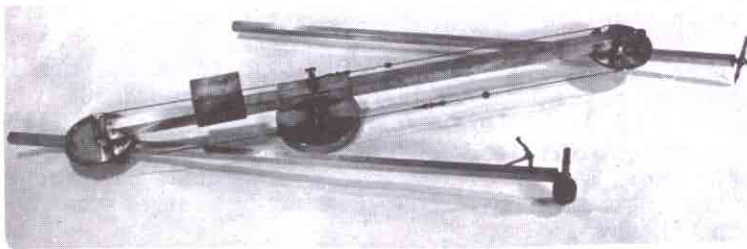
7. PARALLEL RULE SIGHT VANE ALIDADE - English, 2nd half 19th c, signed "CASELLA/LONDON" and "ROYAL GEOGRAPHICAL SOCIETY". Brass combination alidade-parallel rule 20" long, 2 3/4" w (closed), circular bubble level and 5 1/8" h fold-down black oxidized sight vanes. Original lacquer finish. Original mahogany case 22" x 4 1/2" x 2" h (with space for box compass, not present). Case in fine and alidade in extremely fine condition.



This plane table alidade was made for the use of Royal Geographic Society explorers in the remote corners of the world by the firm founded in 1848 by Louis Casella. They were light in weight compared with the standard transit and permitted maps to be drawn in the field without the need for recording large quantities of numerical data.

(11 pounds, UP, PS)

\$ 130



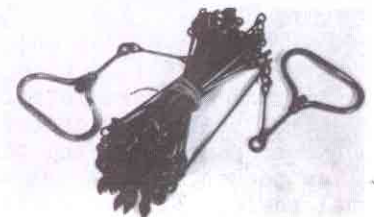
8. PRECISION EIDOGRAPH - English, 1850-55, signed "ELLIOTT & SONS LONDON". Bright brass, sq center bar 29" long 4" d disks at either end fitted for the 30" long adj tracing bars, circular base 4 3/4" d, 3 3/4" overall ht, scales engraved on center and tracing bars with verniers on base housing and end disks. Steel wire loop around end disks cause them to rotate together. Original dovetailed mahogany case 35" long x 6" x 4 1/2" h. Case in fine, Eidograph in extremely fine, working condition.

The Eidograph is a much improved form of the pantograph and differs considerably in design. It offers far greater rigidity (and hence accuracy) and requires less operating space than the conventional 4-bar type for the same scale work. Thus it replaced the earlier pantograph where large scale precision map and chart work was required. This example was made by the firm founded by William Elliott about 1825, became Elliott & Sons in 1850 and then Elliott Bros. in 1855.

(30 lbs UP, Air Freight)

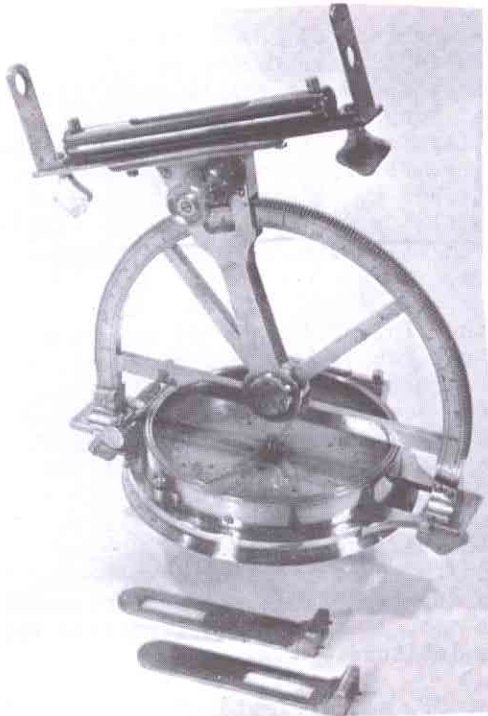
\$ 295

9. 50-LINK SURVEYOR'S CHAIN - American, c. 1875, one brass handle marked "W. & L. E. GURLEY/TROY, N. Y." and the other "33 FT STEEL N^o 12". 33 ft of steel links, brass handles & marker tags, all links brazed closed. The 1873 Gurley catalog describes this as their "best steel wire, tempered" chain and was their highest priced 33 ft chain.



(6 pounds, UP, PS)

\$ 70



10. RARE ENGLISH THEODOLITE - Early 19th c, signed "W. C. Cox, Devenport". Bright brass, 12 $\frac{1}{2}$ " h (top bubble horizontal), 5 $\frac{3}{4}$ " OD compass, silvered dial, 4 $\frac{3}{4}$ " needle, 9 $\frac{1}{4}$ " long base with 6 $\frac{1}{2}$ " d beveled azimuth readout scale with 1 arcmin vernier. Elevation circle 9" d, rack cut along edge for pinion driven sight vane elevation assembly 8" long with 6 $\frac{1}{4}$ " bubble and 2 $\frac{1}{4}$ " h sight vanes. 1 arcmin readout on elevation. Pair 4 $\frac{3}{4}$ " h screw-on sight vanes to replace vertical circle when using theodolite as a conventional azimuth readout surveyor's compass. Original tripod with brass 4-screw leveling head and 25 $\frac{1}{2}$ " mahogany legs & dovetailed oak(?) field case 10" sq, 5" h (both not shown). Theodolite in very fine, tripod in fine, case in poor condition.

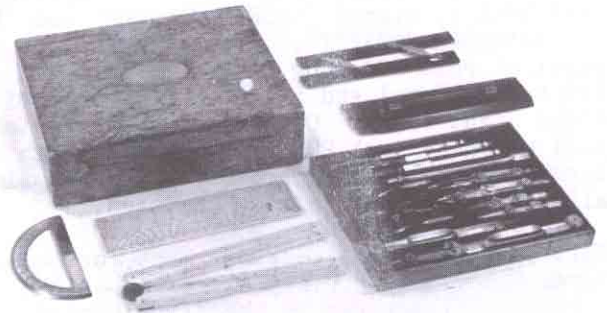
This instrument follows classical 18th c design concepts; the elevation sighting assembly being driven along the vertical circular rack. Usually by 1800 one found the sighting elements pivoted about a fixed axis, the vertical circle inverted and attached to the elevation sights. Since Taylor 2 places William Cox at Plymouth Dock, Devon about 1806, one must suppose that his designs lagged behind the times because of his distance from London. This is a superb example of an early theodolite.

