

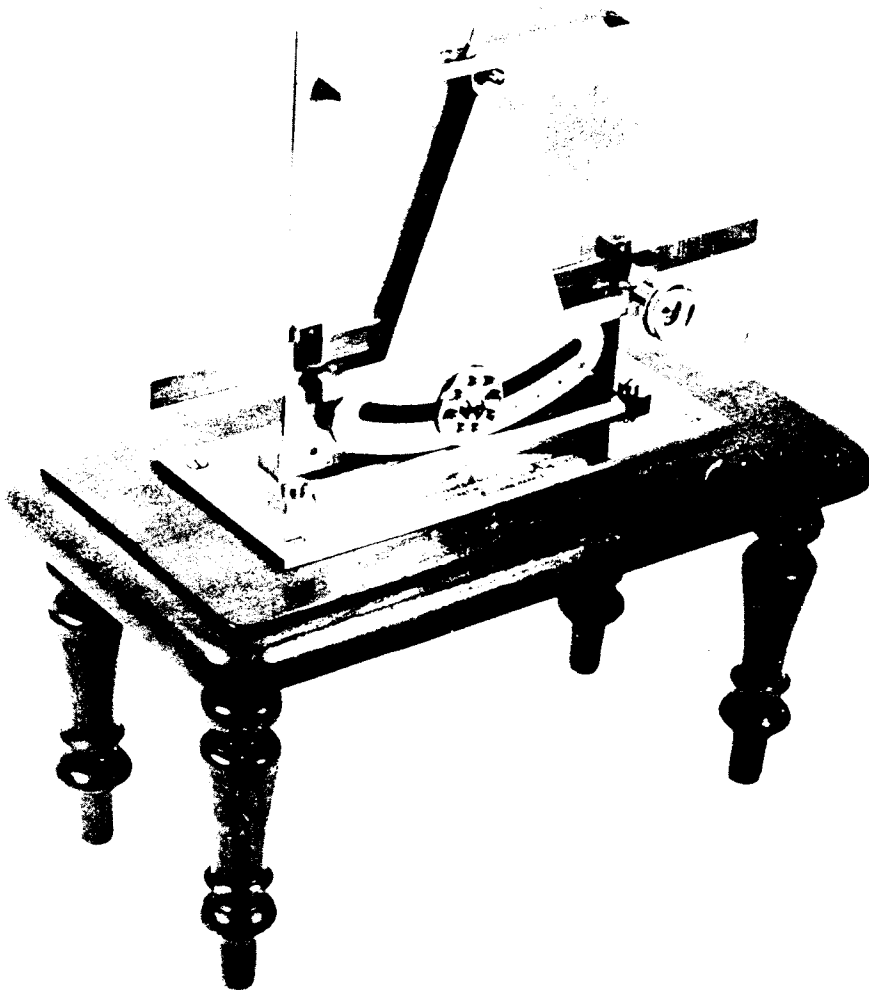
Historical Technology, Inc.

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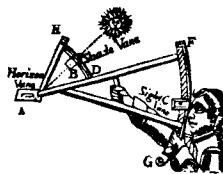
(617) 631-2275



ITEM 174

MECHANICO-MATHEMATICAL

INSTRUMENT



Catalog 126

Spring, 1984

Five Dollars

Moving Into the 19th Century

40. Charles Hutton, "A PHILOSOPHICAL AND MATHEMATICAL DICTIONARY: CONTAINING AN EXPLANATION OF THE TERMS, AND AN ACCOUNT OF THE SEVERAL SUBJECTS, COMPRISED UNDER THE HEADS MATHEMATICS, ASTRONOMY, AND PHILOSOPHY BOTH NATURAL AND EXPERIMENTAL," 2 Vols, A New (2nd?) Ed, for the author, London, 1815. Modern full leather bindings 11 1/4" h, 8 3/4" w; pgs. I. viii, 760, 18 engraved plates; II. title page, 628 pgs, engraved plates 19-41; some of the plates bound out of sequence. Very fine overall condition. Taylor 2 calls the author (1737-1823), "one of the most esteemed mathematical teachers of his day. He became professor of Woolwich Military Academy in 1773 and F.R.S. in 1774." The 1st edition of this work was in 1796. It is pointed out in the preface that the objective of this work was to limit its scope to the mathematical sciences (modern terminology) thus providing more detail in specialized areas than the extensive general references such as the Rees' Chambers or even the 18 volume Encyclopaedia Britannica. (postpaid) \$ 155

LAND SURVEYING, GEOLOGY, & MINING

41. Amedée Burat, "GÉOLOGIE APPLIQUÉE - TRAITÉ DU GISEMENT ET DE L'EXPLOITATION DES MINÉRAUX UTILISÉS", 4th Ed, in 2 Vols, L. Langlois, Paris, 1858, 9. Later half leather fine bindings 8 3/4" h, 5 3/4" w; pgs. I. ("GÉOLOGIE PRATIQUE") 550, 29 plates (some double page, 2 of them large folding maps) and 49 text figures; II. ("EXPLOITATION DES MINES") 540, 33 plates (of 34, lacking Pl. XIX, "disposition . . . machines a molettes"), 192 text figures. Extremely fine condition. The 1st edition of the 1st part of this extensive work seems to have been published in 1843. This one includes more material and the whole work appears to have been revised and updated. (In French) (postpaid) \$ 145

* Thomas Burnet, "TELLURIS Theoria Sacra:" - See section "THE UNUSUAL"

4 Volumes on Mineralogy

42. Gabriel Delafosse, "NOUVEAU COURS DE MINÉRALOGIE COMPRENANT LA DESCRIPTION DE TOUTES LAS ESPÈCES MINÉRALES AVEC LEURS APPLICATIONS DIRECTES AUX ARTS", 4 Vols, La Librairie Encyclopédique de Roret, Paris, 1858, 60, 62. Original half leather bindings 8 1/2" h, 5 1/4" w; pgs. I. 546; II, 486, (1); III. 628; IV. 24, 40 folding plates. Generally fine condition although the outer corners of some bindings (particularly Vol IV) are damaged and there are some internal repairs and a few stains. The author (1796-1878) had been called the "founder of crystallography" and was the first to show a relationship between the direction of rotating power of crystals and orientation of their facets. He held a number of academic posts including professor of mineralogy, Paris Faculty of Sciences (1840), and member French Academy of Sciences. This book seems to have been derived and updated from his earlier works including his "Traité de Cristallographie" (1821), and "des Minéralogie" (1822). (In French) (postpaid) \$ 215

- X 43. Abel Flint, "A SYSTEM OF GEOMETRY AND TRIGONOMETRY: TOGETHER WITH A TREATISE ON SURVEYING; TEACHING VARIOUS WAYS OF TAKING THE SURVEY OF A FIELD; ALSO TO PROTRACT THE SAME AND FIND THE AREA, LIKEWISE, RECTANGULAR SURVEYING;" 3rd Ed, Oliver D. Cooke, Hartford, 1813. Original leather binding 8 3/4" h, 5" w; pgs. viii, 9-168, 4 folding plates. Generally good condition with weak (but not cracked) hinges and typical browning of the text due to a combination of high sulphur paper, water stains, and foxing. The first edition of this work was in 1804 and by 1854 there were 14. Changes were made from edition to edition, sometimes significant. Thus a study of the sequence of issues would be indicative of the changes in American surveying over the first half of the 19th century. (postpaid) \$ 45

44. Abel Flint, "A SYSTEM OF GEOMETRY AND TRIGONOMETRY, WITH A TREATISE ON SURVEYING; . . . A NEW EDITION, ENLARGED, WITH PRACTICAL ILLUSTRATIONS ON SURVEYING, . . . BY GEORGE GILLET", 7th Ed, Cooke & Co, Hartford, 1833. Original leather binding (label missing) 8 1/4" h, 5" w; pgs. (6), 9-134, 10, blank leaf, 62 (tables), 100 (tables). Binding very good with some surface wear, contents fine except for some foxing of the first few and last few pages. The additions by George Gillet, Surveyor General of Connecticut, first appeared in the 5th edition of 1825. (postpaid) \$ 40

First New York & Fifth American Edition

45. Robert Gibson, "A TREATISE OF PRACTICAL SURVEYING:" 8th Ed, William A. Davis & Co., New York, 1798. Early stitched leather cover over (worn?) original leather binding 8 3/4" h, 5 1/4" w; 452 pgs and 13 plates (some with early hand coloring). Generally very good condition, lacking end papers, and showing signs of extensive use. The 1st American edition (called the 4th) was published in 1785, taken directly from one of the London versions (4th Ed?) of the period. The 1st edition may have been issued in Dublin mid 18th c and Taylor 2 notes a 2nd London edition of 1767. The author may well have been the Dublin surveyor (fl 1731-61?) who held the post of examiner of applicant surveyors to the Surveyor General of Ireland, and was a teacher of mathematics (Temple Lane, Essex St. 1752; Anglesey St. 1754). (postpaid) \$ 120

Fifth Philadelphia & Seventh American Edition

46. Robert Gibson, "A TREATISE OF Practical Surveying; WHICH IS DEMONSTRATED FROM ITS FIRST PRINCIPLES", 8th Ed (actually 5th Philadelphia & 7th American), Joseph & James Crukshank, Philadelphia, 1803. Original leather binding 8 1/2" h, 5 1/4" w; pgs. viii, 288, 152 (tables) 15 foldout plates. Good condition, the binding with edge wear and partially cracked, but tight hinges, contents sound but stained and foxed, end papers lacking. All of the pre-War of 1812 editions tend to be rare. (postpaid) \$ 75

47. John Gummere, "A TREATISE ON SURVEYING, CONTAINING THE THEORY AND PRACTICE: TO WHICH IS PREFIXED A PERSPICUOUS SYSTEM OF PLANE TRIGONOMETRY.", 4th Ed, Kimber and Sharpless & John Richardson, Philadelphia, 1825. Original leather binding (weak hinges, partially cracked at upper ends) 8 1/2" h, 5 1/4" w; pgs. vi, (2), 9-216, 152 (tables) 8 engraved plates. Binding in very good condition, contents fine except for light foxing. This treatise (1st edition in 1814) continued in use for over 100 years, Karpinski noting that there was an edition as late as 1917. He lists 20 issues through 1849. This great popularity resulted from the good presentation of theory combined with practical instruction in the use of instruments. (postpaid) \$ 60
48. John Gummere, "A TREATISE ON SURVEYING", 14th Ed (14th issue), Thomas, Cowperthwait, & Co., Philadelphia, 1846. Modern leather binding 9 1/4" h, 5 3/4" w; pgs. title page, (5)-266, 152 (tables), 11 plates. Very fine overall condition except for edge stains to the front blanks and title leaf and large water stains to the plates. Edition numbering is as erratic as 'Gibson' with a jump from 8th to 14th in 1838, and all subsequent editions also called the 14th. (postpaid) \$ 55
49. W. & L. E. Gurley, "A MANUAL OF THE PRINCIPAL INSTRUMENTS USED IN American Engineering and Surveying", 36th Ed, Troy, N. Y., 1902. Original cloth binding (badly water stained) 6 3/4" h, 4 1/4" w; 446 pgs with hundreds of text illustrations. Contents in fine condition. (postpaid) \$ 20

Second American Edition of the 18th Century

50. John Love, "GEODAESIA: OR, THE ART OF SURVEYING AND MEASURING LAND made Easy . . . AS ALSO To lay out New Lands in AMERICA, or elsewhere: . . .", The 13th Ed adapted to American Surveyors, Samuel Campbell, New York, 1796. Modern leather binding 8" h, 4 1/2" w; pgs. (4), 189, 53 (tables), 8 (appendix on surveying by chain only), many text woodcut diagrams. Contents generally fine with only minor stains. The first edition of this work was published in London in 1688 just after Love returned from surveying in America. He appears to have been the world's first surveyor to realize that the vastness of North America, and the inaccessibility of huge tracts within the interior called for techniques quite foreign to the typical English country surveyor. Quality (fine accuracy) had to be replaced by quantity. The many editions of his work (at least 13 in England) found ready use on this continent. By the end of the 18th century the demand was so great that it proved profitable for copies to be printed here with one edition in 1793 (based on the 12th London) and this one (based on the 13th London). (postpaid) \$ 140
51. Anthony Nesbit, "A COMPLETE TREATISE ON PRACTICAL LAND-SURVEYING, In Seven Parts", 5th Ed, Longman, Rees, Orme, et al, York, 1833. Original boards newly rebaked, 9" h, 5 1/2" w; pgs. xix, (1), 396, 10 engraved plates (of 12, nos. 9 and 10 missing possibly never bound in) and the separately bound engraved 16 pg field book, now bound in at end of volume. Fine to very fine overall condition. Nesbit (1778-1859) published the first edition in 1800 and Taylor 2 notes that there was a 12th edition in 1870. The missing plates appear to be plans, or plots, drawn from data in the field book. This book appears to present a particularly good view of English land surveying in the early 19th century. (postpaid) \$ 25

THE MICROSCOPE

(Books in this section for sale only to current purchasers of microscopes.)

