

**SCIENTIFIC INSTRUMENTS
LABORATORY APPARATUS
AND SUPPLIES**

for

PHYSICS CHEMISTRY

BIOLOGICAL SCIENCES

and

INDUSTRIAL TESTING

CATALOG

J136

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CENTRAL SCIENTIFIC COMPANY

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1889

Main Office and Factory
1700 Irving Park Blvd., Chicago, U. S. A.

Incorporated
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Warehouse and Sales Branches

BOSTON, MASS.

Central Scientific Co., Eastern Division
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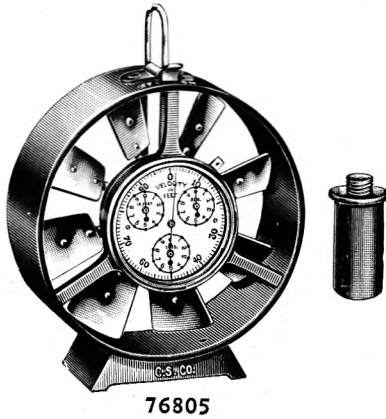
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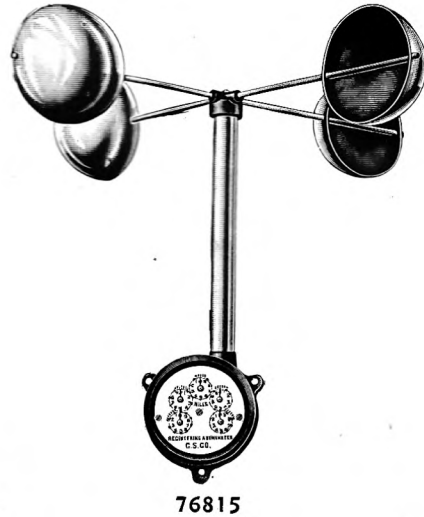
NEW YORK, N. Y., 220 E. 42nd St.

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76805



76815



76800



76810

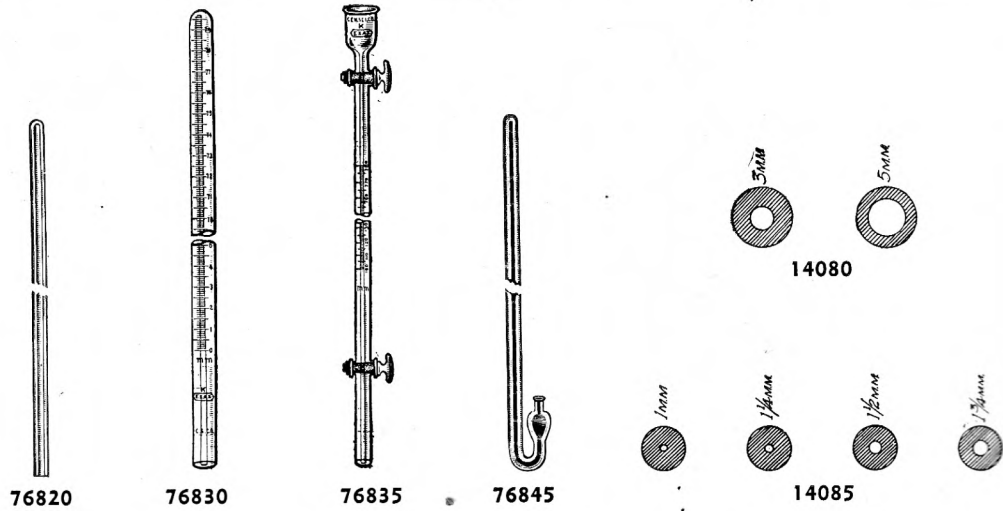
METEOROLOGICAL INSTRUMENTS

76800 ANEMOMETER, Working Model, to illustrate the principles involved in the measurement of wind velocity. Four metal cups at the ends of arms about 9 cm long mounted on a vertical axle make up the rotating member, which is supported free to rotate at the top of an upright metal rod. The upright is mounted on a wood base, 10 by 15 cm. Height over all about 17 cm **Each \$4.50**

76805 ANEMOMETER, Biram's, for the measurement of velocity of air currents in schools, public buildings, mines, tunnels, flues, and sewers. Especially useful in studying the ventilating systems in schools, hospitals and other public buildings. Widely used in meteorological work for determining direction and velocity of surface winds. The instrument is direct reading from 0 to 100,000 linear feet of total air passing in a given period. The readings are indicated by means of four registering dials, the largest of which reads from 0 to 100 feet. The instrument is accurately made with jewelled bearings and is furnished with a chart of corrections for velocities from 200 to 3,000 feet per minute. A zero setting device permits instant return of all pointers to zero. Diameter, 4 inches; weight, 16 oz.; for velocities up to 3,000 feet per minute. Complete with threaded socket for attaching to foot, in leatherette case..... **Each 30.00**

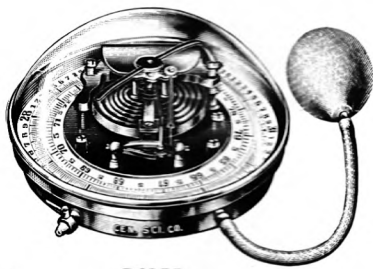
76810 ANEMOMETER, S. and M. Airmeter, similar to No. 76805 but with heavy base for stability and with horizontal dials. For purposes requiring a smaller instrument than No. 76805 and one which is not easily blown over by strong currents of air. Height over all, 3 inches; diameter of dial, 2½ inches; weight, 8½ oz.; for velocities from 200 to 3,000 feet per minute; maximum reading of the 4 dials, 100,000 feet. With jewelled bearings, instantaneous zero setting device, and correction chart for velocities from 200 to 3,000 feet. Complete with universal socket holder by which it can be held at any angle, in leather case..... **Each 72.75**

76815 ANEMOMETER or WIND GAGE, for indicating air movement in miles, consisting of a vertical shaft to the upper end of which are fastened four arms, each carrying a Robinson hemispherical copper cup. These cups turn in one direction, regardless of the direction of the wind. The instrument is direct reading and cumulative from 1/100 of a mile to 100,000 miles. The method of use is to observe the reading of the dials at the beginning of a given period of time and to read again at the end of the elapsed period. The difference is converted by the use of the proper factor to miles per hour. If, for example, a ten minute period is used, the difference shown by the dials should be multiplied by six to give the wind velocity in miles per hour to hundredths. All parts are interchangeable. Each instrument is standardized and fully warranted. Weight, 3½ lbs..... **Each 43.00**

