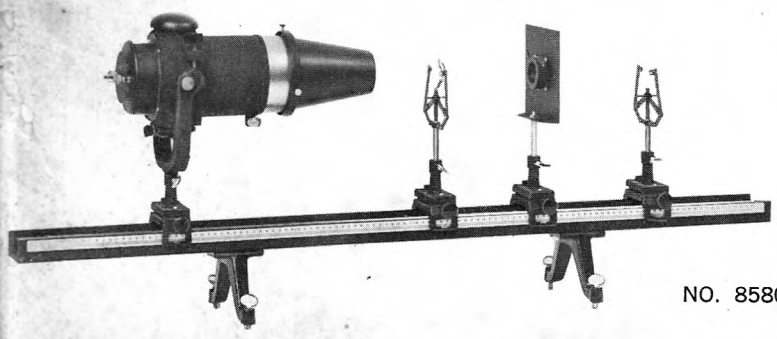




# PHYSICS apparatus catalog



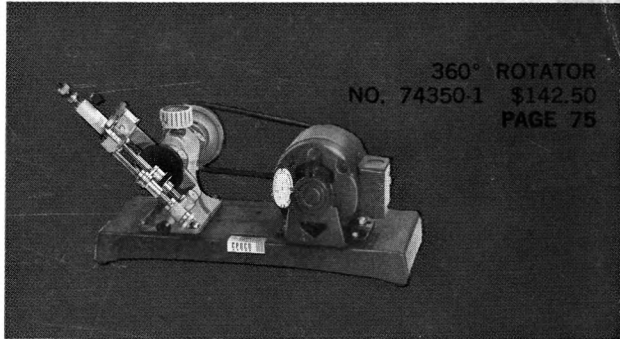
AC-DC VARIABLE  
POWER SUPPLY  
NO. 79550 \$79.50  
PAGE 168



OPTICAL  
BENCH  
NO. 85801 \$67.50  
PAGE 258



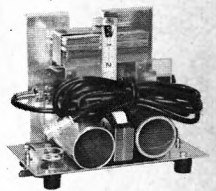
BALLISTIC  
PENDULUM  
NO. 75425 \$147.50  
PAGE 98



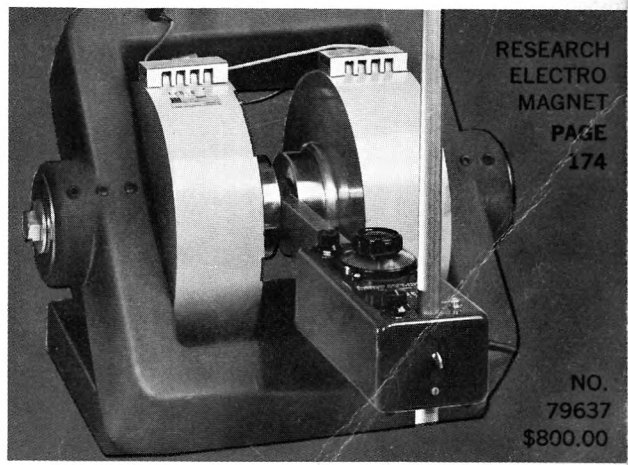
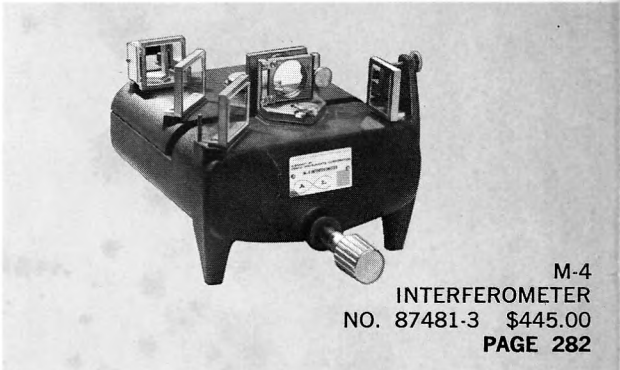
360° ROTATOR  
NO. 74350-1 \$142.50  
PAGE 75



RADIOACTIVITY  
DEMONSTRATOR  
NO. 71201-2 \$194.50  
PAGE 7

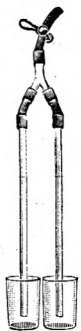


M-4  
INTERFEROMETER  
NO. 87481-3 \$445.00  
PAGE 282



RESEARCH  
ELECTRO  
MAGNET  
PAGE  
174

NO.  
79637  
\$800.00



76575



10650



10655

**HARE'S BALANCING COLUMNS**

For determining the specific gravity of a liquid by comparing the height of a column of the liquid with that of a column of water. Consists of two glass tubes, 100 cm long, connected at upper end by a 3-way glass tube, 2 tumblers, rubber tubes and pinchcock. **NO. 76575** **\$3.35**

**SPECIFIC GRAVITY BOTTLES, ADJUSTED**

Same as No. 10650 Bottles, except that volumes have been adjusted at 20°C to those indicated within reasonably small tolerances. Stoppers and bodies bear corresponding identification numbers.

Cat. No.	Weight, gms.	Capacity, ml	Each
10655-10	7	10	\$2.25
10655-25	13	25	2.65
10655-50	19	50	2.75
10655-100	30	100	3.40

**SPECIFIC GRAVITY BOTTLES, UNADJUSTED**

For specific gravity of liquid determinations. With perforated glass stoppers. Must be calibrated.

