

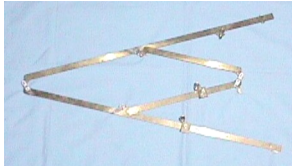
DRAFTING
Final as of March 19, 2006

DR 1, Grecian Dividers, unsigned, c. 117 A.D.



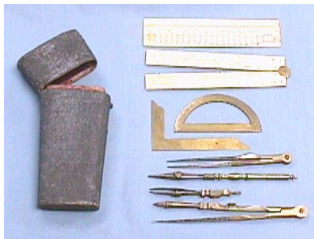
The dividers have a very ancient and corroded appearance; the overall length is 5 inches. There are lines crosswise to the legs that are believed to be indicators for pre-setting some particular measure.

DR 2, Brass Pantograph, unsigned, c. 1820.



This has 27" arms and ivory wheels on casters. It has no case and is lacking the table anchor that is used with this type of instrument. The tracer and pencil are later replacement parts.

DR 3, Drafting Set, unsigned, c. 1820.



This set of brass drafting tools has a grey sharkskin case similar to those customarily used by navigators in the 18th and early 19th centuries. There is an ivory sector, ivory scale, brass angle and protractor, dividers, compass w/ink & pencil inserts, and a nicely turned ruling pen. The drawing tools are brass with steel points. None of the items bear any identification of the maker.

DR 4, Brass Protractor, maker unknown, c. 1835.



This half-circle protractor came from the estate of General Winn, first mayor of Sacramento. It was included in a transit box with transit and plumb bob that was purchased in Genoa, NV. It is hand divided and has dark stains in some areas.

DR 5, Wood Tee Square, maker unknown, European, c. 1850.



This handmade tee square has an unusual pattern and the cross-member is 1" thick.

DR 6, **Uncased Drafting Set, maker unknown, c. 1870.**



These are brass and German silver and include a compass, 2 dividers, etc

DR 8, **Plotting Protractor, Keuffel & Esser, c. 1880.**



This is a full circle protractor made of German silver.

DR 9, **Large Wood-cased set of Drafting Tools, Elliott Bros., maker, London, c. 1890.**

Determining their date of origin is difficult because the maker started business in about 1840 and continued at least until 1899. The set is incomplete as to original ivory ruling pens. Substitutes have been added that appear to be compatible with the set. The differences are easily detected in the



ivory handles of the pens. Over 90% of the items are original. There are 17 ruling pens plus 4 miscellaneous pens, a number of wooden triangles and French curves, and a brass protractor with measuring scale. The tools are contained in a hardwood case with three removable trays.



DR 10, **Ruling Pens with Ivory or Bone Handles, (5 pieces), mostly unsigned, c. 1890.**

These include different inking tools such as ruling pens, pricker, and divider. One ruling pen is marked Kent and another has in script: HEW.



DR 11, **Ebony Parallel Rule, unsigned, c. 1890.**

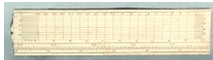
This is used to draw a second line parallel to the first. It is 6" long and made of ebony with brass connectors.

DR 12, **Polygraph Tool**, Polygraph Co., c. 1890.



This nickel-plated brass template is used as a guide for drawing irregular curves, etc.

DR 13, **Celluloid Scale**, unsigned, c. 1890.



DR 14, **Boxwood Scale**, unsigned, c. 1890.

This scale has a round handle at one end and 6 brass pins for marked points.



DR 15, **Assortment of Drafting Tools (Approximately 150 Pieces)**, unsigned, c. 1900.

This assortment includes ruling pens, dividers, compasses, scales, etc.

DR 16, **Dotting Pen**, Richter, c. 1900.



This tool is used to draw dashed lines with varying lengths. It has individual wheels for the different lengths of dashes. The case is somewhat deteriorated.

DR 17, **Polar Planimeter**, Keuffel & Esser Co., N.Y., c. 1895.



The factory label in the lid of the mahogany case shows this to be Planimeter No. 1079 and the same number is stamped into the large anchor weight. A planimeter with model number 1079 is not found in any available catalogs. K&E catalogs beginning in 1900 show this item as 4230 and the prior number is 1104 which is used as far back as 1887. The number 4230 is written in ink on the bottom edge of the wood case. This model of planimeter does not appear in the 1875 catalog which suggests it is of a later date. The main arm is 9" long and the jointed arm supporting the weight extends to 9". The 1897 catalog describes this same item (No. 1104) as *The Polar Planimeter Par Excellence*.

DR 18, **Steel Eraser**, Joseph Rodgers, S/N 2007, c. 1900.