52. Henry Baker, "EMPLOYMENT FOR THE MICROSCOPE. IN TWO PARTS. I. An Examination of Salts and Saline Substances, their amazing Configurations and Crystals, as formed under the Eye of the Observer. . . . II. An Account of various ANIMALCULES never before described, and of many other Microscopical DISCOVERIES: With OBSERVATIONS and REMARKS. LIKEWISE A Description of the MICROSCOPE used in these Experiments, and of a new Micrometer serving to shew the Size of magnified Objects.", (1st Ed), R. Dodsley, London, 1753. 20th century full leather binding 8" h, 5 1/4" w; pgs. xiv, 442, (10), 17 engraved plates including the large folding one of Cuff's microscope. Fine overall condition although light foxing throughout. Baker (1698-1774), F.R.S. in 1740, was the leading authority and writer on the microscope of the 1st half of the 18th century. Both this work and his "The Microscope Made Easy" (1st edition in 1742) were reissued a number of times. (postpaid) \$ 250
53. Conrad Beck, "THE MICROSCOPE/A SIMPLE HANDBOOK PART I", 3rd Ed, R. & J. Beck, London, 1930. Original cloth binding 8 1/2" h, 5 1/4" w; 151 pgs with 154 text figures. Contents in fine plus condition, binding very good with minor spine wear. The 1st edition of 1921 had 144 pgs with 131 figures. This is a well written book describing instrumentation and its application at a simpler level than is found in Part II, each book being complete in itself. (postpaid) \$ 25
- 2nd Edition of the Dallinger Revision
54. William B. Carpenter, "THE MICROSCOPE AND ITS REVELATIONS", 8th Ed, P. Blakiston's Son, Philadelphia, 1901. Original cloth binding 9" h, 5 3/4" w; pgs. xx, 1181, 23 plates (some in color), 817 text figures (some of those of instruments, full page in size). Very fine condition although the hinges are weak (partially repaired) as with any book of over 1000 pages. The first Dallinger revision was of the 7th edition of 1891. This, the last edition of 'Carpenter' has the greatest content of them all and is an absolute 'must' for every serious student of the history of the microscope. (postpaid) \$ 80

EARLY ANALOG CALCULATORS

Everard's Slide Rule

69. Thomas Everard, "Stereometry: Or The ART of GAUGING Made eafy, by the Help of a Sliding-Rule:", 10th Ed, Hussey, Walthoe, et al, London, 1738. Original leather binding 6 1/2" h, 4" w; pgs. (12), 300, 2 long folding plates. Binding good, sound but with hinge cracks and edge wear, contents fine except for some foxing, mostly at the front and back. Everard's slide rule, described but not illustrated in this work (1st edition in 1684) has 2 slides on opposite faces. On one side of the rule there are 2 double lines of numbers (A & B) which slide by one another for the ordinary operations of multiplication, division, etc. Below these are a 3rd double line of numbers on the slide and a line of segments on the fixed body for finding the ullage of a cask. On the opposite faces a double line of numbers (C) slides against a single line of numbers for square roots and also scales for cube roots. There are other scales on the edges of the rule as well as inside the slides. An early example of this rule made by Carver of London in 1689 is in the Science Museum, London. (postpaid) \$ 130

Galileo Invents The Sector

70. Galileo Galilei, "LE OPERAZIONI DEL COMPASSA GEOMETRICO, ET MILITARE", Terza (3rd) Ed, Paolo Frambotto, Padova, 1649. Early (original) soft cardboard covers 8 3/4" h, 6" w; pgs. title, (6), 80, folding engraved plate of the sector, and many text woodcut illustrations. Very fine overall condition. Galileo seems to have invented his "compasso geometrico", also called compass of proportion, or sector (in the English speaking world) about 1597 and disclosed it about 1598. The first edition of this, his first book, was published in 1606 with, it seems, less than 60 copies issued. It was reprinted in 1619. A second, improved edition was issued in 1640 by the same publisher of the third, which is offered here. The instrument itself with linear, square, cube and other scales upon it, made it possible to calculate the ratios between linear dimensions of planar and solid bodies by setting the angle of the sector to desired ratios of the areas or volumes of such bodies, and the inverse. Edmund Gunter was then to add his logarithmic scales to Galileo's sector and further extend its use. This is a major book in the history of computers. (In Italian) (postpaid) \$ 570

71. Andrew Mackay, "THE DESCRIPTION AND USE OF THE SLIDING RULE, IN ARITHMETIC, AND IN THE MENSURATION OF SURFACES AND SOLIDS. ALSO THE DESCRIPTION OF THE SHIP CARPENTER'S SLIDING RULE, AND ITS USE APPLIED TO THE CONSTRUCTION OF MASTS, YARDS, & c. TOGETHER WITH THE DESCRIPTION AND USE OF THE GAUGING RULE, GAUGING ROD, & ULLAGE RULE", 2nd Ed, Oliphant, Waugh, & Innes, London, 1811. Original paper backed board covers 9" h, 5 1/2" w; pgs. title, (6), 18, (6), folding engraved colored frontis plate illustrating all sides of the four different calculating rules, plus tipped-in 4 pg publisher's catalogue. Typical wear to this publisher's temporary binding, contents very fine. The author (1760-1811) is best known for his "The Theory and Practice of finding the Longitude at Sea or Land" and "Complete Navigator". He also wrote several shorter books including a "Method of finding the Longitude by Lunar Observations" and "Description and Use of the Sliding Gunter in Navigation". The last page of this book has the author's (interesting) advertisement offering to teach students in the various mathematical sciences giving as his credentials the articles on these subjects he has written for the Encyclopaedia Britannica and Rees's Cyclopaedia. (postpaid) \$ 95

72. Jacques Ozanam, "USAGE DU COMPASS DE PROPORTION, ET DE L'INSRUMENT UNIVERSEL, Pour résoudre promptement & très-exactement les problèmes de la Géométrie pratique, tant sur le papier que sur le terrain, sans aucun calcul.", nouvelle édition, Charles-Ant. Jambert, Paris, 1748. Early (probably original) leather binding 6 3/4" h, 3 3/4" w; pgs. xxi, (3), 240, 12, 12 folding engraved plates. Extremely fine condition. The 1st edition of this work was published in Paris in 1688 becoming the standard work on the sector in France during the next half century. Ozanam (1640-1717) was one of the leading French mathematicians of his time. Not only did his books go through many editions in France, but a number were also translated into English by Moxon, Raphson, Desaguliers and others. (In French) (postpaid) \$ 135

Solving Algebraic Equations

73. John Rowning, "Directions for making a Machine for finding the Roots of Equations universally with the Manner of using it:", extract from the Philosophical Transactions, vol LX, London, 1770. Modern full leather binding 9" h, 7" w; 17 pgs and the large folding engraved plate. Extremely fine condition. This work describes the first analog computer designed to solve algebraic equations of the n'th degree expressed in the form $y = a + bx + cx^2 + dx^3 + \dots + qx^n$. It was completed in 1768 by Rowning based upon the graphical method invented by A. de Segner in 1751. An actual machine mechanized to the second degree was presented to the Royal Society in 1770 but apparently no longer exists. A description of this analog computer may be found on pgs. 47 and 48 of the (London) Science Museum catalogue "Calculating Machines and Instruments". (postpaid) \$ 125

126. RACK CLOCK - German, c. 1900, the dial marked "Anno 1750" and "MADE IN GERMANY". On the inside of the clock it is signed "GEBR. ALLGAIER Schönwald/Schw. GERMANY". The wall mounting base is darkened carved oak 26 1/2" long and is fitted with a brass rack 20" long. The 3 1/4" d clock with enameled dial is fitted into a hollowed lead housing which actually serves as the driving force for the mechanism. An internal ratchet gear within the clock engages the long rack. There is a short bob pendulum in front of the dial which is attached to a pin anchor escapement. A high unusual escape wheel with long engagement arcs results in a large angular movement of the pendulum. The clock is wound by pushing it up the rack. It runs by slowly working itself down the rack, the period of full travel being slightly over 1 day. There is no spring, the weight of the clock being its own driving force. Extremely fine physical and working condition although as a chronometer it would leave something to be desired in the time keeping department.

(15 lbs UP)

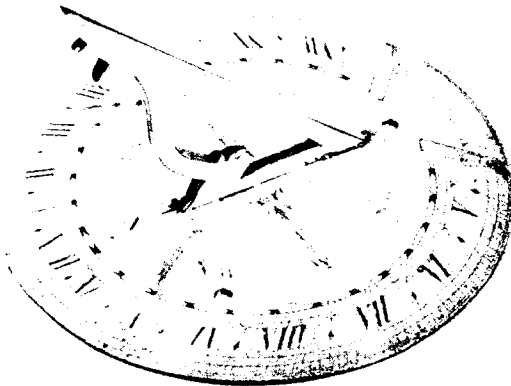
\$ 295



127. EARLY SUNDIAL FOR BALTIMORE - English, 18th c, probably pre-revolutionary, signed "DOLLOND LONDON LAT 39°-20' ". Cast brass base and gnomon, 7 7/8" d by 4 1/4" h. The compass rose and chapter divisions and markings are engraved. Generally fine overall condition noting that the gnomon was reattached to the base at some time in the past, and with restored lacquer finish. The marked latitude runs right through the middle of Baltimore, Maryland. The form of gnomon and engraving are typical of the 18th century and since shipment of English instruments, particularly in brass, to America almost disappeared after the Revolution, it is our opinion that this sundial was made during the 3rd quarter of the 18th century.

(8 lbs UP)

\$ 665



128. FINE AUGSBURG UNIVERSAL EQUATORIAL DIAL - German, 2nd half 18th c, signed "And Vogl." on the bottom of the compass together with the listed latitudes of 7 European cities. Bright lacquered brass octagonal base 2 1/4" across, 1 5/16" d silvered compass dial (with recent needle and glass), 2 1/8" d silvered chapter ring, fold-down 7/8" pin gnomon, and silvered latitude quadrant. Very fine overall condition with restored surface finishes and 4 small holes near the outer edges of the base have been plugged and engraved to match the original work. These are so skillfully done that they do not show in the photograph and indeed are difficult to detect under magnification.

Andreas Vogler (1730-1800) was one of the better known and highly regarded Augsburg makers of small brass sundials. The number of surviving examples (at least one to be found in virtually every museum collection of scientific instruments) attests to his popularity during his own lifetime. Item 164 of our Catalog 119 is of a slightly smaller dial by him with somewhat simpler engraving.

(3 lbs UP)

\$ 695



129. FINE MAHOGANY CASED POCKET COMPASS - English, 18th c, unsigned. Lidded mahogany body 4 5/8" sq x 1" h with 3 3/4" d compass well. Engraved paper dial face, silvered outer ring graduated by degrees, and 3 1/8" compass needle. The cover glass retaining ring is lathe turned. Very fine overall condition although there are some edge chips in what appears to be the original cover glass.

(3 lbs, UP, PS)

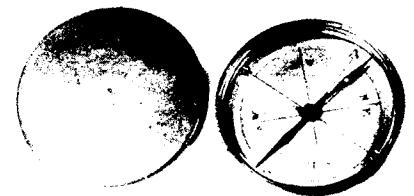
\$ 245



130. BRASS CASED POCKET COMPASS - English, 18th c, unsigned. Brass case and cover, with restored lacquer finish, 2 3/8" d by 1/2" h (covered), silvered dial with 8 compass points, and 2 1/8" needle. Quality workmanship and in fine overall condition.

(2 lbs, UP, PS)

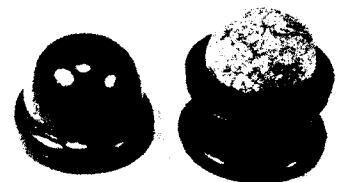
\$ 145

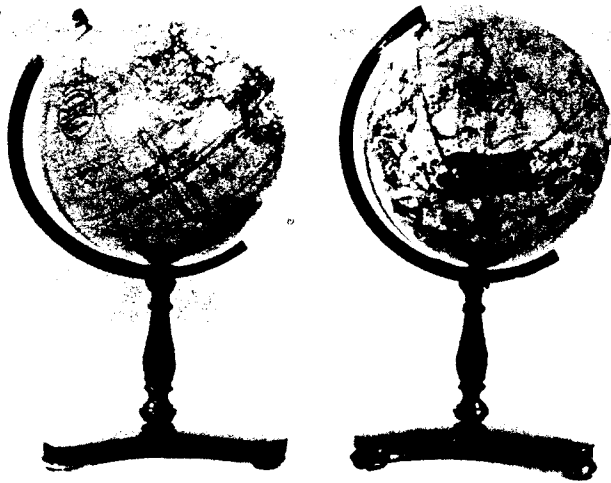


131. MINIATURE TABLE TERRESTRIAL GLOBE - English, c. 1800, unsigned. Globe with engraved gores, only 1 1/4" dia, contained in covered turned ebony table case 1 5/8" dia x 2 1/8" h. The cover is a modern restoration matching the original base. The globe is in basically nice condition although its surface is worn in several places, particularly the Pacific Ocean. Alaska is called "Russian America" and although the eastern part of North America is designated the "United States", the western, including California, is called "New Albion", an early name for western New Jersey.