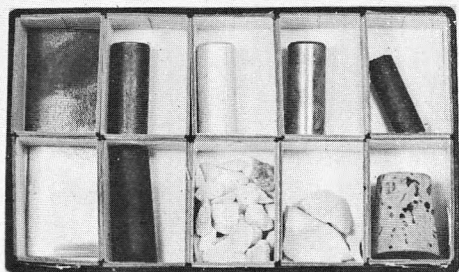
Cat. No.	Weight, gms.	Capacity, ml	Each
10650-10	7	10	\$1.05
10650-25	13	25	1.25
10650-50	19	50	1.55
10650-100	30	100	2.05

**SPECIFIC GRAVITY SPECIMEN SET**

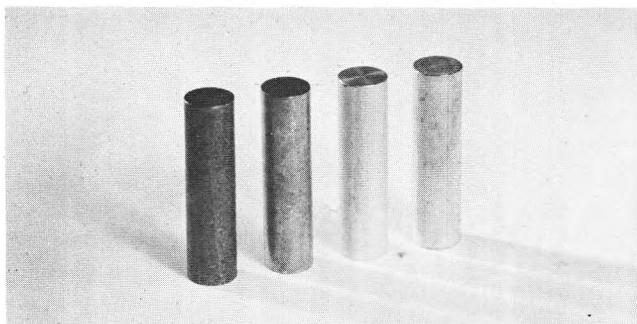
Consists of ten different substances of irregular shapes and approximately 4 ml in volume, for student use in density experiments. Enclosed in a partitioned pasteboard box. **NO. 76625** **Per Set \$3.05**

**SPECIFIC GRAVITY METAL SPECIMEN SET**

Consisting of four solid metal rods 13 mm in diameter and 5 cm long, ends squared accurately. Aluminum, brass, copper and steel. **NO. 76630** **Per Set \$2.35**



76625

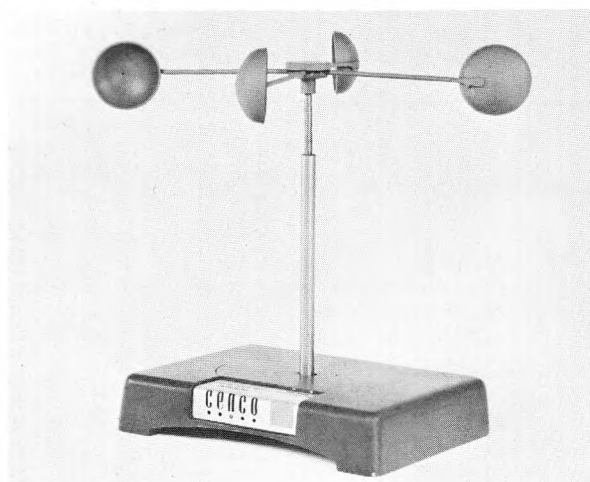


76630

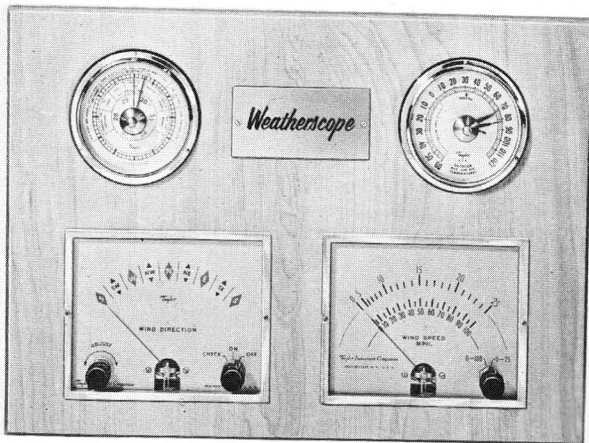
**METEOROLOGY**

**WORKING MODEL ANEMOMETER**

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 an iron rectangular, round-edge base with blue-gray hammertone finish. Overall height, about 17 cm. **NO. 76800** **\$10.00**



## WEATHER

**"WEATHERSCOPE" COMPLETE WEATHER STATION**

For permanent installation in science centers, classrooms, school corridors, or lobbies to provide a unique year-round teaching exhibit and make the study of weather more meaningful. It presents a complete weather picture including outdoor temperature, with indicators for maximum-minimum settings; barometric pressure on a forecast dial; and a wind direction and wind speed indicator. All instruments are framed with brass finished bezels, have grained aluminum dials with glass covers, and are mounted in an attractive solid wood panel with mahogany finish. Wind direction and speed indicators are self-powered with no outside electrical connection required. There is no drain on the battery except when actually reading wind direction. Direction vane and cup assembly can be installed on a roof or any other suitable elevation at a distance of up to 2000 feet from the panel. Sixty feet of weatherproof plastic covered cable is supplied for connection to indicators. Thermometer has an outdoor sensing element complete with 20 feet of capillary metal tubing to connect thermometer with remote outdoor location. Complete unit as described with detailed instructions for installation. The panel is 17 x 12 inches in size. A recess opening with inside dimensions of 9 inches high x 1 1/2 inch deep is required for flush wall mounting.