(2 pieces, 20 lbs & 10 lbs, UP, Air Freight) \$ 620

11. FINE DRAWING INSTRUMENTS - English, 4th qtr 19th c, by "STANLEY GREAT TURNSTILE HOLBORN LONDON". 21 pieces; 16 instruments in German silver, steel, and ivory; ebony conventional and rolling 6" parallel rules, ivory 6" scale, 6" ivory sector, 3 $\frac{3}{4}$ " d brass protractor (later replacement?). German silver bound oak case 8" long, 6 $\frac{1}{2}$ " w, 2" h, felt cover lining a modern replacement and keyhole plate missing; otherwise case and instruments in fine condition. This is an unusually good set of drawing instruments containing as it does a fine sector and small rolling parallel rule as well as the more conventional instruments, the type of instruments to be used by the surveyor and civil engineer, in the office as well as the field.

(5 pounds, UP, PS)

\$ 115



12. W. & S. JONES SURVEYOR'S COMPASS - English, early 19th c, signed "W & S JONES/Holborn LONDON". Bright brass, base 10 $\frac{1}{2}$ " long, 4 $\frac{5}{8}$ " h screw-on sight vanes, compass 4" d with silvered face, 3 $\frac{1}{8}$ " needle, overall ht 6". Original dovetailed pine case (possibly once leather covered) 11" x 5" x 2 $\frac{1}{4}$ " h. This superbly made small surveyor's compass is in excellent condition, the case is fine.

W. & S. Jones, in business from 1785, moved to 30 Holborn in 1802. Goodison notes that William and Samuel succeeded their father John Jones (1739-87), purchased the stock, library and copyrights of George Adams, Jr. in 1795 and "remained well known as one of the leading and most prosperous firms in the instrument making industry for most of the nineteenth century".

(7 pounds UP, \$ 6 registered mail)

\$ 225



13. PENDULOUS MIRROR CLINOMETER - English, c. 1885, marked "J. HICKS MAKER 8 HATTON GARDEN LONDON/WATKIN MIRROR CLINOMETER REG 14 MAR 1881". Brass case 2 $\frac{3}{4}$ " d, 5/8" thick; semicircular glass window to illuminate elevation scale on inside edge.



ge; and a pendulous mirror to generate an artificial vertical and reflect the readout scale back into $\frac{1}{2}$ the field of view, the other half is for viewing the object to be measured. This is an extremely interesting improvement on the earlier pocket clinometers which had a fixed mirror and a pendulous (moving) internal scale. Fine condition.

(2 pounds, UP, PS) \$ 45



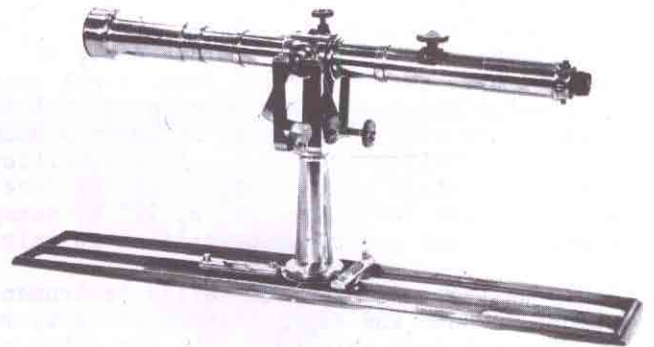
14. SBR SURVEYOR'S COMPASS - English, 1st qtr 19th c, signed "Spencer & Company/LONDON". Bright brass, base 12 3/4" long, screw-on sight vanes 5 1/8" h, compass 4 7/8" d with silvered face, 3 3/4" needle, 6 1/2" overall ht. Staff clamping screw lost, otherwise very fine overall condition. No case.

The firm Spencer, Browning & Rust (SBR) first appeared in the London Directories between 1780 and 1784. Their mass produced ebony mariner's quadrants were signed with the full name. However, it seems that in the 1800 to 1830 period, their higher quality instruments in brass were more likely signed as above. Between 1845 & 1850 the firm became Spencer, Browning & Co. John Browning (after c. 1865) the noted spectrometer and microscope maker, seems to have been the last of the family to have represented this old and well known company.

15. A PLANE TABLE ALIDADE OF QUALITY - American, c. 1880, signed "BUFF & BERGER, BOSTON./2158". Brass (bright finish) 9" h, telescope 17" long, cast brass base 3 3/4" w, 21 3/4" long. Tangent screw adj on elevation axis, scale readout by vernier to 1 arc min, 2 3/4" crossed bubble levels on base. Used in the field for direct plotting of bearings as sightings were obtained. It is interesting to compare this instrument by a noted American maker with English designs of the same period. This one is of markedly greater sophistication. Very fine condition. No case.

(7 pounds, UP, PS)

\$ 185



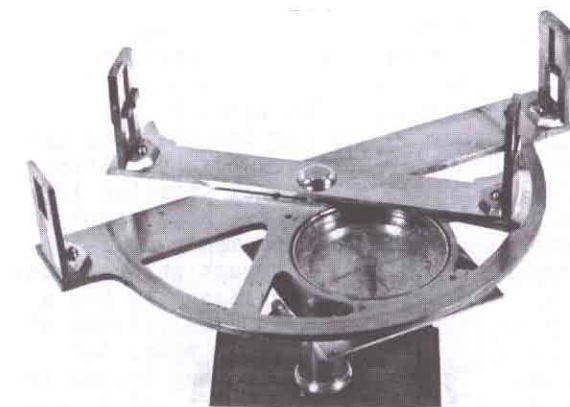
George L. Buff (1837-1923) and C. Louis Berger (1842-1922) formed their partnership on Oct. 28, 1871 and dissolved it on Oct. 18, 1898, each to form his own company, Buff & Buff Mfg. Co., and C. L. Berger & Sons. The 1879 Buff & Berger catalog gives a combined price of \$ 280 (min) for a complete plane table with sighting alidade. Very few must ever have been made.