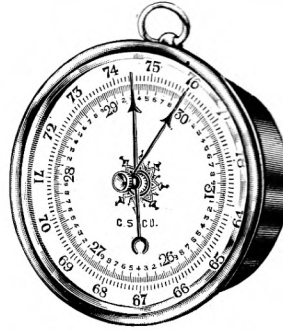


BAROMETER TUBES

- 76820 BAROMETER TUBE, Plain**, of large bore, heavy wall lime glass tubing with one end sealed round. Length, 80 cm. **Each \$0.75**
10% discount in lots of 6
- 76825 BAROMETER TUBE, Plain**, same as No. 76820 Barometer Tube, but supplied with glass mercury well and pipette for filling. **Each .90**
10% discount in lots of 6
- 76830 BAROMETER TUBE, Exax Blue Line**, unfilled. Made of large bore, heavy wall lime glass tubing. Graduated from 0 to 800 mm in 1 mm divisions, and numbered each centimeter. Length, over all, 84 cm. Number in original case, 12. **Each 3.00**
Subject to Exax Blue Line case and case assortment discounts
- 76832 BAROMETER TUBE**, similar to No. 76830, but ordinary grade. **Each 2.00**
10% discount in lots of 3
- 76835 BAROMETER TUBE, Demonstration Form, Exax Blue Line**, unfilled, with funnel top and stop-cocks at top and bottom for ease in filling and emptying. Graduated from 100 to 780 mm in 1 mm divisions, and numbered each centimeter. Length, 104 cm. Number in original case, 6. **Each 6.00**
Subject to Exax Blue Line dozen, case and case assortment discounts
- 76837 BAROMETER TUBE**, similar to No. 76835, but ordinary grade. **Each 5.50**
10% discount in lots of 3
- 76840 BAROMETER WELL, Iron**, for holding mercury and for use with Nos. 76820, 76830, and 76835 Barometer Tubes. It consists of a heavy cast iron well, conical on the inside and having a flat depression for the glass tube. Top diameter, 3 inches; height, outside, 2 3/4 inches. **Each .45**
10% discount in lots of 3
- 76845 BAROMETER TUBE, Siphon Form, Plain**, of large bore, heavy wall lime glass tubing with a bulb on the short arm. Length, 80 cm. Unfilled. **Each 1.00**
10% discount in lots of 6
- 14080 BAROMETER GLASS TUBING, Soda Lime**, heavy wall, in 3 foot lengths. An **added charge** will be made for calibrating tubing specially selected for a specified diameter and bore.
- | | | | |
|------------------------------|------|------|------|
| Bore, mm | 3 | 4 | 5 |
| Approx. outside diameter, mm | 7-9 | 8-10 | 9-11 |
| Per lb. | 1.50 | 1.50 | 1.50 |
- 10% discount in lots of 10 lbs.; 15% in lots of 25 lbs.; 30% in lots of 100 lbs.*
- 14085 CAPILLARY GLASS TUBING**, for use in making barometers; diameter of bore, 1 to 2 mm; outside diameter, 5 to 7 mm. **Per lb. .90**
10% discount in lots of 10 lbs.; 15% in lots of 25 lbs.; 20% in lots of 100 lbs.



76855



76860

ANEROID BAROMETERS

For certain purposes and in some respects aneroid barometers have advantages over mercury barometers. It should be remembered that whatever their advantages, they are secondary standards of barometric pressures and that the mercury barometer is a primary standard, and that its scale readings measure directly the barometric pressures.

Among the features of aneroid barometers are the following:

- (1) They are portable and therefore convenient for field use.
- (2) They can readily be provided with an altitude scale making unnecessary a conversion from the mercury column scale.
- (3) Aneroid movements can be made so sensitive that an inch of barometric height is made to

cover 2 inches on the aneroid scale. Such an instrument is somewhat more sensitive to changes in pressure than the mercury barometer, which on the other hand is slightly offset by the fact that there is friction in the movement of the instrument.

(4) An aneroid barometer can readily be provided with a dial adjustable for altitude, like No. 76860. An instrument so equipped can be made to give sea level readings regardless of its actual altitude.

(5) An aneroid barometer can readily be compensated for temperature changes.

(6) The open scale and pointer are easier to read by the untrained person than is the vernier on the mercurial barometer.

76855 BAROMETER, Aneroid, Demonstration Form, English & Metric Scales, for use in demonstrating the construction and operation of an aneroid barometer. The mechanism is mounted upon a lacquered brass base and covered with a hemispherical glass dome to permit easy inspection of all parts of the mechanism. An English and metric scale with widely separated heavy black graduations and heavy black figures encircles the inside top of the base to permit easy visibility from a distance. A tubulated air-inlet and a small stop-cock are mounted in the base for use in demonstrations. A rubber compression bulb is provided for connection to the air-inlet to increase or decrease the air pressure during demonstrations. The mechanism is compensated for temperature changes and the movement of the diaphragm is mechanically amplified to produce a large deflection of the needle for a small pressure change.

The English scale is graduated from 25½ inches to 32 inches in 0.02 inch divisions and the metric scale from 65 cm to 80 cm by 1 mm divisions. The instrument may be either hung on the wall or laid flat upon a table. Dimensions laid flat: diameter, 17½ cm; height, 7½ cm. **Each \$20.00**

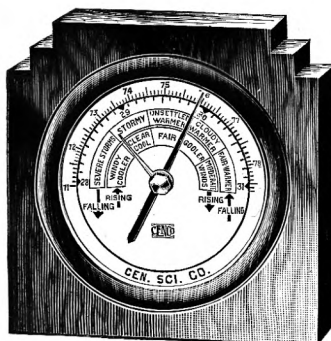
10% discount in lots of 3

76860 BAROMETER, Aneroid, with Altitude Adjustment Dial, Graduated in English and Metric Units, an excellent barometer for either educational or private uses. It possesses practically all the features of a high grade barometer and, in addition, has a dial on the back graduated in altitudes from zero to 3,500 feet by 100-foot divisions which can be set to give readings correct at sea level for any altitude within that range. This adjustment is readily made by turning the milled edge dial with the fingers. A table of altitudes of all the meteorological stations in the United States is furnished with the barometer to assist in making the proper altitude adjustment. When once made, this remains correct, except for the periodic rechecking.