**NO. 77040 Weather Station**

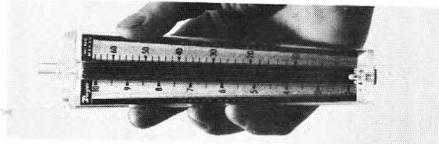
**\$202.50**

**STUDENT WEATHER STATION**

This weather station is easily hung from the wall and is ideal for classroom use. Pertinent weather data can be observed at one spot. Consists of a precision barometer, a hygrometer and a maximum-minimum thermometer mounted on a weather-proof aluminum panel 16 x 10 inches in size. Thermometer is graduated in both °C and °F. Information for forecasting weather is printed on chart below instruments. Supplied with reset magnet for thermometer.

**NO. 77039 Weather Station**

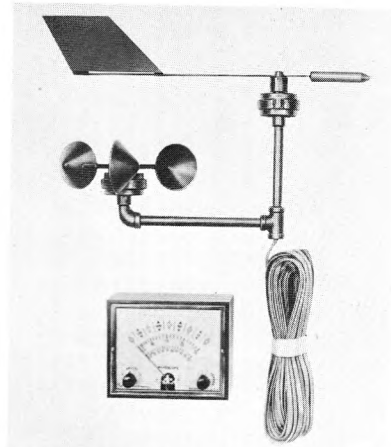
**\$36.95**

**POCKET WIND METER ANEMOMETER**

A simple wind meter which reads directly in mph over the ranges 2 to 10 and 10 to 64 miles per hour. Excellent for classroom use, and for use by meteorologists and ventilating engineers. Made with a transparent plastics frame with enclosed etched metal scales, it is portable and light in weight. It is only 6 inches long by 2 inches wide and comes in a plastic envelope pocket case. There are two openings in the bottom of the frame where a light-weight white ball rests. It is by the rise of the ball that the mph is read from either scale. The 0 to 10 scale is read with the top finger vent open and the 10 to 64 scale with it closed.

**NO. 76802**

**\$4.95**

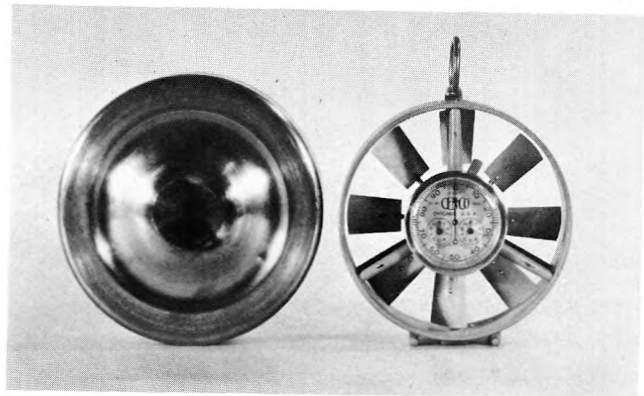
**ANEMOMETER, TAYLOR WINDSCOPE**

A completely new instrument which indicates both wind speed and direction on a single dial from inside the home, office or club. Two wind velocity scales provide accuracy and ease of reading, particularly in the 0-25 mph range. Winds in the 25-100 mph range are read on the lower scale. Speed is shown both in miles per hour and Beaufort scale. Cardinal points are clearly marked for reading wind direction.

The transmitter assembly may be installed on the roof or other suitable elevation within a maximum distance of 2000 feet. The indicating unit may be mounted on an inside wall, desk or shelf. It is self-powered by a battery on which there is no drain except when reading wind direction. The direction vane has precious-metal contacts for long life and ball-type thrust bearing. Outdoor parts are of non-corroding aluminum. The deluxe design indicating unit is of solid mahogany, 8 inches x 5 inches x 2 inches. Supplied with 60 feet of 5-conductor, weatherproof, plastic covered cable. (Additional lengths on special order.) Complete with 1 1/2 volt battery cable and complete instructions.

**NO. 76803**

**\$89.95**

**BIRAM'S ANEMOMETER**

For the measurement of velocity of air currents in schools, public buildings, mines, tunnels, flues and sewers. Especially useful in studying ventilating systems in public buildings. The instrument has three dials, one large and two small, which represent linear feet of total air passing in a given period. The large dial reads from 0 to 100 feet. One of the smaller dials is marked for a total of 1000 feet in units of 10 by 100 feet; the other is marked for a total of 10,000 feet in units of 10 by 1000 feet. This instrument is equipped with jeweled bearings which provide greater sensitivity at low speeds.

The instrument is suitable for measuring air speeds from 75 to 2000 feet per minute. A zero setting device permits instant return of all pointers to zero. The anemometer is accurately made with straight, tubular brass spokes and adjustable hubs. Diameter, 4 1/4 inches.

Complete with correction table, threaded socket for attaching to foot, and metal case.

**NO. 76805**

**\$75.00**

## BAROMETERS

### PLAIN BAROMETER TUBE

Of large bore, heavy wall lime glass tubing with one end sealed round. Length, 80 cm.

NO. 76820

Each \$1.00

### PLAIN BAROMETER TUBE WITH WELL

Same as No. 76820 Tube, but supplied with glass mercury well and pipet for filling.

NO. 76825

Each \$2.20

### GRADUATED BAROMETER TUBE

Often preferred for demonstration because of its large bore and etched measuring scale directly on side-walls. Made of large bore, heavy wall hard glass tubing. Graduated from 0 to 800 mm in 1 mm divisions, and numbered each centimeter. Overall length, 86 cm.