(12 pounds, UP, PS) \$ 210

16. FINE FRENCH GRAPHOMETRE - Late 18th c, signed "Richer à Paris". Bright brass, fixed sight vane base 9 3/4" long, vanes 2" h, readout scale of 3 3/4"

rad engraved directly in the brass. Pivoted arm with 2" h sight vanes has opposing verniers for readout to 2 arcmin. Inset compass 2 1/2" d, silvered scale, 2" needle, original cover glass which has begun to crystalize (a very rare occurrence). Overall ht 6 5/8" including ball-joint staff mount. Extremely fine condition for the best made French instrument we have ever handled. No case (& wooden stand not included).

Jean-François Richer (1743-c. 1820) was considered by Daumas on a par with Mégnié, Fortin, & Lenoir. On April 26, 1788 the Académie des Sciences designated Richer to the King to become one of the 24 Engineer Certificate holders, later (1792) to present him with an award for a method of calculating Longitude at sea. He completed a linear dividing engine in 1793 and it appears that he also made a cir-



cular one. In 1919, he and his younger son had a workshop at 71 boulevard Saint-Antoine.

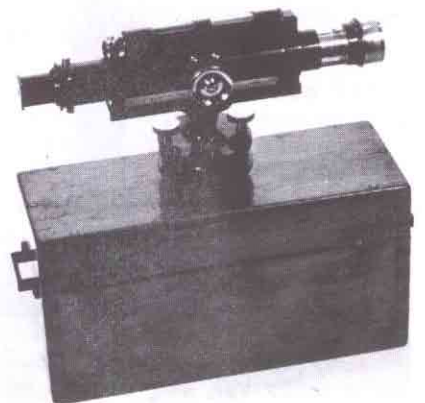
(7 pounds UP, \$ 6 registered mail)

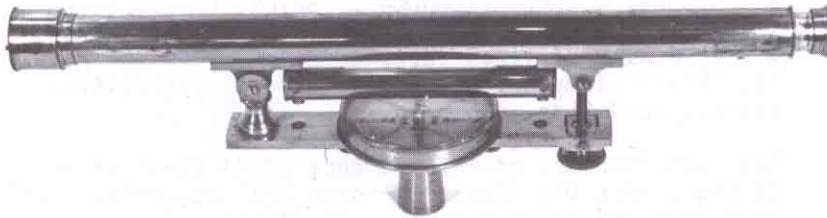
\$ 375

17. A GREAT LITTLE SURVEYOR'S LEVEL - English, c. 1880, unsigned but possibly by Stanley. A rather small all brass instrument in black oxidized finish 8 1/2" long, 5 5/8" h; bubble level 4 1/8" long; rack and pinion focusing objective 1" d; 4 screw leveling base. Original dovetailed mahogany case 10" long, 3 1/2" w, 5 1/2" h. Case in very fine and level in mint condition. In many respects, it is a "little jewel" and just about right for the collector who wants the elegant small instrument.

(9 pounds, UP, PS)

\$ 155





18. EXCEPTIONAL TROUGHTON LEVEL - English, late 18th c, signed "Troughton/London". Bright brass with original lacquer finish 98% intact (mostly minor pin-point spotting), telescope 21" long, $1\frac{1}{4}$ " d fixed focus objective, draw tube focusing of eyepiece upon cross hairs, 7" bubble level above $4\frac{1}{4}$ " d compass with silvered face, $3\frac{3}{8}$ " needle, signed on $10\frac{1}{4}$ " long base, $5\frac{3}{4}$ " overall ht. Missing protective shutter from slide-on sun shield, otherwise complete and in fine condition. No case.

Design details, including the fixed focus objective, and the fact that 19th century texts do not illustrate this form of level, suggest that this was an early instrument by Edward Troughton. It was his later "Improved Level" (Item 144, Catalog 105) which is described by Frederick Simms (and other writers). Although any Troughton instrument is worthy of note (see Remarks), those dating from the 1790 period tend to be quite rare and of major importance in following his career as a maker of mathematical instruments.

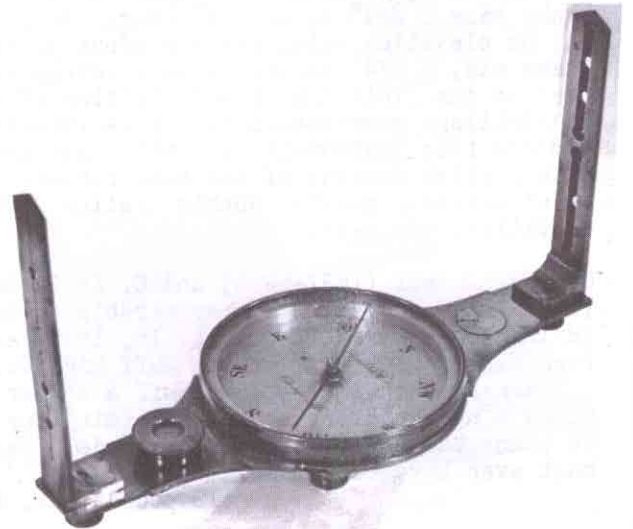
(12 lbs UP, Air Freight) \$ 465

19. RARE CHICAGO SURVEYOR'S COMPASS - American, mid 19th c, signed "Arnold & Co./Chicago Ills.". Brass construction; 6" d silvered compass dial; $5\frac{1}{4}$ " long needle; base just under 15" long, sight vanes $7\frac{3}{4}$ " h. Counter pointer with ring of numbers 1 to 16 on base on one side of compass; circular bubble level on other. Stands $10\frac{3}{4}$ " h. Fine condition. Missing Jacobs staff ball joint. Original dovetailed mahogany case $15\frac{1}{2}$ " long, $7\frac{1}{2}$ " w, $4\frac{1}{2}$ " h, damaged at right hand end and so is classified as only fair.

Early western makers of surveying instruments are almost unknown and any such work is quite rare. We have not been able to locate any other recorded instrument by Arnold and he is even unknown to Mr. Smart. The .245" - 30 thread of the sight vane screws does not correspond to any known to have been used by the recorded makers. Thus it is reasonable to assume that Arnold was an actual instrument maker rather than a local retailer.