The instrument has a dial 5 inches in diameter of enameled metal. The case is of lacquered brass, provided with hook for wall suspension and retractable legs for table use. In the center of the glass face is a stationary hand which can be set as desired for showing changes in barometric pressure. The instrument is not compensated for temperature changes. The range of graduation in the metric scale is 65 to 79 cm by millimeters and in the English, 26 to 31 inches by 0.02 inches. It is intended for use in altitudes up to 3,500 feet. **Each 18.00**



76870



76875

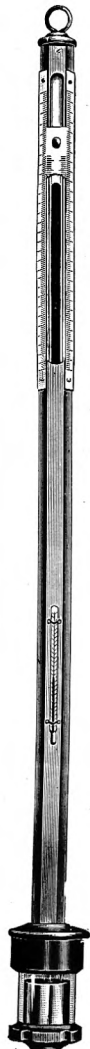


76880

ANEROID BAROMETERS

- 76865 BAROMETER, Aneroid, with Altitude Adjusting Dial**, of the same construction and specifications as No. 76860, but with brass adjusting plate graduated for correction to sea level readings at altitudes from 3500 to 7000 feet. With English and metric scales.....**Each \$21.00**
- 76870 BAROMETER, Aneroid, Navy Type, with Temperature Compensated Movement**, a high grade barometer suitable for practically any use in which an aneroid is found preferable to a mercurial barometer with a further advantage over No. 76860 for educational purposes in the fact that the dial is cut away in the center to form an opening 55 mm in diameter through which its movement and its various parts are plainly visible. Practically all parts of this barometer are constructed of nickel-silver or phosphor bronze, rendering it practically non-corrosive in the presence of moisture. Its readings are accurate at all ordinary temperatures because of the compensated movement.
- The diameter of the dial is 5 inches. It is made of silvered metal with graduations lithographed. The instrument is compensated for temperature changes. It has a hook for suspension and a stationary hand for comparison. Its metric and English ranges are the same as those of No. 76860. It is intended for use in altitudes up to 3,500 feet.....**Each 20.00**
- 76875 BAROMETER, Aneroid, Cenco-Taylor, Metric & English with Weather Indications**, for forecasting weather conditions from changes in barometric pressure. Consists of a well made aneroid barometer with 3¼ inch dial, in an artistically designed mahogany-finished wood case. An altitude dial for elevations from 0 to 3500 feet is provided on the back, which, when set at the user's altitude, gives indications of barometric pressure reduced to sea level to correspond with the U. S. Weather Bureau reports. The dial shows both metric and English mercury pressure scales, and in addition shows the weather forecast both with rising and falling barometric pressure, for all pressure indications. The transparent dial cover is fitted with a movable index, by means of which the change in barometric pressure from one reading to another may instantly be determined. The over all dimensions of the instrument are 12.5 by 12.5 by 4.5 cm. It may either be stood on a desk or hung on the wall.....**Each 5.00**
- 76880 BAROMETER, Aneroid, Watch Case or Pocket Type, with Altitude Scale, for Topographical Survey or Geological Exploration Work**. These barometers are constructed with the highest grade of compensated movement so that their readings are accurate at any ordinary temperatures. Their small size makes them very convenient to carry in the pocket on field trips. At the same time their accuracy is such that their readings are as reliable as are those of the best 5-inch aneroid. Two scales are provided, the inner one being in inches from 26 to 31 inches in 0.10 inch divisions. The outer scale which can be revolved by means of the milled ring is the altitude scale, reading from 0 to 8,000 feet in 100 foot divisions. The needle is provided with a fine pointer, making it possible to estimate altitudes within 10 feet. The barometer is provided with an adjustment screw accessible through an opening in the case at the back by which the pointer can be set correctly by reference to a standard instrument. The case is gold plated and the dial is silvered. This is a high grade instrument in every respect and one which will give as much satisfaction to the user who requires a good barometer as does a good time piece. With soft leather case.....**Each 27.50**
- 76885 BAROMETER, Aneroid, Watch Case or Pocket Type, with Altitude Scale, for Topographical Survey or Geological Exploration Work**, identical with No. 76880, but with altitude scale reading from 0 to 12,000 feet in 100 foot divisions.....**Each 30.00**

MERCURY BAROMETERS



76890

76890 BAROMETER, Mercurial, Cenco-Improved Design (Patents Nos. 1,353,482 and 1,632,084). Hitherto all low-priced barometers have consisted essentially of a wooden back to which was rigidly secured the barometer cistern, tube and scale, and the thermometer when this was provided. In such instruments the risk of breakage is great, and the accuracy of reading is doubtful since changes in humidity cause shifting of the scale relative to the zero point of the mercury column.

The Cenco-improved design, in its general lines, resembles the U. S. Weather Bureau type. The barometer tube is completely enclosed in hexagonal brass tubing, to which are attached the metric and English scales. At the upper end of the barometer there is a substantial ring which permits free suspension. The construction of the cistern eliminates the usual leather bag used in Fortin style barometers, but permits fine adjustments of the mercury level. The thermometer is secured to the brass case.

Some of the resulting advantages of this design over the obsolete wood-backed form are:

1. Freedom from error due to warping of wood, and permanent adjustment of scale relative to the ivory zero-index.
2. Greater protection to barometer tube, minimizing the likelihood of breakage.
3. Possibility of making temperature corrections, since brass, glass and mercury are the substances involved, to which instructions in the manuals are directly applicable. Location of the thermometer directly on brass tube is an aid to accuracy.
4. The instrument automatically hangs plumb.

In addition to these points, the elimination of the leather bag does away with the annoyance of loss of mercury by leakage when the leather becomes old. This feature is patented, and is found only in the Cenco-improved design.

Finally, there is such an improvement in appearance over the wood-backed old style instrument that there is no comparison.