(3 lbs, UP, PS)

\$ 345

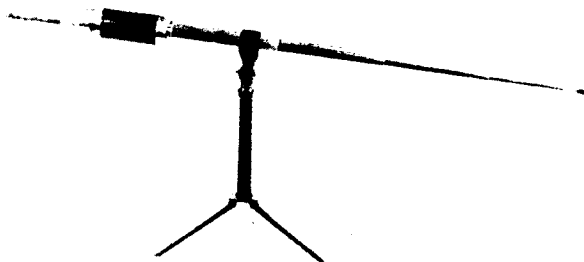




143. PAIR OF GOOD 6 INCH GLOBES - English, c. 1845, both signed "WRENCHS Six Inch Globe constructed from THE LATEST AUTHORITIES LONDON". The globes, with hand colored engraved gores, are mounted within semi-circular brass meridian rings which in turn are atop turned wooden posts on triangular bases (with 3 turned disc feet each) about 6" on a side. The globes are in very fine overall condition (noting several age cracks in each and a few rubbed spots) with original finish everywhere except the bases which have been revarnished. The last date of discovery on the terrestrial globe is 1841, a large chunk of Texas is still shown as part of Mexico (became a state in 1845) and Canada is still called British America. Taylor 2 lists Edward Wrench (fl. 1835-46) at 6 Gray's Inn Lane, London. Our given dating is thus confirmed. The globes are well drawn and make quite an attractive pair.

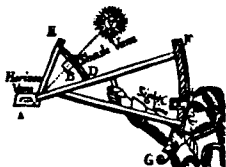
(10 lbs UP) \$ 1350

144. HIGH QUALITY TABLE TRIPOD SPYGLASS - French, 2nd qtr 19th c, signed "Maison de l'Ingr. Chevallier, Optn. Place du Pont Neuf, 15, Paris". The 4-draw telescope has a 2 1/8" d short mahogany barrel with bright lacquered brass fittings, extending sunshield, lens cap; 38" max extension. The achromatic objective has a clear aperture of 1 7/8" yielding clear sharp images of about 30 x's magnification. The original black oxidized brass folding clamp-on tripod is 14" h. Fine overall condition with some dark spotting of the original finish. No case, although, in our opinion, there was one originally.



(10 lbs UP) \$ 625

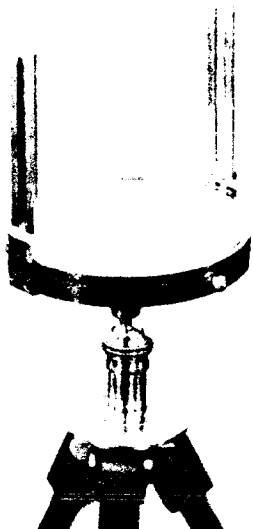
Jean Gabriel Auguste Chevallier (1778-1848) is believed to have been related to the better known instrument makers, Vincent and Charles Chevalier. Although not as innovative as the latter, those of his instruments known to us show him to have been a skilled worker. He exhibited his instruments and books at the Paris exposition of 1827, and produced achromatic microscopes on Selligie's design.



145. SURVEYOR'S VERNIER POCKET COMPASS ON TRIPOD - American, last 3rd 19th c, signed "W. & L.E. GURLEY, Troy, N.Y.". Bright lacquered brass, 5 5/8" d silvered compass face inset with 1 1/4" bubble levels, 4 5/8" h folding sight vanes, magnetic variation scale and vernier engraved on the outer edge of the compass body. Ball and socket joint for staff or tripod mounting. Original tripod with 47" mahogany legs. No case. Fine overall condition except that the needle tends to stick; original lacquer finish on compass body, restored finish elsewhere, some pinpoint spotting.

Dating of this instrument presents some problems. The design of the tripod head predates that shown in Gurley's catalog of 1873 and is typical of that found in their 1869 catalog. However the largest pocket compass listed in either of these catalogs has but a 3 1/2" needle. Their 1902 catalog does list a 4 1/2" needle model but states quite specifically that it has half slit vanes rather than those of the type found on the example here and the illustrations show the later form of tripod. Could this instrument have been available in the 1860's, but not catalogued with a different tripod and vanes until the 1890's? We do not know.

(15 lbs UP) \$ 375

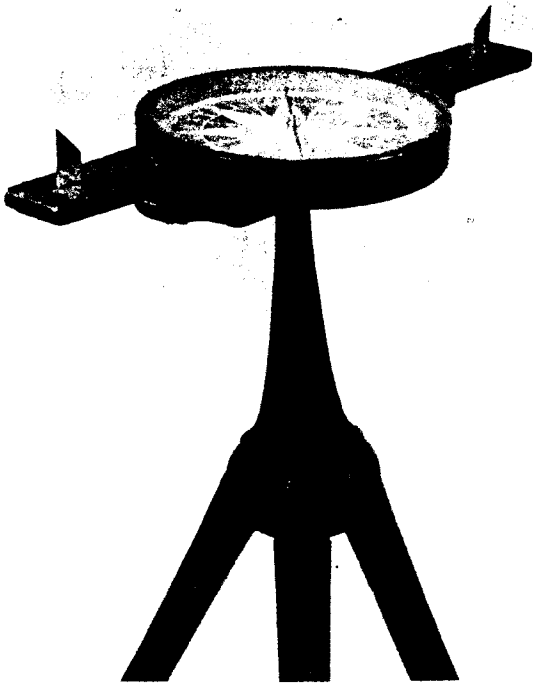


146. STEEL 50 LINK 2 POLE CHAIN - American, late 19th c, unsigned. Steel chain with triangular wire handles, 2 circular rings between each pair of long links, anti-twist joint in the center, and (most unusual)

brass marker tags every five links. The chain wire does not vary more than .001" from its nominal .105" d suggesting the late dating. Some dark spots but generally fine overall condition. The form of this chain is typical of that found in use in New England. However, we have never had one with markers every 5 links (every 10 is the usual). For sale only to purchasers of other surveying equipment from this catalog.



(5 lbs, UP, PS) \$ 180

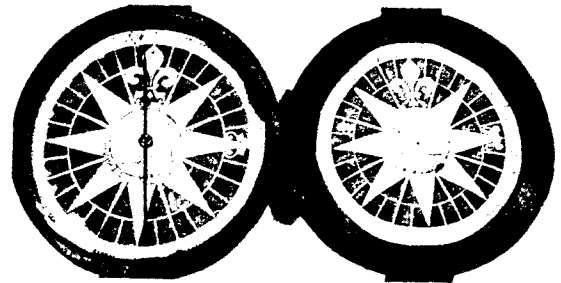


147. EXTREMELY EARLY AMERICAN SURVEYOR'S COMPASS - c. 1740, the engraved compass card signed "Made by THOMAS GREENOUGH BOSTON N. England". Wooden instrument 14" long, compass 6 1/4" outside dia, 1 3/4" thk overall. Compass card with sailing boat and lighthouse in center is 5 1/2" d. Compass needle, glass and 1 1/8" h brass sight posts are modern restorations. Original pine compass cover included. The wooden tripod with 47" long oak legs and 7 1/2" h top section was not found with the compass, but is (in our opinion) 18th century American, made with wooden pegged joints, and typical of what may have been original to the compass. Compass and tripod are in very fine restored display condition.

When originally located, a second Greenough compass card with the figure with a Davis quadrant in the center, was pasted over the "lighthouse" card. (This card will go to the purchaser of the instrument.) Bedini shows this card as Fig. 46 and notes that of the five Greenough wooden compasses known to him, "The compass card in each of these five instruments is identical, designed for use in the mariner's compass (see fig. 46)." The bottom compass card here is the only known example of what is obviously his earlier design. 4 of the 5 examples have wooden vanes, the one in the Bucks County Historical Society has brass sights according to Smart, 6 5/8" h according to Bedini, but it is not known to us what shape they take. The compass here was found without any sign of ever having wooden sights. Rather there were longitudinal slits about 3/4" long each, one of which held the rusted remains of a thin iron blade. Based on this, two

brass sighting vanes of the correct size were made and fitted into the slits. It is believed that this is the correct restoration of what is certainly the earliest known instrument by Greenough.

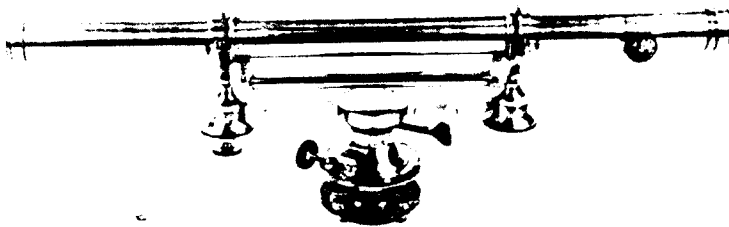
Thomas Greenough, Sr., (1710-1785) was born and died in Boston, fathered 12 children by 2 wives, and seems to have been a major figure in the commerce of early Boston. He was a member of one of the militia companies in Boston, in 1747 he was listed as 3rd sergeant, and according to Bedini, "He was a firm patriot, held town office, and was a founder and deacon of the New Brick Church in Boston". Thus the instrument here is significant on several counts; it is the earliest known example of the work of an early and major Boston instrument maker, and it may be, if not the earliest known signed American surveying instrument, it is no later than the only known instrument by Joseph Halsey (1657-1745), which is shown as Fig. 39 in Bedini. (Joseph Halsey seems to have been then the earliest instrument maker in Boston.) This compass is a major find.



The Two Greenough Compass Cards

(2 UP packages, 10 lbs & 15 lbs)

\$ 1750



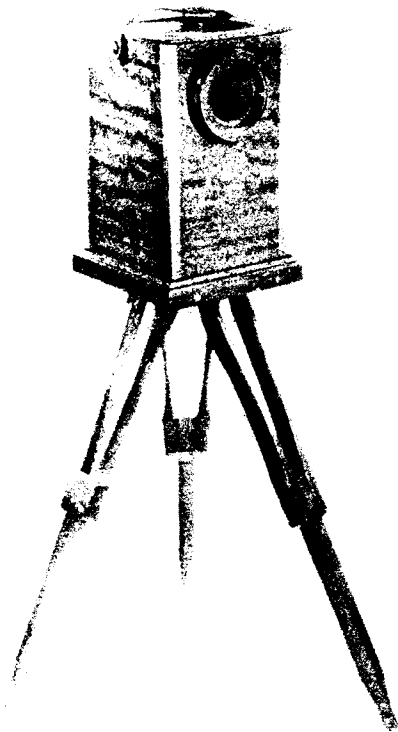
148. LARGE 18th CENTURY WYE LEVEL - English, c. 1785, signed "SPENCER, BROWNING & RUST, LONDON". Bright lacquered brass, 6 5/8" h incl 4-screw leveling base, telescope 21 1/2" long (min) extending to 23 3/4" by eyepiece draw and rack and pinion focussing of 1 1/16" aperture achromatic objective. Erect image. Bubble vial is 7 1/4" long and the spacing between wyes is 8 3/8". Original hand dovetailed mahogany case

is 22 3/4" long, 8 1/4" deep, 5 1/2" h and in very good overall condition. The level is very fine with a repair to one leveling screw, restored finish to the telescope, bubble vial, and several screw heads, original everywhere else. Lens cap missing.

The signed firm was established around 1780 and is best known for their ebony frame Hadley quadrants which they produced in greater numbers than any other maker in the world. In the early 19th century they used the form "Spencer & Co" on higher quality instruments, usually those in brass. We know of no high quality brass instruments by them (except the one here) signed with their full name. This, combined with actual design details, leads us to believe that they did not make the level here. Indeed, in our opinion it resembles the workmanship of the brothers John and Edward Troughton who were partners in the period 1770-84 (when John died). Design details of the instrument are consistent with such a time period. The case is typically c. 1775-90 as well.

(20 lbs UP)

\$ 995



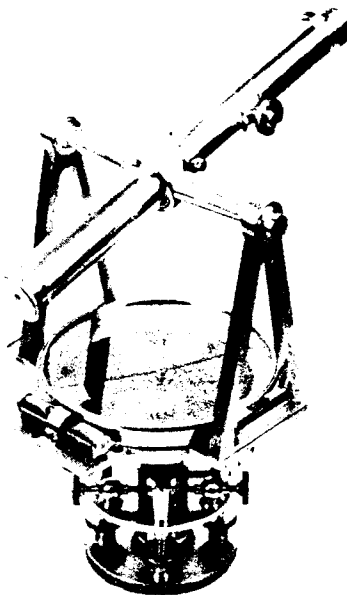
149. MANSFIELD PATENT AUTOMATIC WATER AND OIL FINDER - English, c. 1920's, made by "W. MANSFIELD & CO., LIVERPOOL". Made of brass-bound mahogany, 3 ft h when on tripod, the instrument unit is 7 1/4" sq x 11" h with a 2 3/4" d circular window in front, a 4 5/8" sq window on top, and a 3 3/4" sq trap door in the rear. There is a horizontal scale within, about 4 1/2" below the top graduated between ± 70 deg. The secret mechanism is sealed in the space below. The folding tripod legs are 24 1/2" long and detach from an (approx) 8" sq rotating instrument base. Original leather stowage case 9 1/2" sq x 15 1/2" h well worn and the cover stitches have come apart, but it may be repairable. The instrument, with a chip of wood missing from an upper edge, is in extremely fine, working (?) condition. The measurement magnetic needle is present but not the separate alignment compass. Two instruction/advertising booklets are also present.