(16 pounds UP, Air Freight)

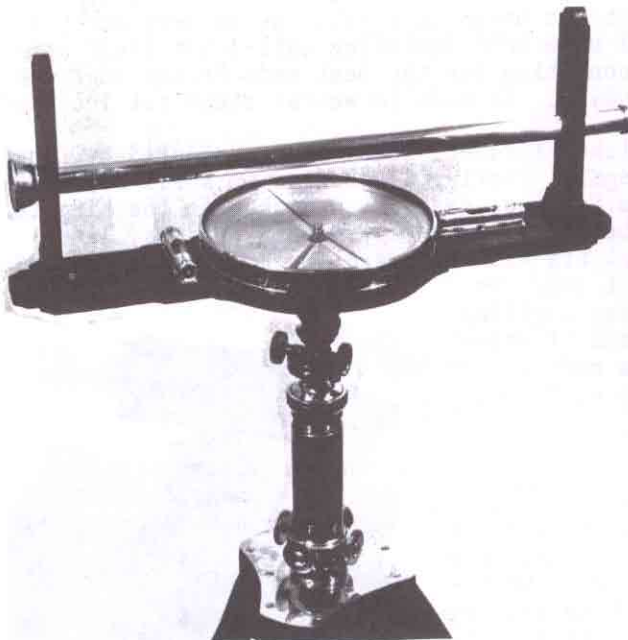
\$ 235



20. AN UNIQUE INSTRUMENT - American, c. 1860, unsigned. This rare prototype sight tube surveyor's compass is of

brass and mahogany construction. The large $6\frac{7}{8}$ " brass compass (with silvered dial) unmistakably was made by Gurley as were the under mounting bracket, leveling system and azimuth tangent screw (all from the 1860 period). The remainder does not have the appearance of known Gurley instruments. The 18" long mahogany base supports $6\frac{1}{2}$ " h mahogany sight vanes through which passes the $18\frac{1}{4}$ " sight tube. The $9\frac{1}{2}$ " h support assembly has a ball socket for coarse leveling, 4 orthogonal screws at the base for fine leveling and a worm-worm wheel for fine azimuth rotation. The original mahogany tripod is 42" h to the brass top plate; the instrument 18" h from this same plate. The compass is in extremely fine and the tripod in fine condition. This instrument appears to have been a unique design, constructed out of standard Gurley components where possible, and the remainder made by the inventor. It is certainly a most interesting combination of wood and brass in a fine surveyor's instrument.

(2 pieces, 12 lbs and 18 lbs, UP, Air Freight) \$ 450

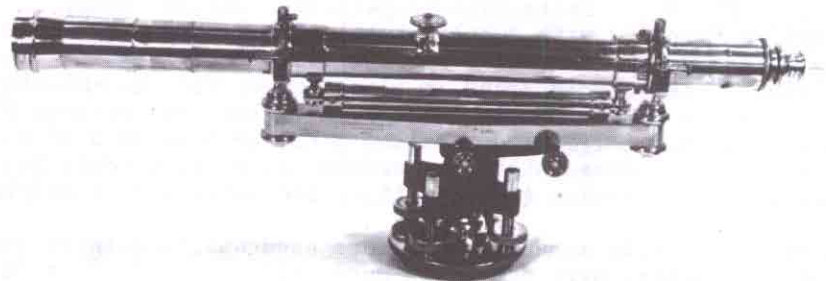




21. ONE OF GURLEY'S FIRST - American transit, 1854, signed "W. & L. E. Gurley, Troy, N. Y." and under the needle lifter disk "46/1854". The 46 is probably the serial number since most of the parts have the batch number "24" on inside surfaces. Bright brass, 13" h (telescope horiz.), the 8 $\frac{1}{2}$ " d base plate has a 6 $\frac{1}{2}$ " d azimuth circle with opposing 1 arcmin verniers, 5 $\frac{3}{4}$ " d compass with silvered face and 4 $\frac{3}{4}$ " needle. Rack focusing 12" long telescope transits only about one end, getting stopped by the eyepiece. No bubble level on telescope, although a poorly fitted later one has now been removed. The 1873 Gurley Manual points out that the large Engineer's Transit (now reversing at both ends) can be fitted with a bubble level and axis clamp to the telescope "though the majority of engineers prefer an instrument with "plain telescope", like the one shown in the engraving." The transit here is an early version (probably first, since W. & L. E. Gurley was formed in 1852) of what proved to be a very popular high quality, high priced (\$ 180 in 1873) instrument. Extremely fine condition (although some extra screw holes from later modifications). No case.

(25 pounds UP, Air Freight)

\$ 375



22. A LARGE WYE LEVEL - American, 1st part 20th c, signed "EUGENE DIETZGEN CO./CHICAGO - NEW YORK/9771". Bright brass (in three shades) with original black finish on parts of 4-screw leveling base. Overall ht 8 $\frac{1}{2}$ ", telescope extended is 25" long, 9 $\frac{1}{4}$ " bubble, 12" between wyes. Minor damage to objective lens cell and some edge chipping of lens, otherwise extremely fine condition. No case.

Eugene Dietzgen was born in Germany in 1862, came to America in 1880, and died in Chicago in 1929. The company was founded in 1885 as Luhring & Dietzgen, became Eugene Dietzgen & Co. in 1891 and Eugene Dietzgen Co. (the name on this instrument) in 1893. It, like K + E, is one of the few remaining companies in this country producing a range of engineering & surveying instruments and supplies.