NO. 76831

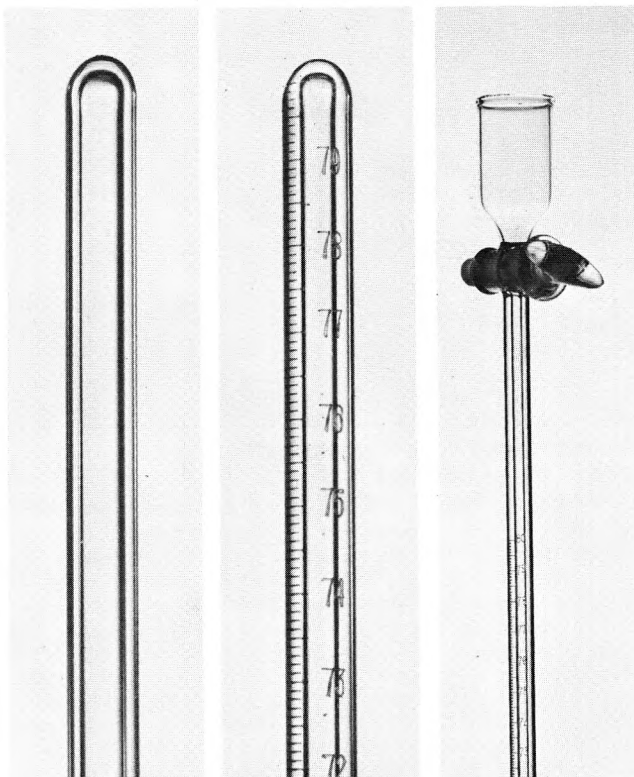
Each \$12.49

### GRADUATED DEMONSTRATION BAROMETER TUBE

Made of Kimax glass with funnel top and stopcocks top and bottom. Graduated from 100 to 800 mm in 1 mm divisions.

NO. 76835

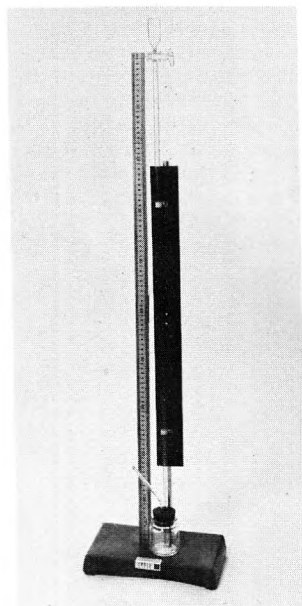
Each \$18.00



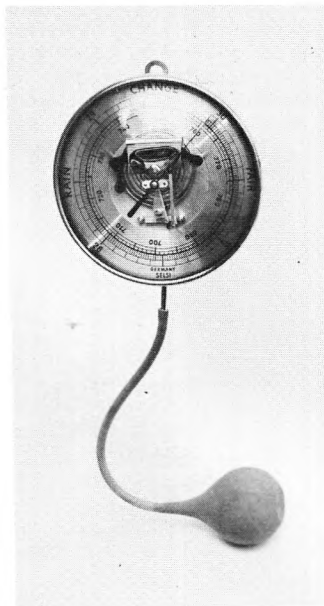
76820

76831

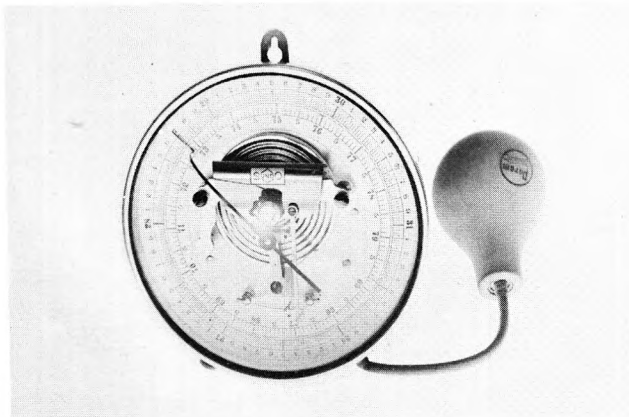
76835



76836



76857



76858

### DEMONSTRATION MERCURY BAROMETER

Graphically demonstrates operation of a mercury barometer. Consists of glass tube with funnel top and stopcock mounted on metal support with adjustable meter stick, mercury reservoir and tube for connection to a pressure pump. In use, mercury is forced up the tube, stopcock is closed when mercury reaches funnel top and pump is disconnected. Mercury falls to a level indicating barometric pressure as read on the meter stick.

NO. 76836 with rectangular cast metal support base.

\$26.25

### ENGLISH-METRIC ANEROID BAROMETER, DEMONSTRATION FORM

For use in demonstrating the construction and operation of an aneroid barometer. The mechanism is mounted on a metal base and covered by a glass dome for easy inspection. The English scale is 27.5 to 31.5 inches in 0.02 inch divisions; the Metric scale is 685 to 787 mm in 1 mm divisions. A tubulated air-inlet on the base is connected to a rubber compression bulb for introducing pressure. To release the pressure or use at atmospheric pressure, the rubber bulb is removed. Diameter of dial, 5½ inches.