This item is of Sheffield steel and has an ivory handle.



DR 19, **Improved Willis Planimeter**, J.L. Robertson, c. 1905, Serial 2007.

This planimeter is complete with case and original instructions. There is some damage to the edges of the triangular boxwood scale. It shows patent dates of 1896 and 1901. There is light rusting on the blued arms.



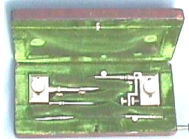
DR 20, **Pounce Drafting Powder**, Keuffel & Esser Co., N.Y., c. 1925.

This is a 5" tall x 2" diameter shaker tin of Pounce drafting powder partially filled with powder and in mint condition. It is K&E catalog number 166. Pounce is used to make ink adhere to starched linen tracing cloth.



DR 21, **Beam Compass**, Keuffel & Esser, c. 1921.

This is a cased set of two German silver compass tools to be used with a wooden bar that is not present. They are from K&E's Paaragon line.



DR 22, **Set of Highway Curves**, F. Post, c. 1921.

This is a cased set of 27 wood highway curves on the Collins circular style.

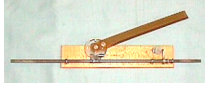


DR 23, **Drafting Machine**, Universal Drafting Machine Co., maker, Cleveland, OH, S/N 23699, c. 1927.



This is the same pattern as the original drafting machine invented by this company. The patent model was first shown publicly in *Engineering News* on May 15, 1902. This machine has 32" arms and three Architect's scales.

DR 24, **Section Liner**, Keuffel & Esser Co., c. 1927.



This tool is used to draw equally spaced parallel lines in conjunction with a straightedge.

DR 25, **Cased Set of Drafting Scales**, Holbro, England, c. 1930.

This set has 6 boxwood 12" scales plus 6 offset scales all in a nice wood case. The set is in near mint condition. The longer rules are imprinted Holbro "British Made" Engine Divided.

DR 26, **Bone or Ivory Handled Railroad Pen**, Unsigned, c. 1890.



DR 27, **Pen Filling Ink Stand**, Dietzgen, c. 1930.



DR 28, **Can of Pounce**, Frederick Post, c. 1935.



DR 29, **Pen Filling Ink Stand**, A. Lietz Co., c. 1940.



DR 30, **Drafting Machine**, Bruning Wallace, S/N 62624, c. 1945.

This item has 16" long arms and comes with 8 dural scales.

DR 32, **Can of Pounce**, Frederick Post Co., c. 1950.



DR 33, **Dotting Pen**, Chas. Bruning Co., c. 1952.



This is the Richter type of dotting pen and is complete with special wheels for drawing dashes of different lengths. Nice velvet lined case. Two metal pins for securing the dotting wheels are missing.

DR 34, **Leroy Lettering Set**, Keuffel & Esser Co., c. 1954.



This is a complete Leroy set of 11 templates and corresponding pens in a nice finished mahogany case.

DR 35, **Spacing Divider**, Alteneeder, c. 1955.



This 12" long tool comes in a nice velvet lined case.. It has 11 points to divide a space into 10 or fewer equal parts.

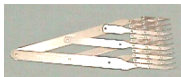
DR 36, **Proportional Dividers**, unsigned, c. 1960.



This 10" tool is polished and very handsome in its red-lined velvet case.

DR 37, **Spacing Divider**, Lietz c. 1963.

This 6" tool has 11 points and can divide a space into 10 or fewer equal parts.



DR 38, **Semicircular Plotting Protractor**, Keuffel & Esser Co., c. 1880.



This tool is 5 1/2" in diameter and has a 5" plotting arm. The factory catalog number changed from 448 to 1225 in 1887.

DR 39, **Pounce Drafting Powder**, Keuffel & Esser Co., N.Y., c. 1925.

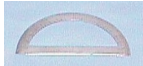


This is a 5" tall x 2" diameter shaker tin of Pounce drafting powder completely filled with approximately 8 oz. of powder and in mint condition. It is K&E catalog number 166. Pounce is used to make ink adhere to starched linen tracing cloth.

DR 40, **Boxwood Engineers Scale**, Darling, Brown & Sharpe, c. 1890.

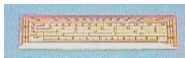
This 12" triangular boxwood scale shows wear including edge dents and ink splotches.

DR 41, **Semicircular Drafting Protractor**, unsigned, c. 1800.



This 5" diameter protractor is hand divided and made of German silver.

DR 42, **6" Boxwood Scale**, unsigned, c. 1900.