(20 pounds, UP, PS)

\$ 190

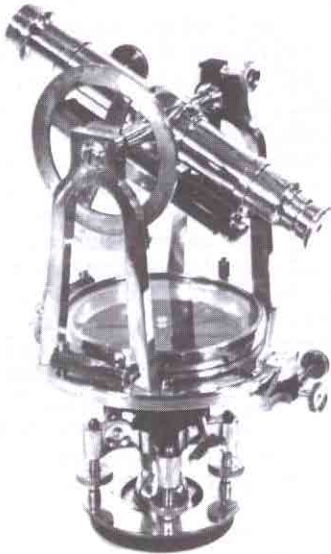
23. AN EARLY AMERICAN WYE LEVEL - c. 1830, signed "Megarey New York". Brass construction; telescope 20" long; rack focusing of 1 $\frac{1}{4}$ " d objective; wyes 10" apart; 4 $\frac{1}{4}$ " d silvered compass dial; 8" long bubble level; 8 $\frac{1}{2}$ " overall ht including 4-screw leveling base. Compass needle and glass and tangent ring clamping screw are modern replacements, all else original. Original dovetailed mahogany case (not shown) 22 $\frac{1}{2}$ " long, 6 $\frac{1}{2}$ " w, 9 $\frac{1}{4}$ " h. Original tripod 57" h (bottom 14" of one leg missing). Thus tripod in poor condition but case is very good to fine and the level is very fine.



Alexander Megary (1790-1850) was born in Ireland, died in Brooklyn and was listed in the New York City directories as a mathematical instrument maker from 1827 to 1850. This, certainly one of his highest quality instruments is somewhat unusual in design showing significant "English" characteristics, yet also "American" in many details. It is not a commonly found instrument. Although Mr. Smart locates 6 instruments by Megary, none are stated to combine a wye level with bearing compass.

(2 pieces, 25 lbs and 12 lbs, UP, Air Freight) \$ 475

DO NOT BE DISAPPOINTED. If there is a logical second choice to your selection, why not say so. Remember, if an item has been sold before your order, your payment is returned unless you say otherwise.



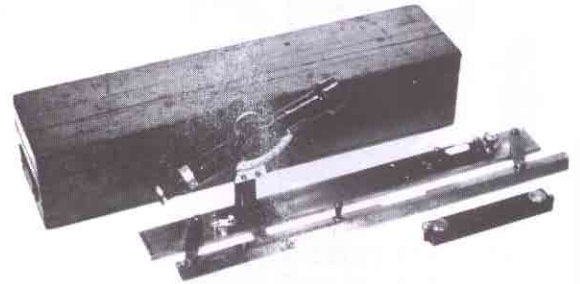
24. FINE LITTLE TRANSIT - American, early 20th c (possibly c. 1900), signed "CHAS. C. HUTCHINSON/BOSTON, MASS./7116" on black oxidized face of $4\frac{1}{2}$ " d compass with 4" needle. Bright brass with black oxidized finish on bubble levels and some adj. fittings. Overall ht (telescope horiz.) $11\frac{1}{2}$ " incl. 4 screw leveling base. $6\frac{1}{2}$ " d base plate with 5" d silvered readout circle, 1 arcmin vernier, single readout window lacking glass cover. Rack & pinion focusing telescope $8\frac{1}{2}$ " long, $3\frac{5}{8}$ " d elevation circle with 2 arcmin vernier. Some rubbing of silvered scales, very fine overall condition. No case.

Charles C. Hutchinson (1832-1913) served his apprenticeship with F. W. Lincoln, Jr., grandson of Paul Revere and 7 time mayor of Boston. In 1858 Hutchinson became Lincoln's partner and in 1883 became sole owner changing the firm's name to that appearing on this instrument. Although he died in 1913, the company remained in business until 1940.

(15 pounds UP, Air Freight)

\$ 275

25. TELESCOPIC PLANE TABLE ALIDADE - English, 4th qtr 19th c, signed "C. F. CASSELLA & CO. LTD./LONDON" and "ROYAL GEOGRAPHICAL



SOCIETY NO. 30." Brass alidade-parallel rule 16" long, $2\frac{3}{8}$ " w (closed) with tubular bubble level (2nd one lacking), engraved 5" rule with diagonal scale and $5\frac{3}{8}$ " h folding 7" telescopic sight in black enamel finish, and elevation scale with 5 arcmin vernier. Original box compass 5" long, $7/7$ " w. Original dovetailed mahogany case $16\frac{3}{4}$ " x 4" w x $3\frac{1}{2}$ " h. Case (with some cracks) in good, alidade in almost fine condition (some spotting and darkening of original lacquer finish).

These instruments were somewhat more accurate than those just with sight vanes and, because of the elevation scale, were generally more useful. C. F. Casella was the successor to Louis Casella who, according to Brewington, was last listed in 1875.

(12 pounds, UP, PS)

\$ 140

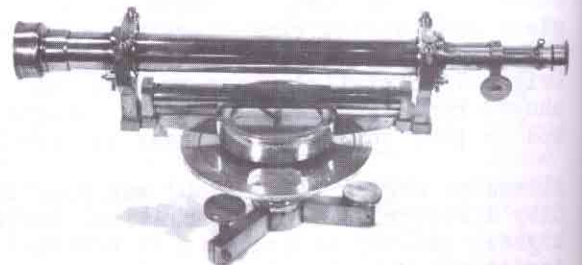


26. FANTASTIC MINIATURE THEODOLITE - Austrian, signed "GUSTAV LERL & SÖHNE/K. K. HOF/BRONZE-WAREN-FABRIK" within and the underside marked "TECHNIKER-BALL/26, JANNER 1876/MUSIKVEREINS-SALE" about a center of intertwined "T" and "B". In brass with gold and silver plating, only $1\frac{5}{8}$ " d and $1\frac{3}{8}$ " h with $1\frac{5}{8}$ " long telescope (no optics). The base opens to reveal the little booklet for recording each dance. (Support tassel detached but included.) Extremely fine condition. This is the earliest of the "Techniker-Ball" miniatures we have ever seen; a survival from the last grand heights of the Hapsburg empire when the engineering society still had its formal balls in one or another of the grand baroque palaces of Old Vienna.