The instructions call for observations to be taken on fine, calm, clear days between 8 in the morning and 5 in the afternoon in summer and 11 and 3 in winter. (We suspect that they should also be adjusted to conform with the open hours of the local pub.) Seven different models were offered: water down to 200 ft for £ 50, water to 500 ft for £ 75, water to 1,000 ft for £ 125, water or oil to 3,500 ft for £ 200, water or oil to 4,500 ft for £ 275, water or oil to 6,000 ft for £ 375, and oil to 8,500 ft for £ 500. There is no indication on this one (as if it mattered) as to its capabilities. According to one of the booklets, the great world wide success of their water and oil finders has led the Mansfield company to develop another type of finder for minerals, buried treasure, coal, etc. (probably also Uranium if they had known about it). These ranged in price from £100 to £1,000. We do not think that it would be proper for the purchaser to take this one apart to discover the secret mechanism.

(30 lbs UP)

\$ 550

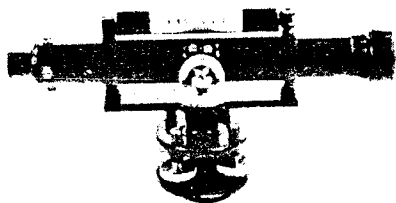
150. THIRD MODEL OF WILLIAM J. YOUNG'S ORIGINAL AMERICAN TRANSIT - 1855-60, signed "Knox & Shain/Makers/Philada" (even though they were not) with the trade label within the case placing them at 716 Chestnut. Bright brass, restored lacquer finish, 11 3/4" h incl the 4-screw leveling base and the 11" long rack and pinion focusing telescope horizontal. The 5 7/8" d compass housing contains a silvered outer ring graduated to half degrees, an interior azimuth scale appearing within a single vernier window and thus reading to 1 arcmin and a 5" needle. Under the base plate are the knobs for the needle lifter, azimuth clamp screw, and azimuth drive pinion. The compass dial face has faded slightly from Young's patented black finish. The rear bubble level tube is 2 1/4" long and the side one (mounted within the right standard) is 2" long. The original mahogany tripod has 58" legs. The original hand dovetailed walnut case, 9" x 12 1/2" x 10 1/4" h, is in very good condition as is the tripod (brass fine, legs sound but show rough usage). The transit is extremely fine (although lens cap missing).



This instrument should be compared with Young's original transit (p. 175 of Smart) and his 2nd model of 1837 (Item 154 of Catalog 124). It is obvious to us that Young, rather than Knox & Shain (established 1855), made the one here. It is quite similar in design aspects to Young's earlier signed instruments and many parts are actually identical. The leveling base of the model here screws on to the tripod rather than being an integral part thereof, but the transit still separates from this base. The same slow motion system is found on both. The "A" standards now have a bottom bar but are otherwise identical and attach to the base plate in the same way. Rather than a single circular level, orthogonal level tubes are now employed. Base plate, compass housing and azimuth scale construction are unchanged. The telescope although longer, follows the same mechanical and optical design of the 1837 model. The instrument in addition to its elegant simplicity and perfect display condition, also illustrates an important connecting step in the history of the American surveying instrument industry.

(2 UP packages, 25 & 28 lbs)

\$ 1350



151. WELL MADE BUILDER'S LEVEL - English, c. 1900, unsigned, of a design made by Stanley of Great Turnstile, London. Brass in black lacquered finish 10" long by 5 1/4" h incl 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 leveling base) date the instrument to the turn of the century.

(10 lbs UP, PS)

\$ 245



152. EARLY PRECISION THEODOLITE - French, c. 1785, signed "Lenoir a Paris" with several parts numbered "1". Bright lacquered brass standing 6" h including the ball and socket staff mount and the 6 1/2" long telescope in the horizontal position. The azimuth circle is 6 3/8" d, the engine engraved scale divided to half minutes and opposing verniers reading to 1 arcmin at a radius of 2 7/8". A clamping tangent screw provides fine motion on the circle which, in turn, can be locked or free of the mounting post so that multiple sightings of the same angle can be added along the scale for increased accuracy. Both the eyepiece and objective of the telescope slide for focussing. The single lens objective has a 3/4" aperture. Original finish on the ball and socket joint and a few other parts, the rest is modern restoration. Several original imperfections in the brass telescope tube. Extremely fine overall condition. No case.

Étienne Lenoir (1744-1832) had established such a fine reputation as an instrument maker that (by 1772) de Borda entrusted him with the construction of his reflecting circle, and in 1784 Lenoir developed from it his own repeating circle. He made his own circular dividing engine sometime about 1780-83. This machine has disappeared, and only an incomplete description of it survives. Some details had never been revealed, Lenoir taking these secrets to the grave. It was a machine of great accuracy, however, according to Daumas. He says that an examination of a circle divided on it revealed an error of less than 15 seconds for an arc of 60 degrees. In 1787 Lenoir was appointed certified engineer to the king, one of the original members of this body. He supplied instruments for many of the major French geodetic operations. After 1800, he constructed several high-precision astronomical instruments, and had been involved in making standards of length including the "standard metre". He must have made but few instruments compared with his English contemporaries. His workshop of 7 people (large by French standards) did not even come close to Ramsden's of 50. The Nachet and Van Marum collections did not include a single one of his instruments. The National Maritime Museum, Greenwich, has a Langlois graphometre rebuilt by Lenoir, but no original instruments. The Peabody Museum, Salem has none. Item 146 of our Catalog 120 is the only other original surveying instrument by him known to us. Design details (and its serial no. 459) suggest that it was somewhat later than the one here. Even though the marked "1" seems to be a batch rather than serial number, it still may indicate that this was one of the very first instruments graduated on his dividing engine.

(7 lbs UP) \$ 2495

153. COMPACT LEVELING ROD - English, c. 1900?, signed "MICHELL, COX & Co./WINDSOR HOUSE, / VICTORIA STREET./LONDON S.W.1.". Mahogany with white painted face and lacquered bright brass fittings, 2 1/4" x 3 1/4" x 15 1/8" h (min) extending in 3 sections to 24". Graduated in large divisions to tenths of feet and then into 50th's. Fine overall condition although the original lacquer finish has extensive pinpoint spotting. We can understand the use of a short rod in city areas where construction already exists, but only the English would have gone to the trouble of making a 2 ft. rod with the complexity of 3 sections which telescope, one within the other, so as to reduce the overall length by 9 inches. The quality of construction and workmanship is far above that of typical American rods.

(8 lbs, UP, PS) \$ 160



154. PARTICULARLY FINE WOODEN SURVEYOR'S COMPASS - American, mid half 19th c, signed "H. S. PEARSON/PORTLAND". Walnut base 14 7/8" long, 6" d compass housing with 5 1/2" needle and engraved paper compass dial, and 5 1/8" h original fruitwood sight vanes. The compass was found with an early (original?) rough pine protective cover. The compass is in very to extremely fine original condition although some of the orange putty which holds the compass glass in place has chipped off.

According to Smart, "Henry Sleeper Pearson, son of David and Elizabeth Sleeper Pearson was born at Newburyport, Mass. 23 May 1789.

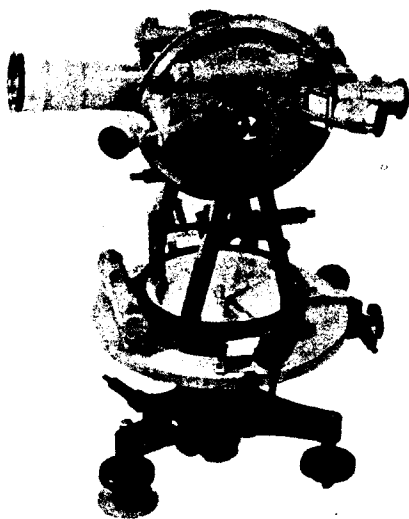
He died at Portland 30 August 1878. He is listed in the Portland directories from 1823, which was the first one issued, to 1875, as a mathematical instrument and watch maker. In 1877 he is listed as a watch and nautical instrument maker with William Senter & Company of Portland." Although he worked in the 19th rather than the 18th century, still only a few of his wooden instruments have survived and those most often in incomplete or damaged condition.

(8 lbs UP) \$ 895

155. MILITARY ENGINEER'S PLANE TABLE ALIDADE - English, signed and dated "HOUGHTON-BUTCHER MFG. Co. LTD. LONDON - 1917 No. 6,353" and also with the government arrow. Boxwood rule 16" long, 1 3/4" w, 1/2" thk, with scales along the slightly beveled edges; one reading to 50 parts to the inch and the other of yards on a scale of 2 inches = 1 mile. Black oxidized brass 3" h folding sight vanes. Original leather field case in sound, very good condition. The alidade is very fine with 1 screw missing.

(4 lbs, UP, PS) \$ 75

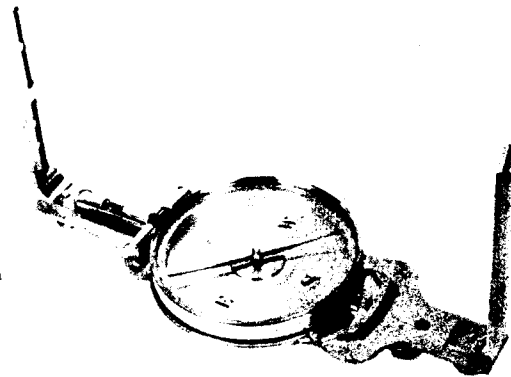




156. HIGH QUALITY EUROPEAN THEODOLITE - Swiss, 2nd qtr 20th c (?), signed "KERN Aarau/No. 21281". Brass and aluminum alloy construction in grey and black enamel finishes, 11" h including 3-screw leveling base. The 8" long telescope has a 4" bubble level and rack and pinion focussing. The 3 1/2" d compass has a silvered face and 2 3/4" needle. The inlet silver horizontal and vertical readout scales are read out by opposing verniers to 1 arcmin; fitted with 4 scale magnifiers, 1 for each vernier. Both axes are fitted with spring-loaded slow motion screws. Generally fine condition although the grey finishes tend to be somewhat soiled. The cross-hairs are present and the instrument is working (although we can provide no estimate of present accuracy). One of the leveling screw brass pads is missing. No case.

(16 lbs, UP, PS) \$ 395

157. MID-WESTERN SURVEYOR'S VERNIER COMPASS - American, 5th decade, 19th c, signed "HENRY WARE, MAKER, CINCINNATI, O.". Bright brass, restored lacquer finish, 5 7/8" d silvered face compass with 5" needle on 14 1/2" long base plate. The orthogonal bubble levels are 2 1/2" and 2 3/4" long and the screw-on sight vanes, 7 1/8" h. A pinion drive is used to set in the magnetic variation and a silvered dial surveying leg counter is viewed through a small opening near the variation vernier. The original hand dovetailed mahogany case, 7" x 15" x 4 3/4" h, has fittings for a ball and socket joint, but none is present. It is in very good condition except for chipped off wood at either end of the case. The compass is very fine.



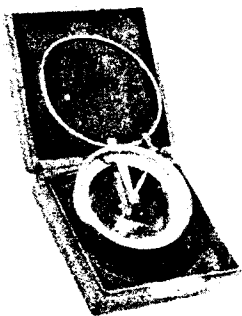
Smart lists Henry Ware (1810-1885) born in Montpelier, Vermont as first appearing in the Cincinnati directory for 1839-40 at the corner of 5th and Sycamore. During 1855 and 56 there was a partnership of Ware & Hireman located on E. 4th St., by 1858 Ware is listed by himself again still on E. 4th St. A trade label within the case gives his address as the North East corner of Main and Fifth Sts. which would have to date from 1854 or earlier. There are unique design features of the instrument here which lead us to believe that it was actually made by Ware. Thus he was one of this nation's earliest instrument makers west of the Allegheny Mountains.

(18 lbs UP)

\$ 785

158. CASED DIPPING NEEDLE - American. c. 1900(?), signed "W. S. DARLEY & CO. Chicago, U.S.A.". Bright lacquered brass case 3 3/8" d x 1" thk, glass windows on either side, 3 7/8" d folding loop handle, white-faced interior ring graduated by degrees from 0 to 90 (at the bottom) and back to zero, and 2 1/2" long needle. Original 4 3/4" sq x 1 5/8" thk fabricoid covered case in very good condition. The instrument is very fine with original finish and in working condition (although out of adjustment). The original (quite worn) instruction sheet, which is included, indicates that this form of dipping needle was intended for the location of underground iron junction boxes.