This item has a protractor and various measuring scales. Both sides are divided and the bottom side has some trigonometrical formulas added by hand in pencil

DR 43, **German Drafting Set**, T. Schmidt, c. 1750.



The outside of the case is marked T. Schmidt and the tools are individually marked either TS or just S. The design is of 18th century with the butterfly-shaped wing nut adjusting screws and the several tiny spanner wrenches. Ref.: Bion 1758, plate opposite page 86.

DR 44, Bone Handled Steel Eraser, Unsigned, c. 1900.



DR 45, Wood Handled Steel Eraser, Unsigned, c. 1925.



DR 46, Wood Handled Steel Eraser, Unsigned, c. 1910.



DR 48, Steel Eraser w/Polished Wood Handle, Unsigned, c. 1900.



DR 49, Sandpaper Pencil Pointer, Keuffel & Esser Co., c. 1940.



DR 50, Steel Eraser w/Ebony Handle, Unsigned, c. 1890.



DR 51, Can of Pounce, E. Dietzgen Co., c. 1935.



DR 52, Cased Drafting Set, Unsigned, c. 1890.

This is a complete set in very good condition complete as to all tools. The leather on the case exterior is in poor condition as typical of these sets.



DR 53, **Cased Drafting Set**, Unsigned, c. 1890.

This set is complete with all tools except the small spanner wrench for adjusting the dividers and compass. The ruling pen handle is bone or ivory. The leather on the case exterior is in poor condition as usual for these sets.



DR 54, **Red Ink Bottle & Carton**, E. Dietzgen Co., c. 1950.



DR 55, **Chinese India Ink Stick**, Unsigned, c. 1890.



DR 56, **Ivory or bone handled Divider**, Unsigned, c. 1880.



DR 57, **Ivory or Bone Handled Pricker**, Unsigned, c. 1880.



DR 58, **Map Measure**, Unsigned, c. 1920.



DR 59, **Proportional dividers**, Unsigned, c. 1910.



DR 60, **6" Chain Scale**, Keuffel & Esser Co., c. 1920.



DR 61, **Cased Drafting Set**, E. Dietzgen Co., c. 1950.



DR 63, **Plotting Protractor**, Keuffel & Esser Co., c. 1913.



This is a semicircular German silver plotting protractor with tangent screw. The diameter is 10 inches and the arm extends about 12 inches from the center of the instrument. It appears in K&E catalogs from 1913 to 1921 as item 1229. It does not appear in earlier or later catalogs.

DR 64, **Station Pointer**, Keuffel & Esser Co., Serial No. 22764, c. 1910.



This is also known as a Three-arm Protractor. It is used to plot the locations of soundings on hydrographic surveys. It is marked C&GS No. 260. The outside of the case is painted 260L. The case is in poor condition with a section of the cover missing. The protractor comes with extension arms although the screw clamps are missing that are used for attaching the extensions. Also missing are two sighting tubes that fit into the center of the protractor.

DR 65, **Steel Eraser w/Ivory or Bone Handle**, Joesph Rogers & Sons, Sheffield, c. 1890.

This eraser is 5 1/4" long and has a half-length heavy black paper case. The blade is imprinted "Rogers, Cutlers to Her Majesty."



DR 66, **Ebony Parallel Rule, unsigned, c. 1890.**



This rule is 6" long has German silver connector bars.

DR 67, **Iron Dividers, unsigned, c. 1880.**



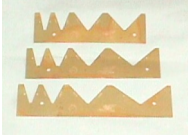
This tool appears hand made and is 7" long.

DR 68, **Mechanical Pencil, Eagle, c. 1880.**



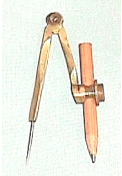
This pencil has patent dates of June 26, 1877 and May 20, 1878. It is model no. 861. The barrel is marked Eagle Automatic with Copying Lead.

DR 69, **Lettering Templates Set, Keuffel & Esser Co., c. 1900.**



These guides are of Xylonite and are shown as catalog no. 1858 in the 1913 catalog. The longest is 7" in length.

DR 70, **Brass Pencil Drawing Compass, unsigned, c. 1920.**



This tool is 3 3/4" long and is equipped to accept a standard diameter pencil.

DR 71, **Proportional Dividers, unsigned, c. 1950.**



The dividers are 10 inches long and are well made. The case has a red velvet lining.

DR 72, **Wooden Pantograph**, Eugene Dietzgen Co., No. 1885, c. 1930.

This has arms 28" long and is the smaller size of two made by Dietzgen. It is missing the iron standard or weight.