(2 pounds, UP, PS)

\$ 100

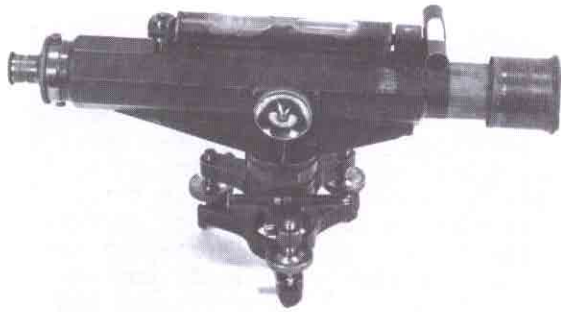
27. RARE MEXICAN SURVEYOR'S LEVEL - 2nd half 19th c, signed "F. Gagna y Cia Opticos/2^a de St Francisco NI (Mexico)". All brass construction; 16" long telescope (missing crosshairs) supported in unusual wyes. $7\frac{3}{4}$ " bubble level mounted on frame of instrument. $3\frac{1}{2}$ " d compass dial, outer ring silvered. Inset silver azimuth scale $5\frac{1}{2}$ " d reading out by vernier to 1 arcmin. 3 screw leveling base. Overall ht $7\frac{1}{2}$ ". In fine display condition.



This is one of the most unusual forms of the little known "Egault's Level" (somewhat favored in France) that we have ever seen. It has a compass and azimuth scale (which the conventional Egault Level does not) and is obviously a hand made item. Much of it is filed out of stock brass. The underside of the compass shows a trial (and faulty) engraving of the inner dial. There has been so little Mexican instrument making that this instrument is an important find.

(16 pounds, UP, Air Freight)

\$ 235



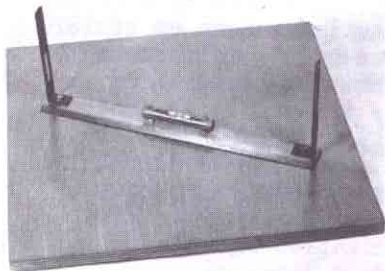
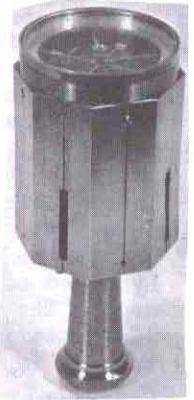
28. ENGLISH DUMPY LEVEL - Turn of the century, signed "GEO. J. POORE & CO. LTD/LIVERPOOL". Black oxidized finish brass (rubbed in places) 8" h with telescope 13" long in cast and machined octagonal barrel 2" across the flats. 6 1/2" longitudinal bubble marked 1 Div = 28"; 2 1/2" cross bubble. Rack focusing objective and draw tube eyepiece, cross hairs intact. 3 screw leveling base. Operative and almost fine overall condition. Original dovetailed mahogany field case 15" x 6 1/2" x 9" h with repair label dated 1935 in cover after earlier one had been removed. Case sound but surface badly marred from extensive use.

(20 pounds, UP, PS) \$ 98

29. OCTAGONAL SURVEYOR'S CROSS - English, 4th qtr 19th c, unsigned but identical to ones known to have been made by Stanley, Great Turnstile, London. Bright brass, 2 3/8" d compass (black inner dial) mounted on octagonal cylinder 3" h, 2 3/8" across flats, overall ht 6 1/4". Sight slits on every face so that 45° as well as 90° corners may be set up. Original walnut case 7 1/4" x 3 3/8" sq. Case in very good, instrument in fine condition.

(5 pounds, UP, PS)

\$ 75



30. THE RUSSIAN SURVEYOR - Plane table and sight vane alidade, mid 20th c, signed "ФИЗПРИБОР /г. КИРОВ" on both table and alidade. Wood laminated table 14" sq, mounting socket on bottom; brass alidade 11 3/4" long, brass oxidized vanes 4 1/4" h, and 3" bubble level. The London Science Museum little "Surveying" booklet notes, "The plane table is unique among surveying instruments in surviving almost unchanged in form from its appearance in about 1600 down to the present day". All that can be said about the "ФИЗПРИБОР/г. КИРОВ" instrument works has already been said and I do not wish to take exception to such informed opinion.

(8 pounds, UP, PS)

\$ 30

31. CASED SET OF SMALL COMPASSES-

Probably English, 2nd half 19th c, unsigned. Mahogany case 3 1/2" sq x 3/4", lined with purple velvet, contains a matched set of small drawing instruments; an ink compass, a pencil compass, and a pair of dividers. Each is about 3" h and made of steel and German silver. Fine condition.

(1 pound, UP, PS)

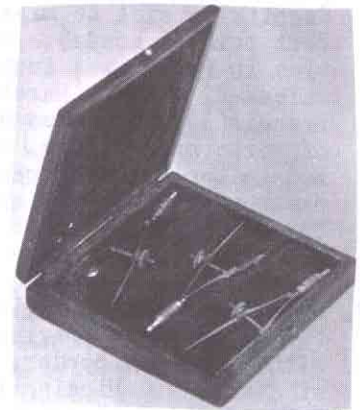
\$ 15



32. POCKET SURVEYOR'S COMPASS - French, c. 1900, unsigned, but marked "MADE IN FRANCE" (for the American market). All brass in original bright lacquered and black finish, 4" compass OD, 7 1/4" h on universal staff mount. Silvered dial 3 1/8" d, 2 3/8" needle, crossed bubble levels in bottom of dial. Blackened fold-down sight vanes 2 3/4" h with notches for suspension on line. Original leather-like case 6" x 4 3/4" x 1 1/4" h (not shown) Compass in near mint condition, case shows minor wear. Such instruments were intended for preliminary field surveying and mapping, and checking of construction work.

(4 pounds, UP, PS)

\$ 80

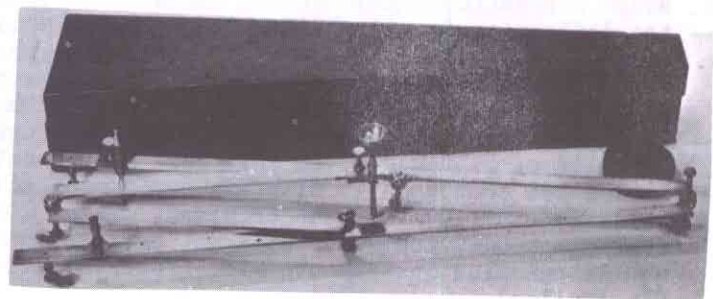


33. A GOOD BRASS PANTOGRAPH - English, probably late 18th c, signed "Lake & Son, TAUNTON". Brass arms, two 25" long each, the others 11" and 13". Finely engraved ratio scales on the B and D arms. 6 ivory-wheeled casters. Pivot

weight 2 3/4" d by 1" h. Complete and in very fine condition. Original dovetailed mahogany case 25 1/2" long, 3 3/4" h, 5 3/4" max w, in very good condition. Britten "Old Clocks & Watches" 7th ed lists Thomas Lake of Taunton, 1770, and Baillie gives a date of 1795. A pantograph such as this was used for the reduction or enlargement of maps and charts as well as architectural details and building plans.