(3 lbs, UP, PS) \$ 110

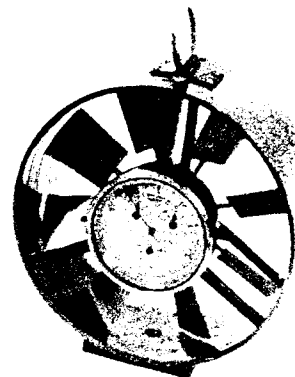


159. QUADRUPLE READOUT ANEMOMETER - American, c. 1900(?), signed "DAVIS INSTRUMENT MFG. CO./BALTIMORE, MD". Oxidized brass construction, 4 1/4" d x 1 5/8" deep outer ring, 8-bladed windmill of 3 7/8" d, 1 7/8" od

silvered readout dial, and folding top ring. There is a start-stop lever on top and a zero reset lever to the side (an unusual complication). The outer scale of the dial runs 0 to 100 ft and the 3 inner scales to 1,000 ft, 10,000 ft, and 100,000 ft. The original leather carrying case, 5 1/2" h x 4 3/4" w x 2" thk, is in sound condition. The anemometer operates and a calibration chart is included.

(4 lbs, UP, PS)

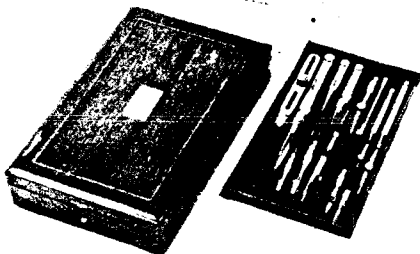
\$ 170

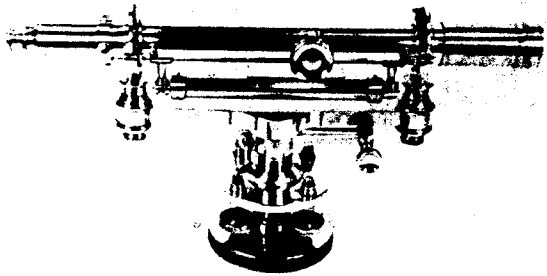


160. NICELY CASED DRAWING INSTRUMENTS WITH PROPORTIONAL DIVIDERS - English, 2nd half 19th c, unsigned. Rosewood veneered case, 5 3/4" x 9 1/2" x 2" h, with brass wire inlay. Lift-out tray with 15 pieces in brass, steel, and ivory including 2 ruling pens, proportional dividers, large compass with interchangeable legs, small compass with interchangeable legs, small dividers, small circle ink compass, and other fittings. One fine-pencil-lead adapter is missing. There are also 2 wooden triangles and a wooden French curve. Except for some cracking to the veneer, the case is in fine condition as are the instruments.

(7 lbs, UP, PS)

\$ 155





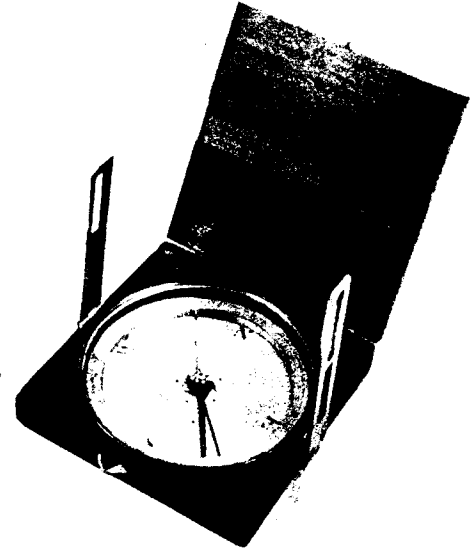
161. 18 INCH WYE LEVEL - American, end 19th c, signed "Young & Sons/Philadelphia/7248". Bright brass with restored lacquer finish, telescope 17 3/4" long extending to 19 3/4" by eyepiece draw tube and rack and pinion focussing objective, 7 1/4" bubble vial, 9 1/2" separation of wyes; 9" overall ht including 4 screw leveling base. The instrument is complete except for the external bubble scale and objective lens cap and is in extremely fine display condition. Several different color brasses used in its construction add to its appearance. No case.

William J. Young (1800-70) was the inventor of the American transit in 1831. His firm, founded in 1825, became "& Co." in 1867, "& Sons" in 1871, and "Young & Sons" from 1881 - 1918. Then the company was taken over by Keuffel & Esser.

(17 lbs, UP, PS)

\$ 395

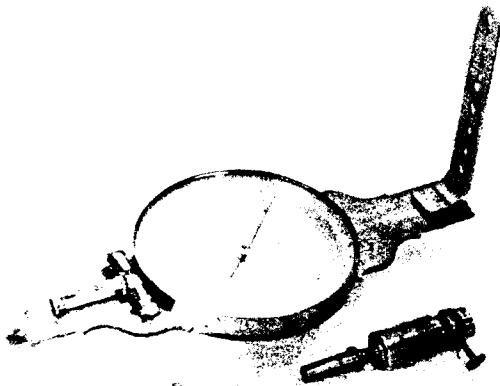
162. EIGHTEENTH CENTURY SURVEYOR'S FOLDING COMPASS - English, c. 1760-70, signed "COLE Maker Fleet Street LONDON". Mahogany body and hinged cover 5 3/4" sq x 1 1/8" thk (closed), 5" d inlet compass with silvered dial and 4" compass needle and bright lacquered brass 4 1/4" h folding sight vanes. Very fine overall condition, the finish on the sight vanes has been restored, otherwise the instrument is complete and original.



The second Benjamin Cole (1695-1755) was a noted maker and several exceptional signed instruments by him still survive. In 1748 he succeeded to the business of the famous orrery maker, Thomas Wright, located at "The Orrery", 136 Fleet Street. His son (the 3rd Benjamin Cole, 1735-1813) apprenticed to him in 1739 and was his partner by 1751. Instruments signed "B. Cole & Son" are known and Goodison places them in the period 1751-66, although one would think that 1755 would be a more logical end date. John Troughton acquired the firm in 1782. In our opinion, "Cole, Fleet, St." is the signature of the 3rd Benjamin Cole and would have been used between 1755 and 82. Thus we have here one of the longest continuous firms of instrument makers in the history of the world, stretching from the late 17th century well into the 20th; beginning with John Rowley (about 1698), Thomas Wright, Benjamin Cole (2nd), Cole & Son, Benjamin Cole (3rd), John, then John and Joseph, then John and Edward, then Edward Troughton, Troughton and Simms (1826), Cooke, Troughton, & Simms (1922), finally becoming part of Vickers.

(5 lbs UP)

\$ 755

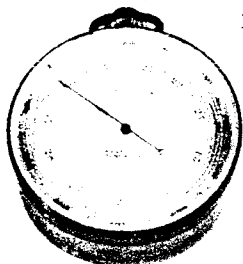


163. LARGE, NICELY CASED, SURVEYOR'S COMPASS - American, between 1840 and 58, signed "C. G. King Boston". Bright brass, original lacquer finish, silvered dial within 7" d compass housing mounted on a 15 7/8" long base with crossed bubble levels on one side. Sight vanes, 7 3/4" h, screw on at either end. Complete with ball and socket joint. Original mahogany case, 8 1/2" deep x 4 1/8" h x 16 5/8" w, in fine condition with King's trade card showing a sea captain with a sextant and a top-hatted surveyor with a transit inside the cover. The compass is in very fine condition except for some wear to the finish on the outside of the vanes and some dark streaking/spotting on the compass base.

Charles Gedney King (1808-58) was son of the Boston instrument maker Gedney King (1770-1839) and probably related to the Kings of Salem. His father was listed in the Boston directories from 1800 and both were partners between 1837 and 39. Nautical and surveying instruments by the father and son are included in the collections of the Essex Institute, the Peabody Museum (both of Salem, Mass.), the Gurley Museum, and have been listed in several of our catalogs. The compass here, and others, show that both were quite skilled in their profession.

(20 lbs UP) \$865

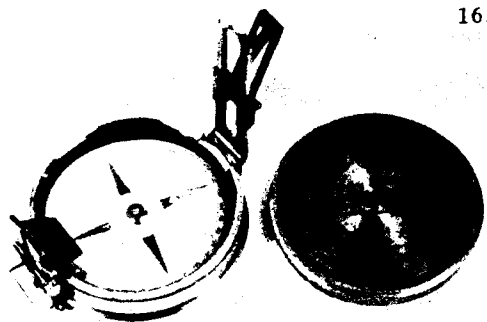
the Boston directories from 1800 and both were partners between 1837 and 39. Nautical and surveying instruments by the father and son are included in the collections of the Essex Institute, the Peabody Museum (both of Salem, Mass.), the Gurley Museum, and have been listed in several of our catalogs. The compass here, and others, show that both were quite skilled in their profession.



164. "IMPROVED SURVEYING ANEROID COMPENSATED" (BAROMETER) - English, dated "15 August 1888" on back in ink, and signed "GAUPP & Co. HONG KONG". Brass case in dark lacquered finish, 2 5/8" d x 1 1/4" thk with pocket watch-like stem and loop. The inner silvered dial is graduated from 20 to 31 inches of mercury. Turning the stem rotates a dial ring which is graduated in altitude from 0 to 10,000 feet. An inner pointer attached to the outside rotating bezel may be used to mark an initial pressure or altitude. Fine overall condition and working, although no guarantee of accuracy.

(2 lbs, UP, PS)

\$ 95

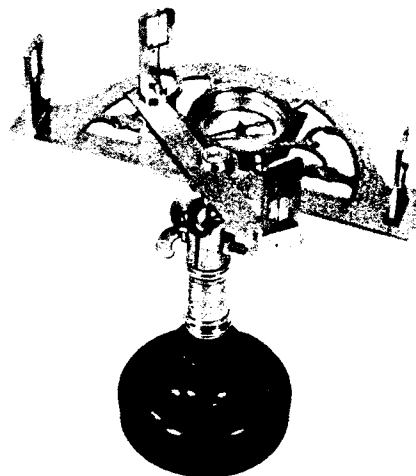


165. PRESENTATION PRISMATIC COMPASS - English, signed "ELLIOTT BROS. STRAND, LONDON" with the presentation inscription "Gent. Cadet R. M. Barklie, 2nd Prize Fortification, Royal M. Academy June 1867". Bright lacquered brass 3" d, 1" thk with cover in place, folding sight vane 2 3/4" h with 7/8" long tilting mirror for solar sightings in a sliding mount, and the prism assembly for sighting and reading of the compass card simultaneously. The floating green compass card is 2 7/16" d. Original leather case with some wear, particularly to the strap. The compass is very fine with original finish, some very light pinpoint spotting, but wear to the finish on the cover with its inscription.

(3 lbs, UP, PS)

\$ 195

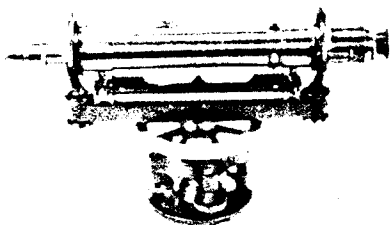
166. EARLY ELEGANT GRAPHOMETRE - French, c. 1700, signed "Butterfield AParis". Bright brass, restored lacquer finish, 8 3/4" across the major diameter, the semi-circular readout scale of 3 3/8" (85 mm) radius, and the pivoting alidade 6" long. The scale is divided to degrees and the verniers on the alidade read to 5 arcmins. The sight vanes are 1 15/16" h, the silvered face compass 2" od with 1 1/2" needle; 6 1/4" overall ht incl ball and socket staff mount. Excellent overall condition noting one (early) replacement nut and a 2mm notch cut into the edge of one end of the alidade along side the vernier scale. No case and display stand not included.



Michael Butterfield and Nicholas Bion were the two most important instrument makers in France in the period about 1700. Daumas writes, "Biographical details on Butterfield are somewhat contradictory, and only the date of his death, 28 May 1724, is authenticated. Moreri says that he was eighty-nine years old, in which case he would have been born in 1635. He was undoubtedly of English nationality, . . . some biographers say that he came to Paris in 1715, others that he arrived in 1685. In fact, he must have been there even earlier, to judge from a prospectus he published in 1677 (plate 51)." He is best known for his bird gnomon pocket sundials. Next, in terms of survival, are sets of drawing instruments and components of such sets. Again, according to Daumas, "Apart from sun-dials and astronomical rings, relatively few of Butterfield's instruments survive today. Surviving instruments include graphometers, and a brass quadrant on an iron pedestal, . . .". We offered a smaller and somewhat plainer example as Item 142 of Catalog 124. Item 129 of the Nacet collection is the same size and quality of the one here, with a slightly different cut-out floral pattern for the interior of the base plate. The Whipple surveying collection catalogue does not list a single example by Butterfield. Even though this is our third surveying instrument by him, they are far from common.