NO. 76857

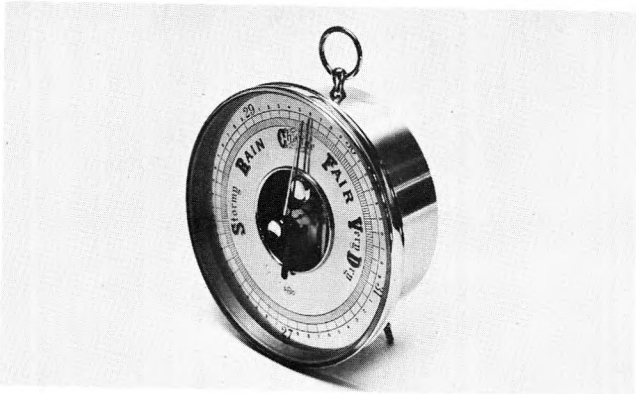
\$16.00

### DEMONSTRATION ANEROID BAROMETER

Oversize 7 inch dial face makes it ideal for classroom demonstrations of the construction and operation of the aneroid barometer. Movement made with same precision as smaller, wall type instruments. Pressure release valve eliminates need for removing rubber tubing and bulb to release bellows during demonstration. Ranges: 26-32 inches by 0.02, 65-80.3 cm by 0.1. Brass case with glass cover.

NO. 76858

\$27.00



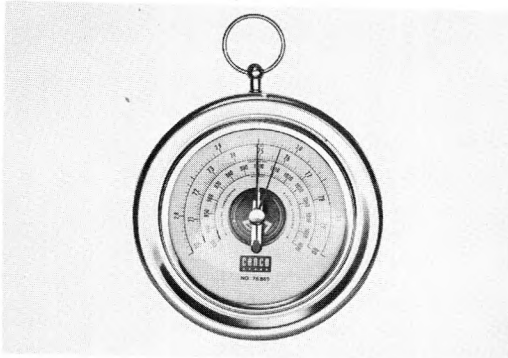
76861

**ENGLISH-METRIC ANEROID BAROMETER, 5-INCH DIAL**

An excellent barometer for school or laboratory, similar to No. 76870, but without temperature compensated movement. Metric graduations, 69 to 79 cm in millimeters; English graduations, 26 to 31 in. in 0.02 inch divisions. Adjustment may be made to sea level readings and altitudes up to 3500 feet. In lacquered polished brass case.

**NO. 76861**

**\$29.75**



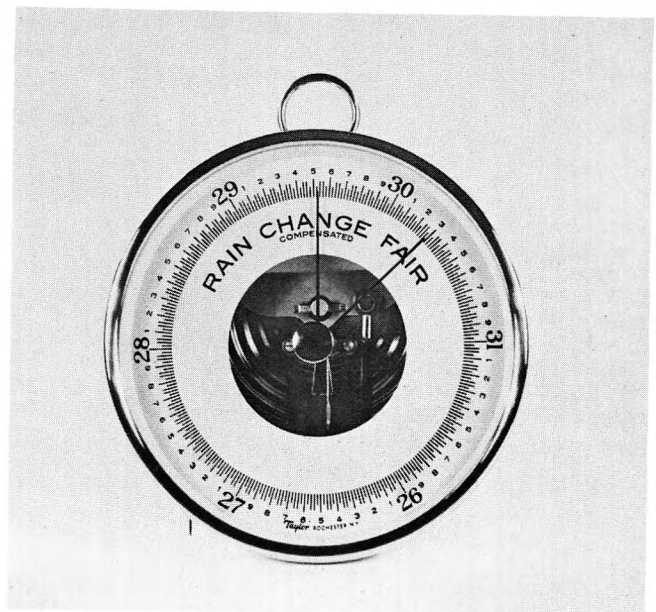
76869

**3-SCALE ANEROID BAROMETER**

Made with three scales to indicate inches of mercury (English Units), centimeters (Metric Units), and millibars (Weather Bureau Std.), this is an excellent unit for the science classroom. The geared and temperature-compensated movement is revealed by an open white dial face with black graduations and lettering. Case is of polished and lacquered brass and has a suspension ring and easel back for wall or desk mounting. Overall diameter is 5 1/4 inches. Guaranteed to operate at altitudes up to 3500 feet.

**NO. 76869**

**\$19.45**



76870

**ENGLISH-METRIC ANEROID BAROMETER, TEMPERATURE COMPENSATED, NAVY TYPE**

A high grade barometer suitable for practically any use in which an aneroid is found preferable to a mercurial barometer. Practically all parts of this barometer are constructed of nickel-silver or phosphor bronze, rendering it practically noncorrosive 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. It has a hook for suspension and a stationary hand for comparison with previous readings. With metric and English scales 640 to 790 mm and 26 to 31.9 inches; graduated 0.5 mm and 0.02 inch. It is intended for use in altitudes up to 3500 feet.

**NO. 76870**

**\$49.50**

**ENGLISH SCALE ANEROID BAROMETER, HIGH ALTITUDE**

Similar to No. 76870 Barometer, but for use at altitudes of 4900 to 9500 feet. Graduated 20 to 26 inches by 0.02 inch. Diameter, 5 inches.