(15 pounds, UP, PS)

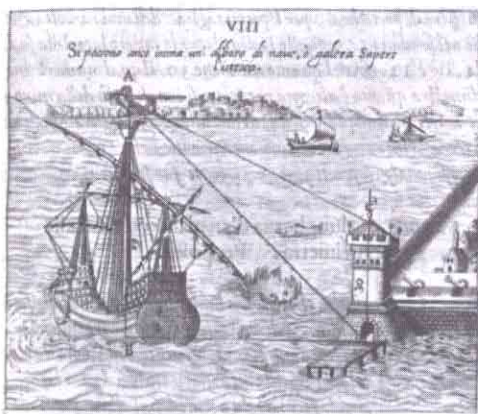
\$ 185



43. George Adams (Jr.) "ASTRONOMICAL AND GEOGRAPHICAL ESSAYS: Containing, I. A Comprehensive View of the General Principles of Astronomy. II. THE USE OF THE CELESTIAL AND TERRESTRIAL GLOBES, ... III. THE DESCRIPTION AND USE OF THE ARMILLARY SPHERE, PLANETARIUM, TELLURIAN, and LUNARIUM. IV. An Introduction To PRACTICAL ASTRONOMY: Or, the USE of the QUADRANT and EQUATORIAL". 1st EDITION, London, 1789. Original leather binding (rebacked) 8 $\frac{1}{2}$ " h, 5 $\frac{1}{2}$ " w; pgs. xix, 665, 15 (the extensive priced catalog of instruments made by the author), the frontis plate and the 21 folding engraved plates, most of instruments. Very fine overall condition. Of all his works, this book has proven to be of the greatest interest of them all to the student and collector of astronomical models and instruments. (postpaid) \$ 195

SURVEYING

44. Charles Davies, "ELEMENTS OF SURVEYING WITH THE NECESSARY TABLES", 1st ed, J. & J. Harper, New York, 1830. Original leather binding (badly cracked at hinges) 8 $\frac{3}{4}$ " h, 5 $\frac{1}{2}$ " w; 147 pgs text, 62 and 91 pgs tables, 8 large fold-out copperplate engravings (the 9th missing) 4 of instruments: the theodolite, plane table and alidade, surveyor's cross and compass, marking protractor. Front fly leaf missing, some tears in edges of plates, otherwise contents fine. Intended for use at West Point, this book gained general popularity, there were 14 more editions through 1850. (postpaid) \$ 28
45. Thomas Dix, "A TREATISE ON LAND-SURVEYING", 4th ed, Scatcherd & Letterman and G. & W. B. Whitaker, London, 1819. Original leather binding (rebacked) 8 $\frac{1}{4}$ " h, 5 $\frac{1}{4}$ " w; pgs. xii, 214, the folding colored plate opposite the title (short tear along one fold), the engraved plate opposite p. 1, with about 200 text diagrams and 4 figures of instruments. Fine condition. Taylor 2 lists Dix as fl. 1799-1809 and having published the first edition of this book in 1799 pointing out that it "was illustrated by an actual survey along the River Nene, made with the chain." (postpaid) \$ 30



46. Octavio Fabri, "L'VSO DEL LA SQVADRA MOBILE", 1st EDITION, Francesco Barilleti, Venice, 1598. Early vellum binding 8 $\frac{3}{4}$ " h, 6" w; engraved title, 119 pages numbered by leaves, mostly, with some misnumbering (a problem which seems to have troubled many editions of this book), and 26 (one repeated) exquisite engraved plates by Fabri himself on text pages. Issued before the fold-out plate was added. Extremely fine condition. The "Squadra Mobile" (shown in the crow's nest in the illustration) was a portable surveying instrument of Fabri's innovation. Level was determined by a plumb line and a pair of pivoted alidades with peep sights were used for sightings. Readout was on combined circular and rectified scales so that either angles or trigonometric functions thereof could be obtained. This is a fine and beautiful book written to illustrate a unique surveying instrument. (In Italian) (postpaid) \$ 170

47. Octavio Fabri, "L'VSO DEL LA SQVADRA MOBILE", Andrea Gattella, Padova, 1673. Later board covers 8 $\frac{1}{4}$ " h, 5 $\frac{3}{4}$ " w, generally fine condition although trimmed too close on 3 pages just affecting the text. Engraved title page, 8" x 11" fold-out plate of instrument (dated 1670), 24 engraved plates within the text; pgs. (2), 9-100, with 2 different leaves numbered 13-14, the 12 pages of preliminary material in the 1st ed not printed in this ed but page numbering not corrected. A second state version of pgs 85 and 86 (with the one plate which would have otherwise been missing from this ed) bound between pgs. 14 and 15. Thus the book is complete. This edition indicates how popular Fabri's book was, having been printed and reprinted over a full century. (In Italian) (postpaid) \$ 125
48. Abel Flint, "A SYSTEM OF GEOMETRY AND TRIGONOMETRY: Together With A TREATISE ON SURVEYING", 4th ed, Cooke & Hale, Hartford Connecticut, 1818. Original leather binding (minor rubbing) 8 $\frac{1}{2}$ " h, 5 $\frac{1}{2}$ " w; pgs. viii, 9-80, 88, 4 fold-out copperplate engravings, contents good with minor foxing, and water stains, frayed edges to plates. A highly regarded American book (1st ed in 1804) which was published for over half a century. It is still possible to acquire a set of all editions of this book at reasonable cost. Thus for one interested in the progress of American surveying, these editions will prove of extreme interest. (postpaid) \$ 20
49. Abel Flint, "A SYSTEM OF GEOMETRY AND TRIGONOMETRY, With A TREATISE ON SURVEYING", 6th ed, Hartford, 1830. Original leather binding (in nice condition) 8" h, 5" w; 122 pages text; 162 pages tables; the diagrams originally on the fold-out plates have now been included in the text. Fine overall condition. (postpaid) \$ 18