(6 lbs UP)

\$ 2195



167. BUILDERS "Y" LEVEL - American, early 20th c, signed "EUGENE DIETZGEN CO/CHICAGO-NEW YORK/5545". Brass construction in black oxidized finish, some parts black enamel, and fittings and knobs in original bright lacquer. Rack and pinion focussing telescope is 11 1/2" long with 5 1/8" long bubble level fitting into "Y's" 7" apart on 8" base. There is a 4" d silvered azimuth scale reading out by vernier to 5 arcmins. 7" h overall including 4-screw leveling base. The original 13" x 5 1/4" x 8 1/8" h mahogany case also contains (not illustrated) a plumb-bob and a triangular foot for plane table application. The case is in very good condition, the level very fine and original although it is missing its lens cap.

Eugene Dietzgen was born in Uckerroth, Germany in 1862 and died in Chicago in 1929. He came to the U.S. in 1880 and, in 1885, formed the partnership of Cuhring & Dietzgen. The firm became Eugene Dietzgen & Co. in 1891 and then Eugene Dietzgen Co. in 1893 and is still in business under this name. The instrument here is an example of one of their designs intended for use in the construction and building trades. Although not as early as some of the instruments in this catalog, its unusually fine original condition makes it appropriate for any high quality collection.

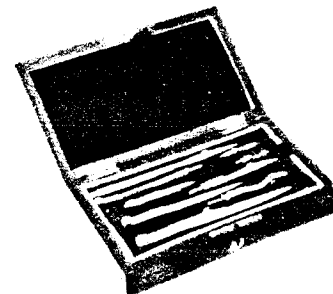
(16 lbs UP)

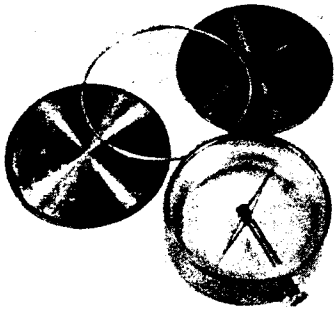
\$ 285

168. BOXED SET OF DRAWING INSTRUMENTS - English, late 19th c, an included rule signed "REEVES & SONS LTD. LONDON". Rosewood veneered case, 5" x 8 1/2" x 1 3/4" h; lift-out tray complete with 9 pieces in ivory, brass, and steel including a ruling pen, large compass with interchangeable legs, large dividers, and small compass with interchangeable legs. A 6" wooden rule and a wooden triangle were found with the set. The case is in fine and the instruments in very good to fine condition.

(5 lbs, UP, PS)

\$ 90



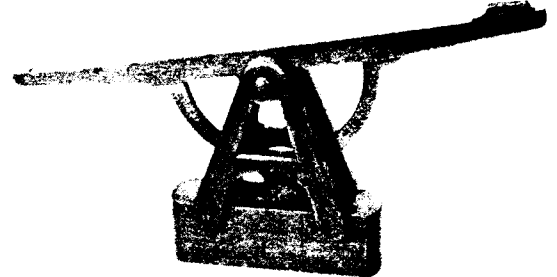


169. DIPPING NEEDLE - American, late 19th c, unsigned. Bright lacquered brass case and covers, 3 5/8" d x 1 1/4" thk (covers in place), 3 7/8" d folding loop handle, glass windows on both sides, and 2 1/2" needle in 2-degree of freedom mount. The silvered internal ring is graduated in degrees from 0 to 90 (at the bottom) and back to zero. Generally fine condition with the original finish somewhat darkened, particularly on the removeable covers. The needle seems to have lost its magnetism so that the instrument no longer functions correctly but is still satisfactory for display purposes. These dipping needles were made for two purposes: tracing veins of iron ore which would cause variations in the inclination of the local magnetic field, and locating buried iron pipes, boxes and survey markers.

(3 lbs, UP, PS)

\$ 125

170. WOODEN ELEVATION THEODOLITE - American, 1st half 19th c, unsigned. Constructed of darkened oak, the 17 1/4" long alidade pivoted in elevation is fitted with target rifle-type sights of the period - pewter peep sight at rear, hooded beaded post at the front. The Ramsden type semi-circular readout scale of 7" d is graduated to degrees and numbered every 10 degs. The 5" h "A" trunnions are mounted on a 7" long x 2" w x 2 1/4" h base which has a tapered hole for staff mounting. Very fine overall condition.



In our opinion this is a unique item made as a patent model. The scale division is somewhat irregular suggesting that it was intended to represent a scale rather than to be used for precise measurement. The quality of workmanship appears to be that of an accomplished pattern or cabinet maker. The design, however, is not what one would expect from a professional instrument maker. Thus we believe that it is one of a group of concepts which were submitted to the patent office but never produced on a commercial basis and as such is extremely rare.

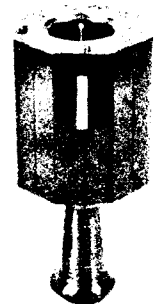
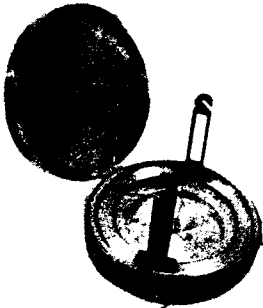
(8 lbs UP)

\$ 825

171. CASED POCKET SURVEY COMPASS - French for the English speaking market, late 19th c, marked "MADE IN FRANCE". Bright lacquered brass 3 5/8" d with 2 1/2" h black oxidized folding sight vanes, silvered compass dial 2 7/8" d with 2 1/4" needle. Original 4" d x 1 1/4" h case in simulated fishskin covering. The case is warped and shows edge wear but the compass is in very fine original condition.

(3 lbs, UP, PS)

\$ 150

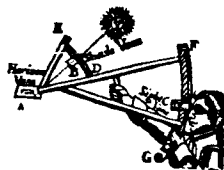


172. SMALL OCTAGONAL SURVEYOR'S CROSS - French, late 19th c, unsigned. Brass construction in original green-black oxidized finish, 5" h overall and 2 1/2" across the flats of the 2 9/16" h sighting head. The staff mounting post screws off for stowage, is reversed and screwed back through the hole in the top of the sighting head. Original oak case 2 5/8" h, 3 1/8" deep,

3 3/4" w in fine condition. The instrument is very fine although the sights need rethreading. This design is derived from the classical 4-vane surveyor's cross with its shape providing additional slits at 45 deg intervals. Compare it with Items 189 and 190 of Catalog 125 which are of the same design but different finishes.

(3 lbs, UP, PS)

\$ 110

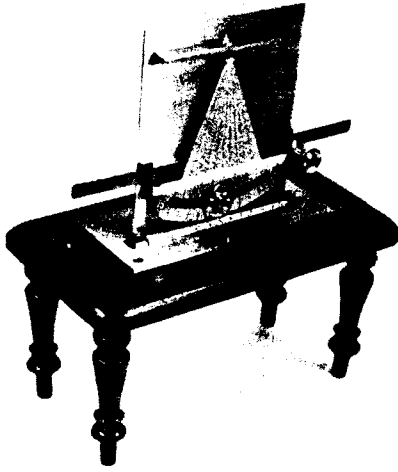


173. SET OF VOLUMETRIC LIDDED MEASURES - French, 19th c, the largest, 1 Litre, signed "(?) ERMAND BOULANGET/RUE ST. NICOLAS/LILLE" and marked with a crown over rose hallmark; the next two, Demi Litre and Double Decilitre, "LF-CLERC/A LILLE/HUMBERT" with a crown hallmark; the last, Decilitre, marked "J.R.". All are stamped with a series of inspection marks. The design of all 4 is virtually the same, all seem to have been made in Lille, and all were found together, suggesting that they are indeed a matched set even though signed by different makers. It would not be surprising if the pewter makers' guild in Lille apportioned out the work so that everyone received some income. The measures are in very fine condition

noting that they have darkened and that there are the usual signs of use.

(12 lbs UP)

\$ 595



174. MECHANICAL MODEL DEMONSTRATING THE GEOMETRICAL BASIS OF NEWTON'S INFINITESIMAL DIFFERENTIAL CALCULUS - English, late 18th c (?), signed "MECHANICO-MATHEMATICAL INSTRUMENT, ILLUSTRATING THE RATIO OF THE CIRCLE. BY JOHN HARRIS". Bright lacquered brass and silver plated brass apparatus with rack, gear, sector, inscribed readout scales, and linkages, 6 1/8" h on 7 3/8" long x 3 1/8" w base plate which is attached to a four legged mahogany stand 11" long x 6" w x 5 3/4" h; 12" h overall. Instrument in extremely fine condition with original lacquer finish, partial restoration of silver plating of the various scales. Possibly missing a removeable adjustment or setting rod. No case.

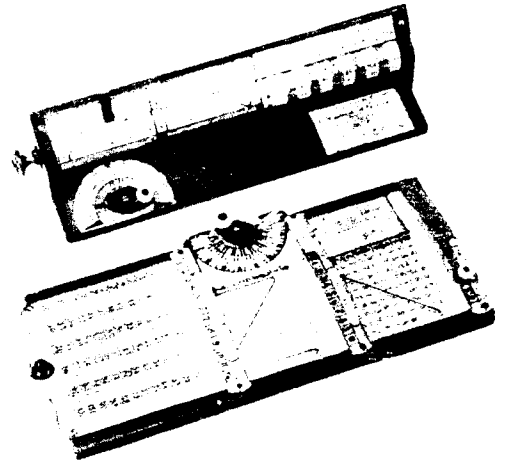
Taylor 2 lists two John Harrises, the one who put together the "Lexicon Technicon" and died in 1719, and another, a mathematical instrument maker, c. 1822, at 22 Hyde St, London. Mechanical design and the form of the wooden stand suggest a 2nd half rather than an early 18th century origin, but not necessarily as late as the Bloomsbury John Harris. It is possible that the concept was due to the early John Harris, but made at some later time by an accomplished unknown (to us) instrument maker. The Science Museum, London, calculating machines collection has nothing like it and we have been unable to locate any public collection which does. Yet

its function is (relatively) easily comprehended. Isaac Newton in his "Principia" did not use his newly invented method of fluxions for his derivations. Rather he adopted a different approach, that of "Prime and Ultimate Ratios". By the aid of this method it is possible, as Newton knew, and as was afterwards seen by others, to found the calculus of fluxions on an irreproachable method of limits. For the purposes of explaining his discoveries in dynamics and astronomy Newton used the method of limits only, without the notation of fluxions, and he presented all his results and demonstrations in a geometrical form. (There is no doubt, however, that he arrived at most of his theorems by use of the calculus.) The basis for such a development lies in the theorems which used to be grouped under the name of "ratio of the circle". For an arc of a circle defined by an angle between two given radii, if this arc continually decreases without limit, the sine of the angle continually approximates to the tangent, never exceeds the tangent, and their difference will vanish in respect to either sine or tangent. Then the sine, chord, arc, and tangent are all ultimately in a ratio of equality. Further elaboration of these concepts is to be found first in Newton's "Principia" and then in various 18th century works on analysis or the theory of fluxions.

(12 lbs UP)

\$ 1750

175. EXTREMELY RARE CALCULATEUR - BACOT: PRODUCTION MODEL AND ORIGINAL PROTOTYPE - French, 2nd half 19th c, the prototype inscribed in pen by the inventor, "Model Type offert par l'auteur à M^r F. Chapon Souvenir D'amitié G. Bacot". The prototype is constructed on a 4" w x 8 7/8" long wooden base with a cardboard slide which has handwritten tables of numbers for addition, subtraction, and multiplication and division appropriately colored to aid the user. There is also a little pointer and semi-circular scale which may have been intended for positioning decimal points. The production model, with its 2 1/8" w x 8 1/2" long wooden base replaces the sliding tables with a rotating cylinder. The same decimal point pointer is present. The tables and scales are now printed but the coloring still seems to be by hand. Fine to very fine overall condition.



No example of this calculator is to be found in the Science Museum, London collection. It appears to have been intended for use by students but we have been unable to find any reference to it or its inventor in the standard references. It is possible that the production model is almost as unique as the prototype.

(4 lbs UP)

\$ 875

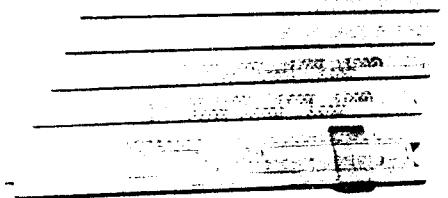
176. "THE STANDARD DESK CALCUMETER" - American, signed "H.N.MORSE/TRENTON, N.J." and "PAT'D DEC. 17'01". Nickel plated brass case, 10 1/8" long x 2" w x 3/4" thk, with 8 count wheels, 3 in brass, 3 in copper, and the last two (for cents) in brass again. The count wheels and reset wheel can be rotated by either a pencil or special stylus (not present). Fine overall and working condition. No case. The first version of this type of calculator was invented by Blaise Pascal in 1642. It was brought into its modern form by Samuel Marland in 1666. It was then reinvented numerous times during the next 3 centuries. The example here is particularly well constructed.