DR 73, **6" Flat Ivory Pocket Scale**, Keuffel & Esser Co., c. 1890.



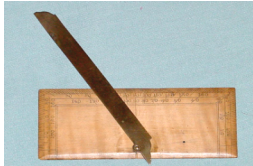
This ivory scale was not located in available K&E catalogs. It is similar to the 12" scale 1352 in the 1897 catalog but no 6" counterpart is shown with the same divisions. This has divisions of $\frac{3}{8}$, $\frac{3}{4}$, $1\frac{1}{2}$ and 3. It comes with a leather case with gold letters Alfred Solano on one side and ink name Bill Bouett on the other. There are two chips along one of the edges. Alfred Solano was a late 19th to early 20th century surveyor in Los Angeles County. His collection of field notes and other records is housed in Huntington Library as the Solano-Reeves collection.

DR 75, **Improved Willis Planimeter**, J.L. Robertson, c. 1910, Serial 4549.



This planimeter is complete with case and original instructions. It shows patent dates of 1896 and 1901.

DR 76, **Boxwood Protractor w/brass arm**, unsigned, c. 1800



This is a rectangular protractor 4.5" x 1.7" made of boxwood with a 4.6" brass arm.

DR 77, **Spherical Polar Planimeter**, Keuffel & Esser Co., Cat. No. 1105, c. 1897



This particular form of planimeter appears only in K&E catalogs from about 1894 to 1900. The 1897 catalog shows it pictured with an 1894 copyright date. In the 1900 catalog it is renumbered 4250. It does not appear in either the K&E 1887 catalog or the 1903 planimeter manual. The individual parts are stamped 102. The tool is especially designed for use on paper having irregularities such as folds, etc., and is not affected by their presence. This is because there are only two points of contact with the map surface where the ordinary polar

planimeter has three. The measuring wheel on this model does not make contact with the map. The catalog description also indicates it is more accurate than the conventional polar planimeter because it takes more wheel revolutions over the same amount of surface. It is complete with testing rule, mahogany case and lock, including key. The 6½-inch diameter heavy brass plate is imprinted Keuffel & Esser Co NY 102. The tracer arm is 13 7/8 inches long. This variety originally sold for more than double the conventional planimeter.

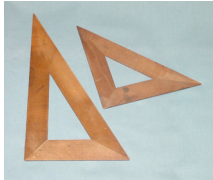
The tool is pictured and described in the book *Plane Surveying*, (1896), by William Raymond, on page 172-173. It is there called a suspended planimeter, which is a polar planimeter so arranged that the wheel will roll on a polished surface instead of on the drawing. This instrument is said to be more accurate in its results than the polar planimeter.

DR 79, 24” Wood Tee Square, Keuffel & Esser Co., New York, c. 1900



This tee square is made of two different woods, the blade being different from the guide. It is stamped Keuffel & Esser Co., New York, 2360, 24.

DR 80, Two Wooden Triangles, No Maker Indicated, c. 1890’s.



The 45° triangle is 6” size, the 30° x 60° triangle is 10” size. Both show wear and weathering and there is a one- check in the smaller one.



DR 81, Amsler Polar Planimeter, No Maker Indicated, Serial No. 13003, c. 1885.

The polar planimeter was invented and first made in Switzerland by Jacob Amsler in 1854. It soon became a very popular drafting tool because it was sturdy and substantially cheaper than prior planimeter designs. This tool is approximately 9 inches long and has a detachable cylindrical weight. No maker’s name is shown although this example was undoubtedly made at the Amsler factory. Amsler’s firm reportedly manufactured over 12,000 of these tools by 1884, and 50,000 of them by the time of his death in 1912. Besides having several scale-setting marks, the tool also has numbers 20808 and 21070 on the tracer arm.

According to Stanley’s *Drawing Instruments* (1878), page 249, these numbers are units of complete circumscribed areas when the tracing point is located within the figure to be measured. Stanley’s book explains the methodology of using the planimeter. This item is complete with a felt-lined hard case bearing the original owner’s name Chas. Herrmann. He was an 1880’s surveyor in Santa Clara County and his picture appears on the dust jacket of the first edition of *Chaining the Land*.

Charles Herrmann was born in 1846, educated in Germany and moved to San Jose in 1869 where, with his brother, A.T., he established the surveying and engineering firm of Herrmann Bros. He

served 3 terms as County Surveyor for Santa Clara County from 1885 to 1890 although he didn't obtain a California Land Surveyor's License until 1914. The field notes and maps of the Herrmann Bros. firm are now in the possession of the County Surveyor's Office in Santa Clara County.