50. Robert Gibson, "THE THEORY AND PRACTICE OF SURVEYING; Containing All the Instructions requisite for the skilful practice of this Art.", (4th New York ed), Duyckinck, New York, 1811. Original leather binding 9" h, 5½" w; pgs. (2), 324, (16), 17-184, 13 fold-out plates (Karpinski mistakenly calls out 14). Plate VII missing and replaced in facsimile, some staining and cover wear, still rather good condition. Taylor 2 notes that the 2nd ed of Gibson's book was published in 1767, and that he may have been Irish. The 1st American ed (called the 4th) was published in 1785 and by 1839 there had been 22 eds in this country. (postpaid) \$ 20
51. John Gummere, "A TREATISE ON SURVEYING CONTAINING THE THEORY AND PRACTISE: To which is Prefixed A PERSPICUOUS SYSTEM OF PLANE TRIGONOMETRY.", 14th ed, Kimber & Sharpless, Philadelphia, 1841. Original mottled calf (in excellent condition) 9" h, 5 3/4" w; pgs. 266, 152, the 11 fold-out engravings with the fine examples of the theodolite (pl. 9) and wye level (pl. 10). Contents fine. An American book that continued in use for over 100 years, 1st ed in 1814 and one as late as 1917. This is the 4th printing of the 14th ed of 1838 which followed an 8th ed of 1837. The 9th through 13th eds never existed. An interesting and important book and possibly a rare issue since it is not listed in Karpinski. (postpaid) \$ 30
52. John Hammond, "THE PRACTICAL SURVEYOR: Shewing, Ready and Certain Methods for Measuring, Mapping and Adorning All Sorts of LANDS and WATERS, By the Several INSTRUMENTS Now in Use; PARTICULARLY, Of A NEW THEODOLITE;", 2nd ed, for T. Heath, London, 1731. Original leather binding 8" h, 5" w (worn and both hinges cracked); pgs. viii, (8), 189, (3), the engraved frontis plate showing Thomas Heath's Improved Theodolite, Universal Dial and Double Level, 12 fold-out engraved plates including the 2 fold-out and stand-ups to demonstrate perspective. Contents very fine. Taylor 2 is less than useful here, implying that this ed of 1731 was the 1st and that it was by Samuel Cunn, Hammond only being a clerk to a friend of Cunn's. It is obvious that she never looked at the book. It was probably written by Hammond under commission from Thomas Heath to emphasize the instrumental aspect of surveying (which indeed it does), most other works of the period being primarily mathematical. Heath (fl. 1714-d. 1773) was one of the most noted instrument makers of the 1st half of the 18th c. and it is not surprising that he promoted books which described his instruments. (postpaid) \$ 105
53. THE CLASSIC 18TH CENTURY REFERENCE - John Love, "GEODESIA: OR, THE ART OF SURVEYING AND MEASURING LAND MADE EASY", 11th ed, London, 1792. Full leather binding 8½" h, 5½" w; (18 pgs before) 196 text pages with many woodcut diagrams, 56 pgs tables, and the 8 pg appendix on surveying by chain only. Contents in very fine condition, front and rear flyleaves missing and covers worn and cracked at hinges. The 1st ed was published in 1688 just after Love returned from surveying in Carolina and Jamaica. "The author who had been a Colonial land-surveyor, had in mind the needs of young men taking up grants of land in America, which they would probably have to stake out themselves." (Taylor 1) (postpaid) \$ 40
54. AN AMERICAN EDITION - John Love, "GEODESIA: etc.", The 13th ed adapted to American surveyors, Samuel Campbell, New York, 1796. Board covers with leather back 8" h, 5" w, pgs. (14), 189, (53, tables), 8 (appendix). Cover in fine, contents in very fine condition. This is a rare edition of a highly regarded book (there was a true 1st American ed published in 1793 from the 12th London ed). In many ways, these 2 editions mark the beginning of the great development of American surveying and no collection of American surveying instruments is really complete without one. (postpaid) \$ 80
55. Samuel Wyld, "THE PRACTICAL SURVEYOR, OR THE ART OF LAND-MEASURING MADE EASY. Shewing by plain and familiar Rules, how to Survey any Piece of LAND whatsoever, by the Plain-Table, Theodolite, or Circumferentor: or, by the Chain only." 3rd ed, London, n. d. (1740). Full leather binding (label missing) 8" h, 5" w, pgs. viii, 188, (4), with 6 fold-out copperplate engravings and frontis piece illustrating a theodolite, telescopic bubble level, protractor, scale, and pantograph. Covers and text in very fine condition. Taylor 2 notes a first edition in 1725 and that the illustrated theodolite was the new design of J. Sisson. This book was important in the history of surveying for its emphasis on angular measurement in contrast to the use of the chain only. (postpaid) \$ 75

AN IMPORTANT 18th CENTURY REFERENCE WORK

56. Ephriam Chambers, "CYCLOPAEDIA: OR, AN UNIVERSAL DICTIONARY OF ARTS AND SCIENCES;", 5th ed, London, 1741 and 1743. Two large folio vols leather bound (rebacked) 16" h, 10½" w; 2016 unnumbered pages, the fold-out engraved frontis plate, 19 full page, and larger, engraved plates. Very fine overall condition. This was the best English scientific and technical encyclopaedia of the 18th c. until Abraham Rees prepared the 1784 revision. Chambers (1680-1740) issued the 1st ed in 1728 to correct for the limitations of Harris' "Lexicon Technicum" which although it was the first scientific encyclopaedia in the English language, was wanting in many respects. The superiority of Chambers work should be evident to anyone comparing the two and must have been to the public of those days too for the "Lexicon Technicum" was quickly replaced by Chambers. (postpaid) \$ 285