**NO. 76875**

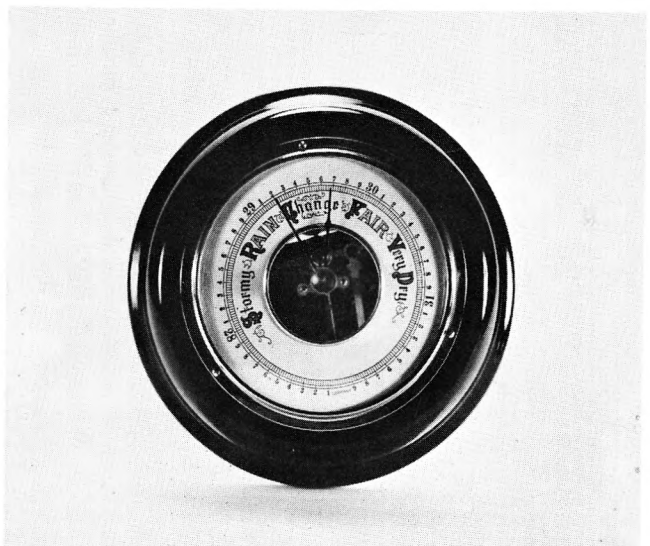
**\$54.50**

**MILLIBAR-ENGLISH ANEROID BAROMETER, DIAL TYPE**

An accurate, inexpensive barometer ideal for elementary studies of weather, and for reading barometric pressures at altitudes from sea level to 2000 feet. The silvered metal dial shows mercury pressure equivalents in both English and millibar scales. Range: 27.5 to 31.5 inches; numbered each inch and 0.1 inch; graduated to 0.02 inch, with millibar graduations of 900 to 1070 in single divisions. Weather forecast indications are shown in the dial. The plated index pointer is provided with a knob for resetting. The movement is housed in a round mahogany-finished frame, with a bracket on the back for table use and metal plate with hole for wall mounting. Dimensions: dial diameter, 3 1/2 inches; case diameter, 5 inches. Complete with operating directions and altitude correction table.

**NO. 76872**

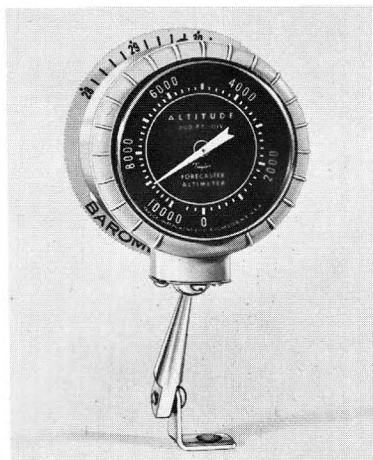
**\$12.00**



76872



76878



76887

**CENCO BAROMETER CONVERSION SCALES**

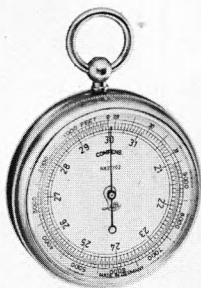
For readily converting barometric pressures in inches or millimeters to the new official standard of pressure adopted by the U. S. Weather Bureau. Consists of a metal plate, 22.5 cm by 5 cm, with reversed etched graduation and figures against a black enameled background, suitable for mounting.

**NO. 76878 \$0.75**

**AUTO-TYPE ALTIMETER**

For indicating both altitude and barometric pressure. Excellent for student observations, field trips, showing the principles of altimeters, etc. Consists of a sensitive aneroid movement housed in an attractive black plastic case with an enclosed dial calibrated in feet. At the rear is a separate open dial indicating barometric pressure in inches. A finger lever permits initial setting of altimeter. A ball-and-socket adjustable bracket is supplied which may serve as a handle or permanent mounting.

**NO. 76887-1 0-6000 feet; 100 ft. divisions \$11.25**  
**NO. 76887-3 0-14,000 feet; 200 ft. divisions 11.25**



**ALTIMETER**

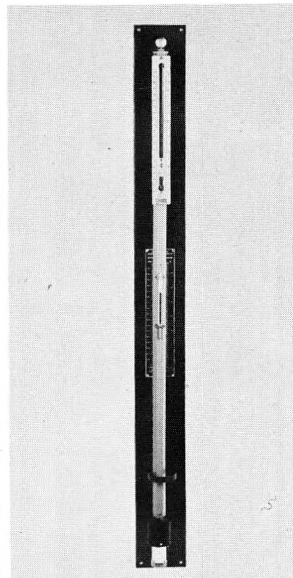
For demonstrating the use of atmospheric pressure in determining altitude above sea level. Also serves as an example of a basic navigational instrument used in aircraft. Consists of a precision movement mounted in a chromium plated case similar to a watch. The dial is 2 3/8 inches in diameter and carries two scales. The inner scale is graduated in inches of mercury and can serve as a compact highly accurate aneroid barometer; the outer scale is the altitude scale, in 100 foot divisions. Two ranges are available: One reading from 0 to 9000 feet; the other reading from 0 to 12,000 feet. Complete with plush-lined leather case.