Specifications:

Tube: Full 4 mm bore, filled with redistilled mercury.

Scale: Range 600 to 800 mm, or 24.5 to 31.5 inches, for altitudes from 0 to 4000 feet; verniers read to 1/10 mm and 5/1000 inch; scale and verniers silver finish.

Thermometer: Graduated both Centigrade and Fahrenheit.

Finish: Oxidized and lacquered.

Complete as described.....**Each \$25.00**

10% discount in lots of 3

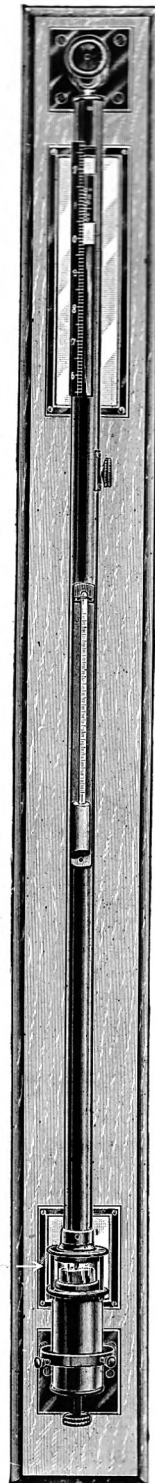
76891 BAROMETER, Mercurial, Cenco-Improved Design (Patents Nos. 1,353,482 and 1,632,084), for high altitudes, from 1,500 up to 10,000 feet. Similar to No. 76890, but with range of scale 500 to 700 mm or 19.5 to 27.5 inches.

Each 30.00

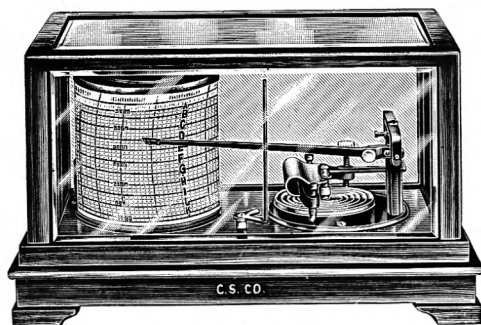
10% discount in lots of 3

Note: Mercurial Barometers can be shipped only by express.

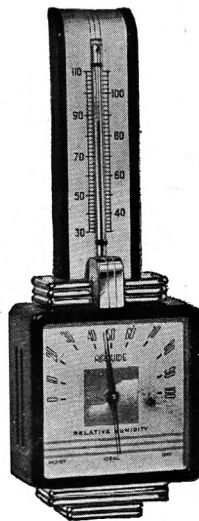
76894 BAROMETER, Standard Mercurial, United States Weather Bureau Type, Fortin principle. This barometer is of the highest type of excellence, endorsed by the United States Weather Bureau, and fully warranted by the manufacturer. The mercury tube is enclosed in a brass body with gunmetal finish, having at its upper end two vertical openings, which the vernier works, the latter operated by a rack-and-pinion movement. The scale is graduated on one side in inches and 10ths, and on the other in centimeters and millimeters, the vernier enabling a reading to be taken in each case, respectively, of one-hundredth of an inch and one-tenth of a millimeter. Reads down to 25½ inches for use in altitudes up to 3,000 feet. Complete with hardwood back and thermometer with both Centigrade and Fahrenheit scales.....**Each 90.00**



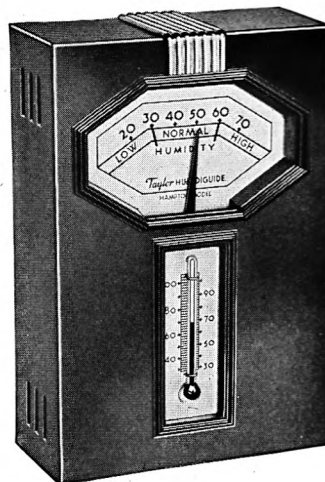
76894



76908



76960



76965

BAROMETERS

- 76895 BAROMETER, Standard Mercurial, United States Weather Bureau Type.** Same as No. 76894, but without the board back.....**Each \$75.00**

Note: Mercurial Barometers can be shipped only by express.

- 76896 Back only, of No. 76894 Standard Barometer.** May be used with No. 76895 Barometer. Size 4½ by 43 inches.....**Each 13.50**

- 76908 BAROMETER, Recording (Barograph), in mahogany case, with glass top and sides, and storage space for charts.** For altitudes from 0 to 3500 feet. Complete with charts for a year, pen and ink**Each 37.50**

- 19510 INK, Recording, Red, for use in No. 76908 Recording Barometer.** Supplied in 2-dram bottles.**Per bottle .55**

- 76909 Barograph Charts, for No. 76908 Barograph.** In boxes containing one year's supply....**Per box 3.00**

Note: In ordering Barograph charts, to insure fit it is necessary to send in a sample of the kind in use.

HYGROMETERS

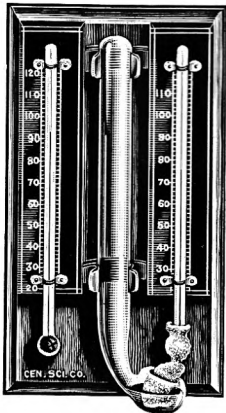
- 76960 HYGROMETER, Airguide, for the direct indication of per cent of relative humidity and the temperature of the surrounding air.** It is designed for indoor use only, and requires no calculations or reference to tables or charts.

The instrument consists of a moisture-sensitive element mounted in a square Bakelite case of artistic design, which also houses the indicating humidity dial. At the top of the Bakelite housing is a red fluid-filled thermometer. The square silvered-metal dial is graduated from 0 to 100 per cent relative humidity in 10 per cent divisions. The scale upon which the thermometer is mounted is also silvered metal with a dull finish. A chromium-plated metal trim of artistic design protects the thermometer bulb. In appearance the instrument suggests a modern banjo-type clock.