(4 lbs, UP, PS)

\$ 75

177. ARTILLARY SLIDE RULE - American or English, WWII, unsigned. Wooden body 2 3/4" w x 18 1/2" long with printed paper faces and cursor. There are 5 interchangeable double-faced slides, mostly for various howitzer shells. Generally very good condition with some wear and aging. Not bad though for an item which we believe to have seen field use.

(4 lbs, UP, PS) \$ 45



178. DOUBLE-SLIDE SLIDE RULE - English, 1st half 19th c, signed "DRING & FAGE MAKERS TOOLEY ST. LONDON". Boxwood with brass end bands, 10" long x 2" w, marked with a total of 27 scales; 11 on each face, 2 on one edge, and 3 on the other. Generally good to very good condition with some staining (near the ends) and darkening of the wood, and repaired cracks in 2 of the 4 end bands. This is a typical example of a calculating device used within the brewing and distilling industries. Goodison lists

Dring & Fage first at 248 Tooley St. (1800-1822) and then at 20 Tooley St. (to 1845). They specialized in instruments needed for the production, and then taxing, of the beer, wine, and liquor industries.

(2 lbs, UP, PS)

\$ 65

179. FOUR-SIDED, FOUR-SLIDE, EXCISE RULE - English, probably just after 1825, signed under one of the slides "COOK-MAKER TO THE HON. BLE BOARD OF EXCISE-LATE WELLINGTON CROWN COURT SOHO London". Boxwood, 3/4" x 1 1/8" x 12" long, with a total of 16 scales on the 4 sides plus one on the back of one slide, and tables on the back of another. Fine overall condition with some small chips near the ends. Taylor 2 lists Alexander Wellington, fl. 1792-1825, at Crown Court, Adinger St., St. Anne's, Soho, London. She also lists Laban Cooke (possible mis-spelling) at 21 Crown Court, Soho, London, as successor to Wellington. It is noted that he made gauging instruments for The Board of Excise: scales, slide rules, etc.

(3 lbs, UP, PS)

\$ 175

180. NAVIGATOR'S GUNTER RULE - English, c. 1800, unsigned. Darkened boxwood 1 3/4" w x 24" long with 16 computational scales, a 10" diagonal scale, and a 24" tenths-inch rule; brass insets at zeroes and points/of great usage. Generally fine condition with a nick in the bottom edge and a slight curve to the entire rule due to age shrinkage (just ideal for calculations in an Einsteinian strong gravitational field). The use of this form of analog calculator (consisting of the standard set of linear and logarithmic number and functional scales for navigation) is described in Mackay, Bowditch, Moore, etc. Computations were performed by working back and forth on the scales with a pair of dividers in lieu of the slide and cursor of the more modern slide rule. It was derived from the earliest form of computational device based upon logarithmic scales as invented by Edmund Gunter between 1610-20.

(5 lbs, UP, PS)

\$ 170

181. UNUSUAL DOUBLE-SIDED, TRIPLE-SLIDE, EVERARD TYPE RULE - English, late 18th c ?, unsigned. Flat boxwood rule, 1 5/8" w x 18" long, with 2 slides on the front surface and one on the rear. There are 12 scales in total. Slight edge wear and very slight warping; fine to very fine overall condition. For a more common arrangement of these scales and slides see Item 234 of Catalog 122, made by J. Rix in the middle of the 18th century. It was of rectangular cross-section with a single slide on each of 3 faces. This particular combination of scales and slides was first described by Thomas Everard in the 1684 edition of his book "Stereometry Made Easie: or, the Description and Use of a new Gauging-Rod or Sliding-Rule". We know of no other rule similar to the example here.

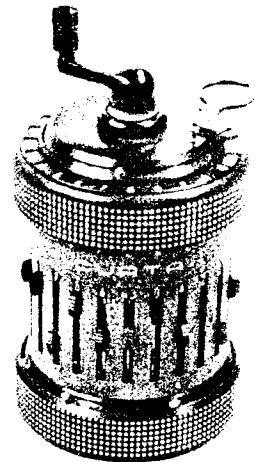
(4 lbs, UP, PS)

\$ 195

182. THE CURTA TYPE II - THE LAST MECHANICAL CALCULATOR - Liechtenstein, 1960's, made by "Contina Ltd Mauren". Black enamel and grey finish metal construction, 2 1/2" d x 3 1/2" h plus the projection of the crank handle. This is the large capacity model with 11 input and 16 output digits. There are little sliding knobs along the input and output scales for setting decimal points and groupings. Original stowage case, 3" d x 5" h, in almost fine condition. The calculator is in extremely fine display and working condition. No instruction sheet.

This calculator is a very clever and compact version of the Thomas de Colmar Arithmometer invented in 1820 based upon the step-gears of Leibniz' calculating machine of 1694. Unfortunately, it seems to have been too recent for its history to have been documented properly. Although one is listed in the Science Museum, London catalogue, there is no description or other information. Now that it, and all other calculators and slide rules have been replaced by the "chip", it may disappear forever.

(4 lbs, UP, PS) \$ 345

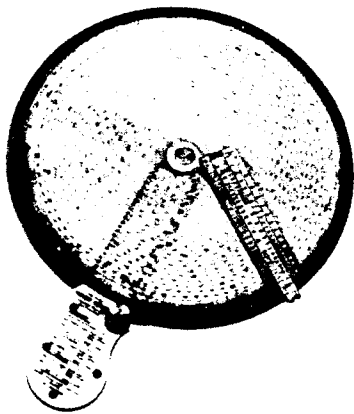


183. CASED STANDARD YARD - American, 2nd half 19th c, signed "E. & T. FAIRBANKS & CO. ST JOHNSEBURY, VT. U.S. STANDARD". Rectangular cross-section brass bar 1" w x 37" long x 1 1/8" h at the ends which support

inside contact steel pads. Scales of 24" and fractions of a yard are engraved on the face of the bar which is also stamped "F 18" on the end and then "F 20", 6 1/2" away. Original mahogany case 2" sq x 38" long in good condition except for one end replaced. The standard yard is fine although the brass is somewhat age darkened (probably not lacquered originally). Fairbanks was best known as a maker of scales and supplier of standard weights.

(20 lbs, UP, PS)

\$ 295



184. "THE ROSS PRECISION COMPUTER" - American, early 20th c (?), by the "Computer Mfg. Co. San Francisco". Large circular slide rule with 9 1/8" d blued steel base plate, handle of 7 1/4" radius, 8 3/8" d rotating plate with a 25 turn spiral of numbers on the face and a 5 turn spiral of trigonometric functions on the reverse. There is a single cursor on the reverse and two on the face each made of quite yellowed early celluloid. On the face there is also a 4" long slide rule with 5 scales which pivots about the center. Some of the sil-vering of the scales on the face is either worn or darkened but otherwise overall condition is fine. The original 10" d leather case shows wear and needs restitching along part of its edge. We have been unable to find any information on L. Ross, the designer of this large circular slide rule. It is probably of some rarity since the calculating machine collection of the Science Museum, London does not include a single example.

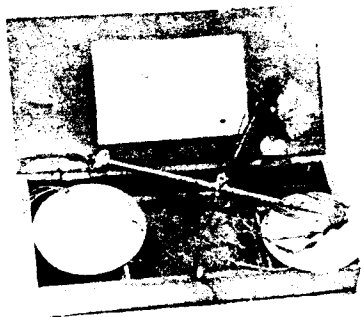
(4 lbs, UP, PS)

\$ 145

185. CASSED SET OF RUSSIAN STANDARD WEIGHTS - Possibly American, penciled-in notation "Tested July 4 - 82" and "Jan-1-90", unsigned. Mahogany case 5 1/2" x 8 3/4" x 3 1/2" h fitted with 9 brass weights ranging from 1 Loth to 5 Funts. (Note that 1 Funt = 32 Loths = 96 Zolotniks. A Funt is equal to 409.517 gm, or a bit less than the English pound.) This set was found in the attic of the Howe Scale Co. of Rutland, Vermont and most likely used by them in the 19th century as one of their calibration standards.

(18 lbs, UP, PS)

\$ 235

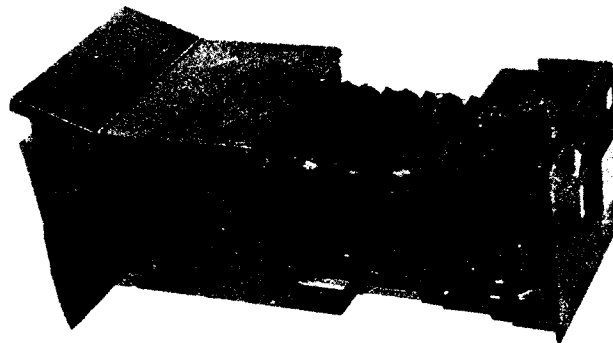


186. CASSED HAND-HELD TWO-PAN BALANCE - English with the trade card of "CHARLES DE GRAVE No. 59 St Martins le Grand, the corner of St. Ann's Lane . . . London . . . SCALE MAKER TO HIS MAJESTY." and hand dated "20 Augth 1789". Original mahogany case 3 7/8" x 7 3/4" x 1 1/4" h. Balance with 6 3/8" long iron beam and 1 7/8" pointer, 2 1/2" d brass pans, and early (if not original) suspension strings. Fine overall condition noting some darkening or spotting of the metal parts. Taylor 2 lists Charles de Grave and Son as scale makers (fl. 1780-1821) first at 59, later at 15 St Martin le Grand.

(4 lbs, UP, PS)

\$ 225

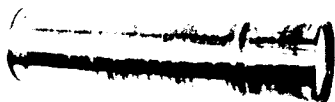
187. THE ROSS MODEL HALF PLATE TWO FOCUS "SPECIAL B" UNIVERSAL CAMERA - English. c. 1900, signed "N & G CAMERA SOLD BY ROSS LTD 31 COCKSPUR STREET LONDON, S.W." with the no. "SH1493". Leather covered box 8 1/4" w x 7" h x 12 1/2" deep extending to 22". Pneumatic between lens sector shutter with speeds from 1/2 to 1/100 sec. Double convertible Zeiss patent, Ross lens with fl's of 7" and 14" and appropriate focussing scales. Changing box, with counter, for 4 3/4" x 6 1/2" plates. Ground glass focussing screen. Original leather case 8 1/4" x 9" x 13 1/2" with Ross label in lid. Case in fair to good condition, the camera is very fine and appears to be fully operating.



Newman and Guardia was formed in 1892 and started producing their "Universal" cameras, which were, and still are, regarded as the most sophisticated box cameras ever made. There were various models of this camera. Model "A" was the simplest and was made in 1/4 plate size only. Model "B" was made in 1/4 plate and 4" x 5", had the same lenses as the "A" but had greater extension and the front had 2 motions rather than one. The "Special B" was the most famous of the Universals and was made for use with Zeiss Protar type lenses. It came with either a double or triple convertible lens (and appropriate focussing scales) and in 3 plate sizes; 1/4 plate, 4" x 5", 1/2 plate - 6 models in all. A model "C" was also made which allowed the changing box to be tilted for control of perspective. It came in the same two plate sizes as the regular "B". There was no "D" but one just called the "Half Plate" which actually came in two sizes and a stereo version. This, the largest of the Special B's, appears also to be the least common. It was really too large to be a practical hand camera and since it was more expensive than the smaller versions, we suspect that far fewer were made and sold.

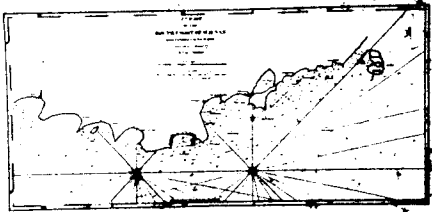
(22 lbs UP)

\$ 495



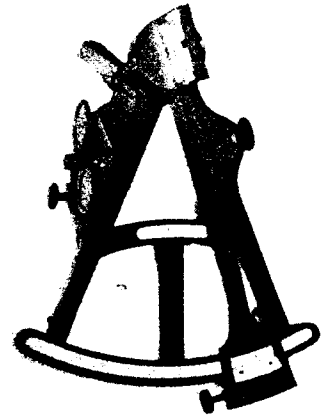
188. HAND HELD KALEIDOSCOPE - English, 19th c, unsigned. Bright lacquered brass cylinder, 1 3/4" d x 7" long, a rotating head with a ground glass window and shaped pieces of colored glass within, a peep hole at back (this is a non optical design), and two pieces of black glass set at an acute angle which serve as the mirrors which multiply the ever changing pattern within the small angular wedge. Fine physical condition with helical dark streaking of the original finish. It works too.