**NO. 76880 0 to 9000 ft. \$42.95**  
**NO. 76885 0 to 12,000 ft. \$42.95**

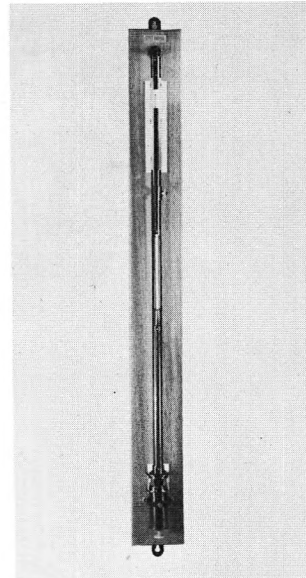
**LIQUID MERCURY**

For use in barometers, manometers, etc. Technical grade, acid-washed and filtered.

**NO. 38118 4 oz. \$ 4.75**  
**NO. 38118-1 1 lb. 16.50**  
**NO. 38118-5 5 lb. 80.00**



76890 w/76892



76894

**CENCO MERCURIAL BAROMETER**

In appearance, resembles the type used by the U. S. Weather Station Bureau. A barometer tube is completely enclosed in hexagonal brass tubing to which is attached metric and English scales. At the upper end of the barometer is a substantial ring which permits free suspension. The construction of the cistern eliminates the usual leather bag used in Fortin Style barometers yet permits fine adjustment of the mercury level. A thermometer is secured to the brass housing. The tube, a full 4 mm bore, is filled with redistilled mercury by a special process. Scale range is 600 to 800 mm and 24.5 to 31.5 inches for altitudes from 0 to 4000 ft. The verniers permit readings down to 0.1 mm or 5/1000 in. The thermometer is graduated in both Centigrade and Fahrenheit. Complete with a hook screw for suspension and a U-shaped holder with wood screws to prevent swinging. *Shipped by express only.*

**NO. 76890 Cenco Mercurial Barometer \$60.00**  
 completely enclosed in hexagonal brass case.  
*(For experiments employing this apparatus, see Nos. 71990-330, 71990-331, 71990-332, 71990-341, 71990-342 and 71990-345.)*

**CENCO MERCURIAL BAROMETER, HIGH ALTITUDE**

Similar to No. 76890, but for use at altitudes from 1500 to 10,000 ft. Scale reads from 500 to 700 mm and 21.5 to 27.5 inches. *Shipped by express only.*

**NO. 76891 completely enclosed in hexagonal brass case. \$67.25**

**CENCO BAROMETER MOUNTING**

To provide a support for Nos. 76890 and 76891 Cenco Mercurial Barometers. Consists of a substantial sheet metal back finished in white enamel, providing a light background for adjusting the zero index to the mercury surface and the vernier to the top of the mercury column. Suspension holes are provided at the four corners. Length, 37 1/2 inches; width, 3 1/2 inches. A Metal Conversion Scale, No. 76878, is securely fastened to mounting.

**NO. 76892 with 37 1/2 x 3 1/2-inch frame. \$7.75**

**U.S. SIGNAL CORPS TYPE BAROMETER**

Mercury tube enclosed in bronzed metal and mounted on hardwood panel, 4 1/2 x 43 in. Double scales, graduated from 25.5 to 31 x 0.1 in. and 646 to 800 x 1 mm. Attached vernier reads 0.01 in. and 0.1 mm. For use from sea level up to 3000 ft. altitude. With mounted thermometer. *Shipped by express only.*

**NO. 76894 \$135.00**

**BAROMETER CHARTS**

A package of 52 charts for use with No. 76904 Barometer.  
**NO. 76905 Per Pkg. \$4.50**

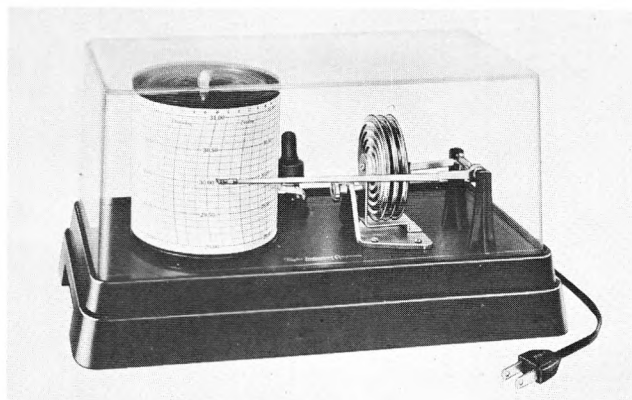


**"WEATHER-HAWK-STORMSCOPE"  
RECORDING BAROMETER**

For making a continuous day to day recording of barometric pressure in the observation and study of weather changes, local forecasting, etc. The outstanding feature of this improved version of the popular "Weather Hawk" Barometer is its Uni/Mag movement which gives a magnified pointer response to pressure variations and can be used at any altitude. The range of pressure measured is 29 to 31 inches of mercury. A simplified 7-day forecast chart provides weekly records of pressure changes. Instrument is mounted on a black plastic base with a clear plastic cover giving an unobstructed view of all moving parts. Overall dimensions: 12 x 6 x 5 3/4 inches. Chart drum operates on 115 volts, 60 cycles ac. Complete with 13 charts, ink, and instructions.