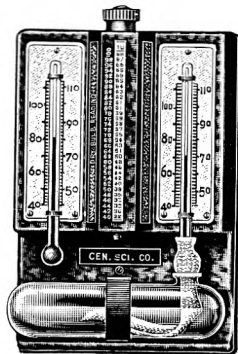
Dimensions: Dial, 2¾ inches square; width, 2¾ inches; length, 7½ inches; depth, 1 inch.....**Each 3.50**

- 76965 HYGROMETER, Hampton, Humidiguide, for the indication of per cent of a relative humidity from 10 to 80 per cent, with an accuracy of better than 3 per cent, and the temperature, from 30 to 100 degrees F, of the surrounding atmosphere.**

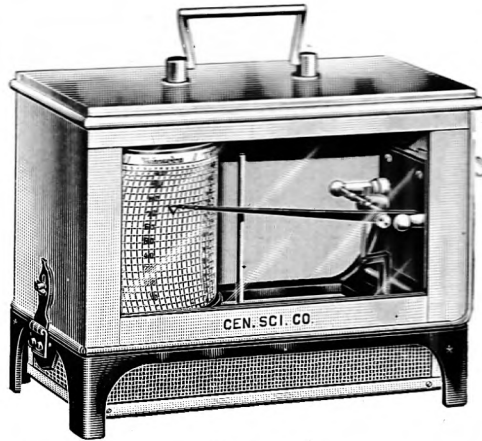
Consists of a moisture-sensitive diaphragm in a satin-black, chromium-trim case with octagonal window exposing a humidity scale, in black figures on a satin-finish aluminum dial. The ranges of low, normal, and high humidity are so marked. Below the humidity dial is a thermometer. An adjustment screw is provided in the bottom of the case by which indications of per cent of relative humidity may be adjusted to correspond with wet and dry bulb hygrometer readings. The humidity scale is graduated in 2 per cent divisions and the thermometer in 2° F divisions. The case is 6 inches high by 4 inches wide by 1½ inches deep.....**Each 3.50**



76970



76990



76995

HYGROMETERS

76970 HYGROMETER, Mason, for determining both relative humidity and dew point. Glass magnifying thermometers of approximate range from 10° to 120° F. are mounted on a metal scale with insulating support and attached to a mahogany finish board 8½ by 4½ inches. With glass cistern and special wick, with humidity tables and directions for use.....**Each \$5.00**

For experiments employing this or similar apparatus see T. W. & H. Exp. 24, p. 101.

76972 Cistern only of No. 76970.....**Each .50**

76974 Thermometers, only of No. 76970.....**Each 2.00**

76976 Hygrometer Wick, Silk, for replacement on wet bulb thermometer of No. 76970. Should be ordered with No. 76974 when the latter is to be used as a wet bulb thermometer.....**Each .10**
Per dozen 1.00

76990 HYGROMETER, Mason Type, Humidiguid, Tycos, for determining conveniently the percentage of humidity in a room or enclosure. Consists of wet and dry bulb thermometers mounted on a molded Bakelite frame; between them is a cylinder bearing on its surface a table of percentages of humidity. The cylinder is behind a longitudinal slot of such width as to expose to view only one column of humidity figures. A knurled head at the top provides means for turning the cylinder. From the vertical column of figures corresponding to the difference in readings between the wet and dry bulb thermometers, can be read directly the relative humidity. There are 20 columns of humidities for differences by single degrees from 1 to 20. The graduations and figures are large and distinct. A glass cistern at the bottom of the Bakelite frame keeps the wick for the wet bulb moist. Directions are on an etched metal plate on the back of the instrument.

Dimensions: Length, 15 cm (6 in.); width, 9.5 cm (3¾ in.); thickness, 3.0 cm (1¼ in.); range of temperature, 40° to 116° F. Designed for wall mounting. Complete as described..**Each 5.00**

76995 HYGROMETER, Recording Hygograph, for furnishing a continuous record of humidity over a period of 7 days. This is a multiple hair type of instrument carefully constructed, with sensitive multiplying mechanism, and accurately calibrated. The hairs are protected by a skeleton metal frame. Complete with charts for one year.....**Each 85.00**

76997 Charts for No. 76995.....**Per box of 55 3.25**

77005 HYGROMETER, Sling Psychrometer, for obtaining quicker and more accurate results than are possible with the stationary wet-and-dry bulb instruments. Two special thermometers, carefully selected, are mounted on a nicely finished metal plate provided with a wooden handle and swivel, and a ring for suspending the instrument when not in use. Approximate range 0° to 100° F. in 1° divisions. *Illustrated on next page.*.....**Each 6.00**

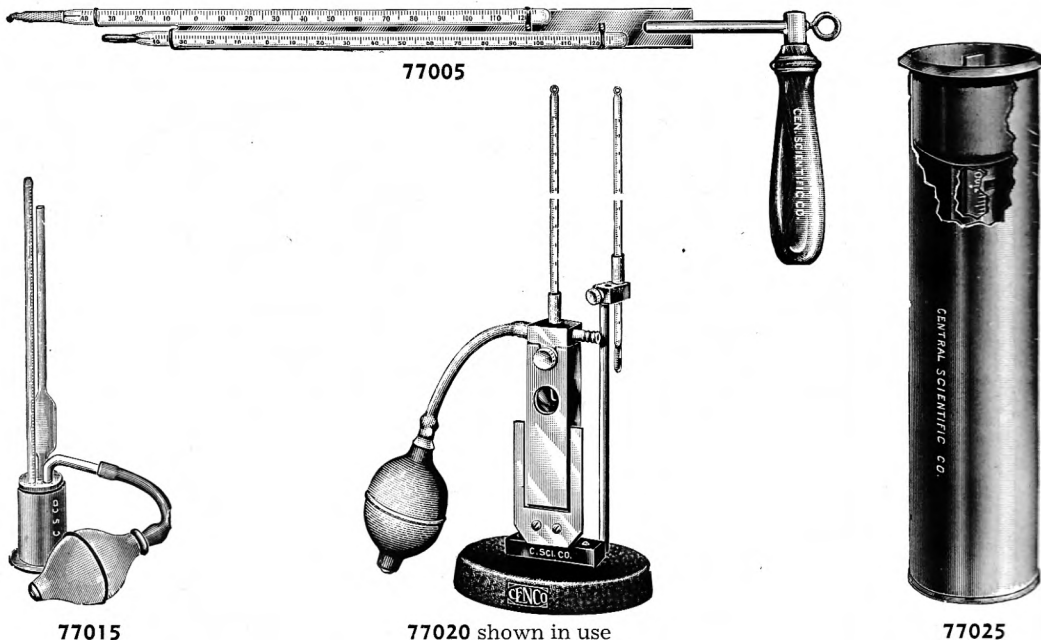
10% discount in lots of 3

For experiments employing this or similar apparatus see I. & M. Exp. 35, p. 111; Ham. Exp. 212, p. 64; White Exp. 21, p.96; Z. & E. Exp. 44, p. 78; Min. Exp. 40, p. 139; D. C. M. Exp. 86, p. 200; M. G. & E. Exp. 25, p. 96; S. & M. Exp. 44.