(3 lbs, UP, PS) \$ 295



202. ALONG THE COAST OF CHINA - "A CHART OF THE SOUTH COAST OF HAY-NAN from TINHOSA to GUICHOW Survey'd in 1776 and 77, By Capt. Haldane. LONDON: Printed for Robt. Sayer, Print, Map, & Chart-seller, No. 33 Fleet Street, as the Act directs, 20th. April, 1787". Large colored centerfold chart 13 1/8" h x 28 1/2" w on paper 25 1/2" h x 37" w. Extremely fine condition with relatively recent hand coloring. (postpaid in the U.S. only) \$ 90

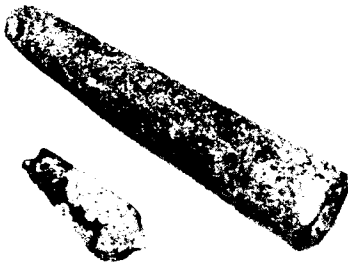
203. EBONY FRAME QUADRANT WITH ORIGINAL OXIDIZED FINISH TO THE BRASS FITTINGS - Probably English for the American market, mid 19th c, signed "JOHN BLISS & Co., NEW YORK". Ebony frame, reinforced brass index arm with tangent screw slow motion, ivory scale and vernier reading to 1 arcmin at 8 3/4" rad, sight vane with single peep hole, sets of 3 index mirror and 3 horizon glass filters, and tangent screw adjustment of index mirror. All the brass parts are in black oxidized finish except for various screw heads which are in bright lacquer finish, some of which have darkened. The horizon glass and index mirror are old but do not seem to us to be original. Fine overall original condition. The original hand dovetailed rectangular mahogany case, 12 1/4" w x 9 1/2" deep x 4" h, is in very good condition.



The 1840 New York Directory listed John Bliss and Frederick Creighton as watchmakers at 42 Fulton Street. The firm became John Bliss & Co. in 1845 at 26 Burlington Slip. According to Brewington, "An advertisement in the 1872 issue shows the firm had purchased the preceding year the entire stock of Blunt & Co. In addition to chronometers and probably other instruments, Bliss made and patented the taffrail log in 1864 with various improvements patented in 1878." It is not usual to find a navigation quadrant such as the example here in its original finish.

(11 lbs UP)

\$ 795



204. LARGE EARLY SOUNDING LEAD - Spanish, early 18th c, unmarked. Lead weight with suspension hole and hollow bottom (for holding the wax used to pick up bottom samples), 2 3/4" base dia x 12 3/4" long and weighing 19 pounds. Salt water etched and lightly encrusted. This (and the following) are said to have been recovered from the wreck of the Spanish treasure ship, the San Ignacio, sunk off the Florida Keys in 1733. Most likely it was used on the San Ignacio when approaching unknown shores. This is not a common find.

(25 lbs UP)

\$ 395

205. SMALL EARLY SOUNDING LEAD - Spanish, early 18th c, unmarked. Lead weight with suspension hole (but without hollow bottom) 1 3/4" base dia x 4 1/2" long and weighing 3 pounds. Heavily encrusted with sea growth. Found in the wreck of the San Ignacio and most likely used in one of the small boats which would have been sent out to find safe channels.

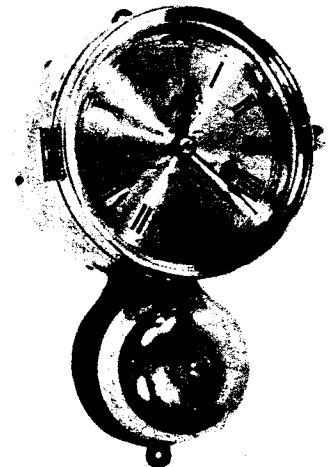
(6 lbs UP) \$ 195

206. THIRD MODEL OUTSIDE BELL SHIP'S BELL CLOCK - American, c. 1900, signed "Seth Thomas MADE IN U.S.A." and also marked "Chas C. Hutchinson Boston". Bright nickel plated brass housing, 6 1/4" d, and bell 3 3/4" d, on wooden back plate; 10 1/2" h overall. The bezel is hinged on the left side. The clock runs just over 2 days on a winding and is in good running order. Only part of the label on the back remains and the nut on the bell post is not original; otherwise all the finishes including the silvered face appear original and in very fine condition.

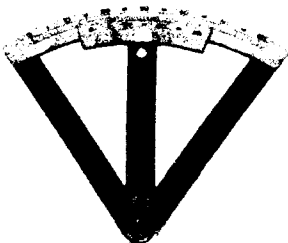
The original version of this ship's clock was patented in 1879 and its bezel attached by a bayonet joint. A second model soon followed with technical improvements such as a strike advance lever under the bezel (found in all subsequent models) but still with the bayonet joint bezel. The one here was sold by the firm of Charles Hutchinson of Boston established as the successor of F. W. Lincoln Jr in 1883. This is a very attractive, uniquely American clock.

(10 lbs UP)

\$ 655

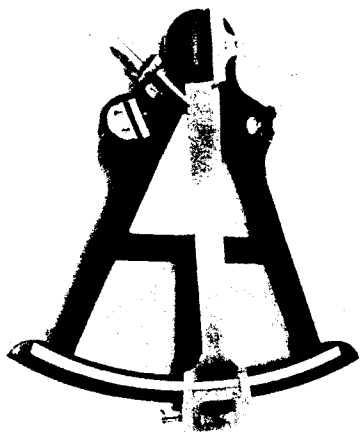


207. VERNIER DEMONSTRATOR - English, probably early 20th c, signed "BAIRD & TATLOCK LTD. LONDON". Mahogany arms with maple vernier and scale, 13" overall radius, 11" readout radius, the scale 14 1/4" at its widest. Very fine condition. The scale is graduated from 0 to 60 degs in 1 deg increments and the vernier from 0 to 30 in supposed 1 arcmin increments (they are really 2 arcmins). Paired may have been the junior partner of Kelvin, Rottomly & Baird, but we have been unable to find any more information. Although this piece appears to have been made as an instruction aide, we suspect that it must be very rare in the form here because of the incorrect marking of the vernier scale.



(4 lbs, UP, PS)

\$ 155



208. UNUSUAL EBONY FRAME QUADRANT - French, 1st half 19th c, signed "Dévôt Fils au Havre"; trade labels of Charlet, Havre and William Huntington, Boston within the case cover. Ebony frame, flat brass index arm, inlet ivory scale and vernier reading to 1 arcmin at 9 7/8" radius, tangent screw slow motion, dual hole sight vane and set of 3 index mirror filters. Restored lacquer finish on all brass fittings. Original slope-top pine keystone case, 12 1/2" w x 13" deep x 4 1/4" h, in well worn good condition. The quadrant is in extremely fine display condition (some loss of mirror silvering) and original except for one (relatively recent?) replacement leg. An adjustment key is missing.

The only other case we know of with such a shape is that for the John Bird sextant of Catalog 122. We know of no English instrument with the design characteristics of the one here. The ivory scale has square cut rather than rounded ends, the ends of the limb are 1/4 rather than 1/2 round, there is no brass mounting plate under the horizon glass and single ended filter bracket, square ended adjustment screws are used for the index mirror housing, and the index mirror adjustment lever has a knob for hand movement rather than a thumb washer or tangent screw.

The actual hardware (screws, etc) is distinctive as well. Having been unable to find the signed maker in our various lists, we are unable to even state as to whether this quadrant shows a Paris influence or can be assigned to a little known provincial workshop. It is certainly of more than passing interest when compared with (say) a similarly sized version by Spencer Browning & Rust.

(10 lbs UP)

\$ 945

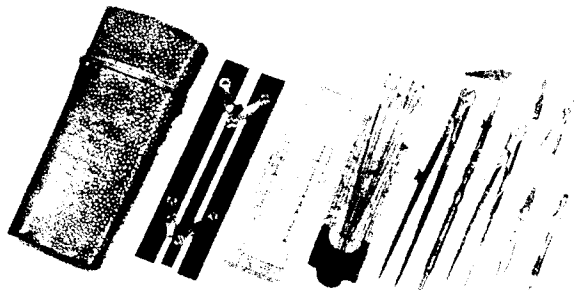
209. CASED TAFFRAIL LOG OUTFIT - American, c. 1900, signed "JOHN E. HAND & SONS CO./PHILA - BALTO.". Original pine case, 8" x 20 1/2" x 5 1/4" h, containing the 9 3/8" long 4-vane spinner, connecting line, and 7 5/8" long readout unit with its 7" long suspension yoke. The spinner and readout unit are bright brass with original lacquer finish, the yoke and window bezel black lacquered, and the 1" x 3 5/8" enameled dial with triple pointer readouts. The case is in very good condition, the log very fine, retaining over 95% of its original finish, and with a chip in the corner of the readout window.



Although our references provide no information on the maker of this instrument, the design is well known. John Bliss & Co of New York patented a very similar unit in 1876 (see Item 211 of Catalog 121). The spinner and the internal design are virtually identical. Indeed, it looks as if Bliss made at least some of the parts.

(18 lbs UP)

\$ 325



210. POCKET DRAWING SET BY THE INSTRUMENT MAKER TO MAD KING GEORGE - English, before 1795, signed "G. Adams, London" on the sector with the addition of the address "No. 60. Fleet Street" on the rule. Silver bound green shagreen covered case, 3 1/8" w x 1 1/4" thk x 7" h, containing a complete set of instruments in brass, steel, ebony and bone. The 11 items consist of bone 6" rule, bone and brass 6" Gunter sector, double-linkage triple bar ebony parallel rule (one brass bar broken), large dividers with pencil and pen legs for same, medium dividers, small ink compass (missing thumb screw), ruling pen,

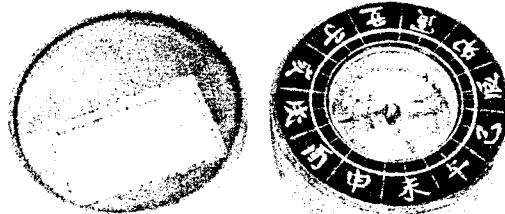
adjustment tool, and pencil holder. Fine overall condition, with defects as indicated, the case in nice condition although there is minor wear and partial light staining, and whar appear to be a few well done old repairs.

This is the work of the younger George Adams (1750-95), instrument maker to George III and the Prince of Wales (later George IV) and son of George Adams (c.1704-72), also instrument maker to George III. Both were authors of several fine books and it is difficult to say whether their books, or instruments, will be longest remembered. However, they did make the most elegant instruments ever produced in England and the quality of their mechanical workmanship is outstanding. The set here is no exception.

(4 lbs UP)

\$ 1295

211. JAPANESE MARINER'S COMPASS - 19th c, probably signed. Wood case with push-on cover, 4 5/8" d x 2 1/8" h. The compass well is 2 3/8" d with a 2 1/4" south pointing needle. The 12 points of the compass are engraved into the black painted face. The compass glass and retaining ring are a modern restoration. A label in the cover notes that this compass was presented to the American Geographical Society (in New York) on March 10, 1869 by George W. Blunt, retired dealer in nautical instruments, charts, books, and former publisher of Bowditch's "Navigator" and the "American Coast Pilot". Very fine overall condition.



(4 lbs, UP, PS)

\$ 435



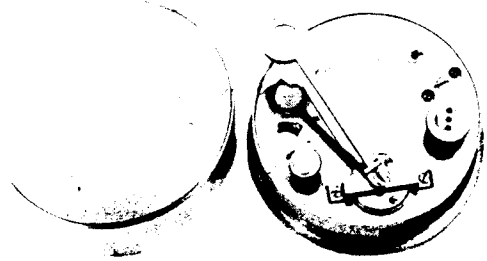
225. 8-DAY DECK WATCH - American, WWI, signed "WALTHAM" serial no. 22,228,634, 15 jewels, adjusted. Double mainspring lever escapement navigation watch, 3" d, silvered dial with blued steel minute, hour, seconds, and up-down (this on a marked 8-day dial) hands, in gimbal suspension. Original brass bound mahogany case 5" on a side in fine condition. The watch is in very fine running condition. Its rate has been adjusted and in tests over a one month period, winding once a week, on the average it gains 6 seconds over the first five days, loses 3 seconds on the sixth day and another 5 on the seventh for a net weekly change of -2 secs. On the 8th day (when not rewound on time) it loses 7 secs. This is extraordinary good time keeping. The drop off after 5 days is, most likely, due to a normal weakening of the "set" applied to the mainsprings more than half a century ago, so that they retain their strength when almost run down. This is a fine American timepiece.

(11 lbs UP)

\$ 745

226. HIGH QUALITY BOX SEXTANT - English, very early 19th c, signed "Fraser & Son, Bond St. London". Bright lacquered brass, 3" d x 1 5/16" h

with the cover/handle screwed in place. The inlet silver scale of 1 7/8" readout radius is readout on the silver vernier scale to 1 arcmin. There is a swing-away magnifier, rack and pinion drive of the index arm, internal sliding line-of-sight and index mirror filters, and an adjustment key. This is a peep sight rather than telescope model. The interior surfaces all have their original lacquer finish while that on the outside of the case is a modern restoration. Very fine plus overall condition with 3 small screws, modern replacements.



Taylor 2 lists William Fraser (c. 1720-1815) at 3 New Bond St, London. He was mathematical instrument maker to George III and the Prince of Wales. "A son took over the business in 1799, and it passed in 1815 to Hawks Grice who was followed at this address by Edward Dixey and Co."

(4 lbs UP)

\$ 525