77007 Thermometers only of No. 77005.....**Each 1.75**

10% discount in lots of 6

76976 Hygrometer Wick, Silk, for replacement on wet bulb thermometer of No. 77005. Should be ordered with No. 77007 when the latter is to be used as a wet bulb thermometer.....**Each .10**
Per dozen 1.00



DEW POINT APPARATUS

77015 DEW POINT APPARATUS according to Millikan, Gale and Davis, Exp. 28. By means of a bulb, air is blown through ether contained in a small nickel-plated brass vessel, 28 by 54 mm. Complete with glass reservoir tube and rubber bulb, but **without thermometer**.....Each \$1.00

10% discount in lots of 3

18080 Rubber Bulb, with metal valves, for pressure only, with connecting tube. For use in blowing air through the ether tube of No. 77015. Capacity, about 50 cc.....Each .35

10% discount in lots of 12

77020 DEW POINT HYGROMETER, Alluard's Form, for precise determination of the temperature of the dew point. A square nickel-plated and highly polished container for ether or other volatile liquid is mounted on a heat insulating support. In use, a stream of air is bubbled through the liquid to produce cooling. The temperature of the highly polished surface is thus lowered to the point at which the water vapor of the jar begins to condense. To facilitate accurate determination of the temperature at which condensation begins, there is mounted on each side of the front surface of the tube, but not in thermal contact with the latter, a strip of highly polished nickel-plated brass. By observing the adjacent surfaces simultaneously the formation of the mist is very readily perceived. As soon as this occurs the temperature of the liquid is read on a thermometer inserted in the tube. Another thermometer, mounted on the same base with the apparatus, but with its bulb sufficiently removed from the tube so that room temperature will be correctly indicated, completes the equipment necessary for determining the humidity. For greatest accuracy of measurement the instrument should be protected from air currents, and the observer should stand several meters away, noting the formation of cloudiness and reading the thermometers with a telescope to avoid error due to body heat.

As described and illustrated, but **without aspirator bulb or thermometers**.....Each 10.00

10% discount in lots of 3

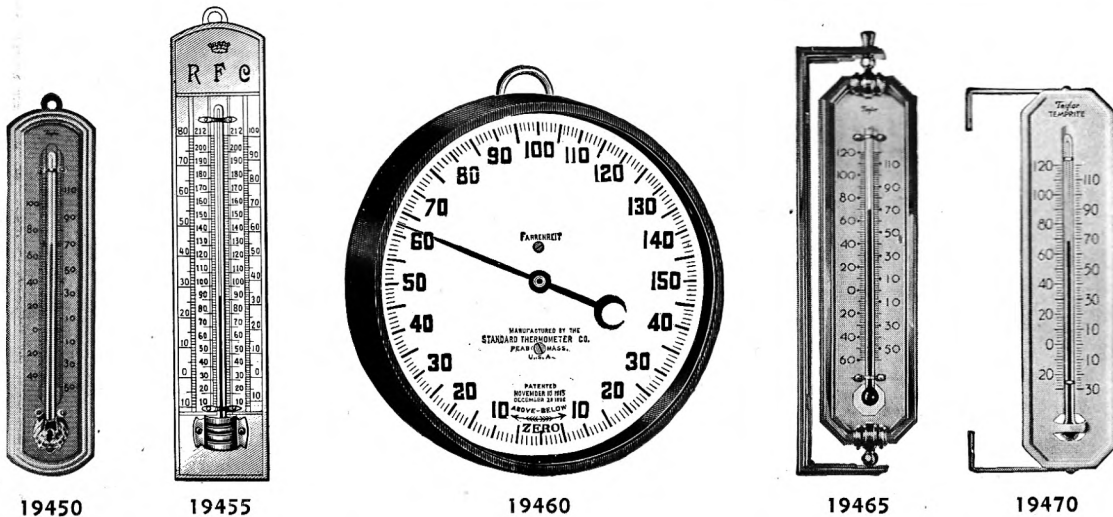
For experiments employing this or similar apparatus see *White Exp. 21, p. 95; T. W. & H. Exp. 24, p. 101; Cas. Exp. 11, p. 33; D. & S. Exp. 108, p. 476.*

RAIN GAGES

77025 RAIN GAGE, similar to United States Weather Bureau type, but smaller and therefore not so accurate. The receiver is a zinc vessel 3 inches in diameter by 13 inches long, in the top of which is placed a copper cup having an open top exactly 3 inches in diameter with sharp edge and projecting rim. The bottom of this copper cup is open and fits in the top of a brass tube 1 inch in diameter in which the amount of rain is measured. This tube is provided with an overflow opening and a wood rule graduated for reading the rainfall directly to 0.01 inch.Each 4.00

10% discount in lots of 3

77027 Measuring Stick only of No. 77025.....Each 1.00

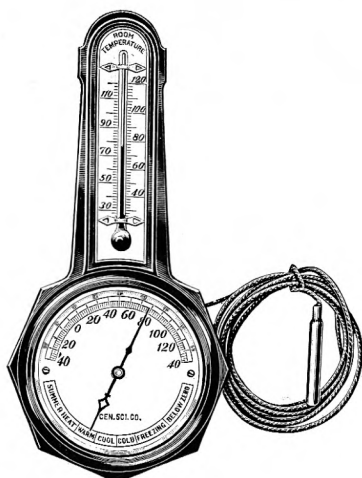


RAIN GAGES

- 77035 **RAIN GAGE, United States Weather Bureau Standard**, similar to No. 77025, but 8 inches in diameter and 23 inches long, with both inner and outer tubes of brass. Complete with measuring stick. Each \$15.00
- 10% discount in lots of 3*
- 77037 **Measuring Stick** only of No. 77035. Each 1.10

THERMOMETERS

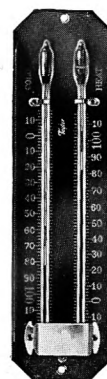
- 19450 **THERMOMETER, Household, Wall Form**, with 8-inch metal scale, on lacquered wood back, with bevelled edges, plated metal guard for bulb and ring for suspension. The scale has lines and figures filled in black with special marking between 68° and 72° to indicate healthful room temperatures. The magnifying capillary stem is red liquid filled for ease in reading. Approximate range, -30° to 120° F. Each 1.25
- 19455 **THERMOMETER, Wall Form, Triple Scale**, a wood frame, mercury filled thermometer, with magnifying front and three scales stamped in the wood to indicate comparable temperatures in Centigrade, Fahrenheit, and Reaumur. The outside scales have a range of -10° to 80° R and -10° to 100° C., and a double center scale with ranges of 10° to 212° F. indicate comparable degrees in the Fahrenheit system. The mercury bulb is protected by a plated metal guard and a ring is provided for suspension. Length, 9¾ inches. Each 1.25
- 19460 **THERMOMETER, Demonstration, Metallic**, a round, brass case instrument with large figures and bold lines with arrow indicator actuated by a bimetallic spiral located in the back of the case. The glass back permits observation of the working mechanism. Diameter of case, 5 inches. Range, -40° to 155° F. in 2° divisions. Each 4.25
- 19465 **THERMOMETER, Out-Door, Window Type, Taylor**, for mounting to the outside of a window frame so as to be visible from the inside of the building. Consists of a red liquid filled, magnifying front glass thermometer tube, mounted upon a white vitreous enamel scale with bold figures and lines. The thermometer and scale are mounted in a heavy, artistic, chromium-plated frame which is supported by a chromium-plated bracket for window attachment and which permits of adjustment to any desired angle. Range, approximately -60° to 120° F. in 2° divisions. Length, over all, 10½ inches; length of thermometer scale, 8 inches. Complete with wood screws Each 3.50
- 19470 **THERMOMETER, Out-Door, Window Type, Taylor**, a window mounting thermometer of cheaper design than No. 19465 Thermometer. Consists of a red liquid filled glass thermometer tube with magnifying front mounted on a heavy, white vitreous-enamelled frame with scale in bold lines and figures. Attachment is made to the window frame by means of two detachable metal arms which are secured to the thermometer and window frame by means of screws. Adjustment may be made to any desired angle. Length, 8½ inches. Range, approximately -30° to 120° F. in 2° divisions. Each 1.00



19475



19480



19485

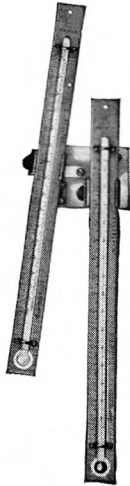
THERMOMETERS

- 19475 THERMOMETER, Weather, Outdoor-Indoor, Combined**, for use in laboratories, classrooms, and homes for observing both inside and outside temperatures. A very convenient instrument for comparing temperatures inside and outside of incubators, incubating rooms, hot houses, or in two parts of the same enclosure. Consists of a red liquid filled glass stem thermometer with magnifying front mounted on the front of a metal case with bold lines and figures. An indicating dial located at the bottom of the case has a needle indicator actuated through a spring by expansion and contraction of a fluid in a closed metal tube. The end of this tube is attached to an elongated bulb which is located outside the window, in an incubator, or wherever it is desired to measure the temperature.

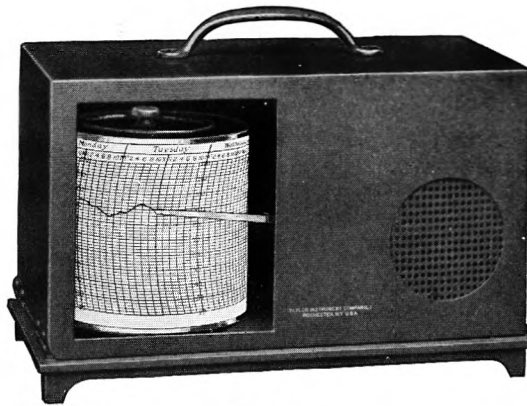
Length of upper thermometer mounting, 11 inches; diameter of dial, 4 inches; length of capillary tube, 15 feet. Net weight, 2 lbs. Range of glass thermometer, approximately 30° to 120° F. in 2° divisions; of dial thermometer, approximately -40° to 120° F. in 2° divisions. Complete with directions for use.....**Each \$12.00**

- 19480 THERMOMETER, U. S. Weather Bureau Standard**, for accurately measuring indoor or outdoor temperatures and checking other weather thermometers. Consists of a mercury filled, graduated, glass thermometer with long mercury bulb attached to an aluminum frame with an etched scale marked from -40° to 120° F. in 1° F. and is secured to the frame so that the principal numbered lines coincide with those on the frame. Length of thermometer stem, 10½ inches; length of frame, 9½ inches. With manufacturer's certificate**Each 8.00**

- 19485 THERMOMETER, Maximum and Minimum Registering, Six's Pattern**, for indicating both the highest and lowest temperatures reached in the interval between settings. Consists of a two-leg, Six's type, mercury and liquid filled thermometer mounted on a black metal frame with two etched scales with white filled lines and figures. These scales, approximately 4½ inches long, indicate cold temperatures on the left side and warm on the right. The cold scale is graduated downward from 0° to 110° F. in 2° divisions and the warm scale upward from 0° to 100° F. in 2° divisions. Enclosed metal indicators, which are reset by means of the horseshoe magnet supplied with the instrument, show the attained maximum and minimum temperatures. The glass tube is secured to the metal frame by means of riveted straps and a rubber insulated metal guard protects the bottom and acts as a support. Length, over all, 7½ inches; width, 2 inches. Complete with horseshoe magnet and directions for use....**Each 4.50**



19490



19495

THERMOMETERS

- 19490 THERMOMETER SET, Maximum and Minimum on Townsend Support, U. S. Weather Bureau,** for accurately measuring maximum and minimum temperatures. Consists of a U. S. Weather Bureau pattern, mercury-filled maximum registering thermometer, a U. S. Weather Bureau pattern spirit-filled minimum registering thermometer, and a Townsend support, which enables the thermometers to be properly exposed and supported for ease in resetting. The thermometer scales are etched on the glass stems in 1° divisions and are numbered at each 10° F. They are securely mounted on aluminum frames, which are graduated each 5° F. and numbered each 10° F. to correspond with the graduations on the glass stems. The maximum thermometer has a range of 20° F. to 120° F. and the minimum of from 20° to 60° below zero to an upper limit of approximately 120° F. above the lowest indication. The Townsend support consists of a heavy brass plate which may be screwed to any support. Two posts of unequal height are mounted on the base, and are provided with holders with set screws for the thermometer frames. The taller support rotates freely to permit setting of the maximum thermometer after reading, and is locked by a lever arm attached to the base. The shorter support makes a quarter turn to permit resetting of the minimum thermometer. Complete with Townsend support and two thermometers with manufacturer's certificates.....
.....Each \$24.00
- 19492 THERMOMETER, Maximum Registering, U. S. Weather Bureau Pattern,** for replacement in No. 19490 Thermometer Set, and as described under that catalog number. The aluminum frame is drilled to permit its use as a replacement in the older type U. S. Weather Bureau Thermometer Sets which had wood backs. Range, 20° F to 120° F in 1° divisions. With manufacturer's certificate
.....Each 8.00
- 19494 THERMOMETER, Minimum Registering, U. S. Weather Bureau Pattern,** for replacement in No. 19490 Thermometer Set and as described under that catalog number. The aluminum frame is drilled to permit its use as a replacement in the older type of U. S. Weather Bureau Thermometer Sets, which had wood backs. Approximate range, 20° F to 60° F below zero to an upper limit of approximately 120° F above the lowest indication. With manufacturer's certificate
.....Each 8.00
- 19495 THERMOMETER, Recording Thermograph, Air Type, Taylor,** for accurately measuring and recording room temperatures by means of a pen on a printed chart. A complete record is made by a pen on a printed chart for one week, and by its form the exact reading can be seen at any moment, as well as the varying line traced by the pen for the time preceding. The charts are changed at the beginning of each week and may be retained as a record for the entire year. Consists of a bimetallic coil of non-rusting material, exposed to the atmosphere at the end of the ventilated metal case, and connected to the recording pen. As the temperature rises and falls, the coil unwinds or winds, causing the arm to move vertically across the chart which is attached to a metal drum with a 7-day, fully-jeweled clock movement. The charts are divided vertically into days and into two-hour subdivisions of a day, and horizontally into degrees covering a range of 0° F to 100° F. The working mechanism is mounted in a metal case with holder for the ink bottle. The top of the case is hinged at one end and is fastened at the opposite end by a metal hasp provided with small padlock with key. The case is finished in dark gray and has a clear glass window for observing the temperature chart. Complete with 1 box of charts (1 year's supply), bottle of ink with dropper stopper, padlock with two keys, and directions for use.....
.....Each 50.00



19498

THERMOMETERS

- 19496 Thermograph Charts**, for replacement on No. 19495 Recording Thermometer. Printed on heavy white paper with green lines and figures, with perforated gummed strips at each end for attachment to the clock drum. Graduated vertically in days of the week with lines for each two-hour period, and horizontally in degrees over a range of 0° F to 100° F, with numbers at each 10° F and lines for each 2° F. Length 1¼ inches; width 3 11/16 inches. Supplied in boxes containing a year's supply with directions for installation.....**Per box \$3.50**
- 19498 THERMOMETER, Recording, Circular, Air Type**, an accurate, convenient, portable instrument with circular chart for use in recording room temperatures. Consists of a metallic thermometer and a specially designed Seth Thomas clock rotating the disk, mounted in a perforated cylindrical metal case. The thermometer is of the helical bimetallic type to one end of which is directly attached the pen arm. A frictionless glass fountain pen, clipped in the end of the pen arm, holds sufficient ink for a 72-hour chart. The charts regularly supplied with the thermometer are graduated circularly in single day intervals, with every fourth day numbered. From outside to center, the chart is divided from 50° F to 90° F in 2° divisions. Other charts can be supplied. The parts are well made and carefully adjusted to insure maximum accuracy and simplicity. The metal case is made of aluminum, finished in gloss-black baked enamel. The face is hinged and provided with a catch. A handle is attached for convenience in carrying. The instrument may be set on a table, feet being provided for this purpose, or hung on the wall by means of a slot in the back of the case. All steel parts are rust-proofed. The clock key is permanently attached to the back of the instrument case so that the clock can be wound without disturbing the record.
Dimensions: Height, over all, 6 3/16 inches; diameter of case, 6 inches; diameter of face, 4½ inches; diameter of chart, 3 7/8 inches. Net weight, 3 lbs. Complete with 100 charts and bottle of recording ink.....**Each 36.00**
- 19499 Charts, Circular**, for replacement in No. 19498 Recording Thermometer. 72-hour charts covering a range of 50° to 90° F. Supplied in packages of 100 charts.....**Per package 1.80**
- 77180 WEATHER FORECAST CHART, or Key to Barometer Reading, and Chart for Aneroid Barometer**, by J. Benj. F. Rawson, late of the Weather Bureau. This chart is intended as an aid in the intelligent interpretation of barometer readings and in forecasting weather for twenty-four hours. With full directions.....**Each .75**
- 77182 WEATHER MAP, U. S., Blank**, for student tests in plotting weather data. Consists of the printed map used by the U. S. Weather Bureau for publishing daily graphic reports of weather conditions to show storm areas and their progress across the country.....**Per sheet .05**
Per hundred 1.00
- 77185 "WEATHER AND WEATHER INSTRUMENTS."** This book describes the mechanism of the many instruments and in addition gives in concrete and simplified form the practical uses of the different instruments. The tables of classified data recommend it particularly to teachers. Pasteboard covers.....**Each 1.00**
- 77190 "PRACTICAL HINTS FOR AMATEUR WEATHER FORECASTERS."** Information on the care and exposure of barometers. 24 pages, illustrated.....**Each .20**