NO. 76904

\$59.50



76904

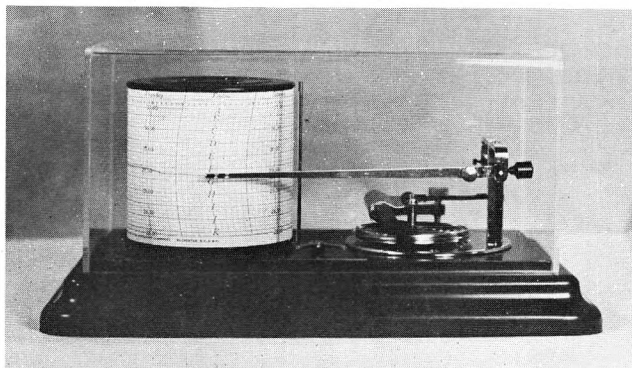
**TAYLOR CYCLO STORMOGRAPH RECORDING BAROMETER**

For recording variations in atmospheric pressure from 28 to 31 inches by tenths of inches in intervals of two hours through seven days. May be used at any altitude from 0 to 3500 feet. Excellent for forecast of weather from an analysis of an accurate and continuous record for periods of 12 to 24 hours in the future. Consists of a high-grade seven day clock movement for operating the recording drum and an exceedingly sensitive temperature-compensated aneroid mechanism mounted on a polished mahogany-finished wood base and enclosed within a clear plastic case. The charts are lithographed in green ink, gummed at one end for easy attachment and rouletted for easy removal. The horizontal divisions cover a period of seven days in two-hour intervals; the vertical divisions indicate tenth inches from 28 to 31 inches. A weather forecast card, 6 3/4 by 10 3/4 inches, is supplied which carries statements of the probable weather conditions 12 to 24 hours ahead that are based on the observed conditions recorded by the instrument. In addition, a special display card is furnished for posting the forecast.

Overall dimensions: width, 17 1/2 inches; length, 12 3/4 inches; height, 7 inches. Complete with forecast cards, a year's supply of charts, and a bottle of special ink.

NO. 76908

\$157.50



76908

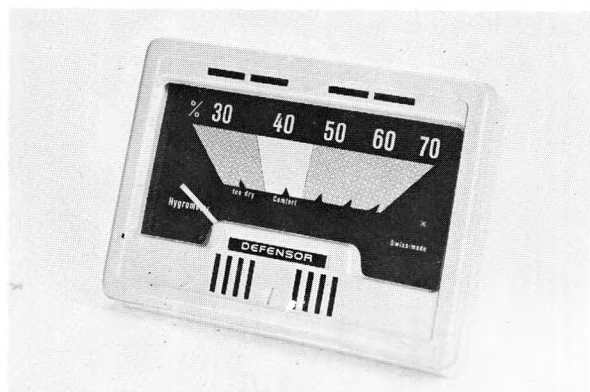
**BAROMETER CHARTS, TAYLOR 82**

For No. 76908 Barometer. In packages containing one year's supply.

NO. 76909

Per Pkg. \$4.50

**HYGROMETERS**

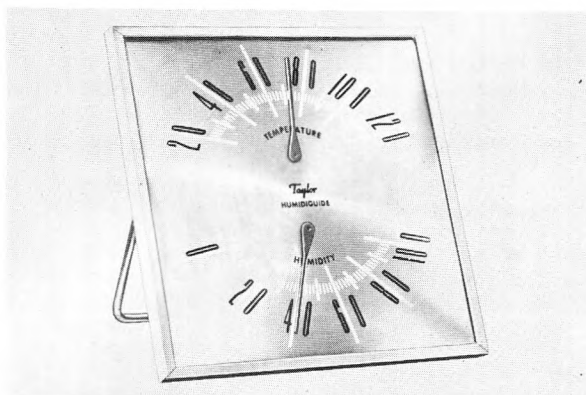


**DESK-TYPE HYGROMETER**

An accurate hygrometer with moisture-sensitive element in a 3 in. x 4 in. brown plastic case with hinged bracket. Dial is marked 30, 40, 50, 60 and 70% relative humidity in gold color on a black background. Provided with setting screw for use when checking calibration against a sling psychrometer.

NO. 76968-1 Desk-Type Hygrometer

\$5.95

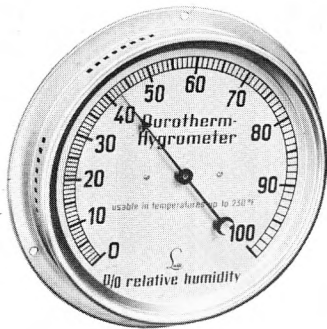


**TAYLOR THERMOMETER-HYGROMETER**

A useful, desk-top instrument that indicates both temperature and relative humidity. Mounted in a 3 1/2 in. square case of molded plastic and designed so it can stand on a desk or be hung from a wall. Range is 20 to 120°F with 2° divisions and 0 to 100% relative humidity with 2% divisions.

NO. 76968-2 Thermometer-Hygrometer

\$2.65

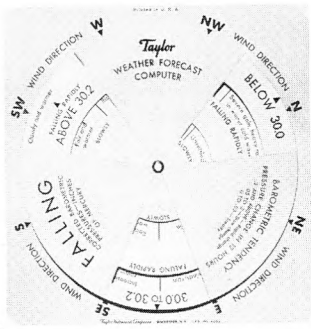


76964

**PRECISION HYGROMETER**

For use where accurate relative humidity readings are required. Features a "Durotherm" element, a polished brass flange type case and a silvered dial. Graduated into single percentages and numbered every 10. Over-all diameter is 6 inches.

**NO. 76964 Hygrometer \$16.50**

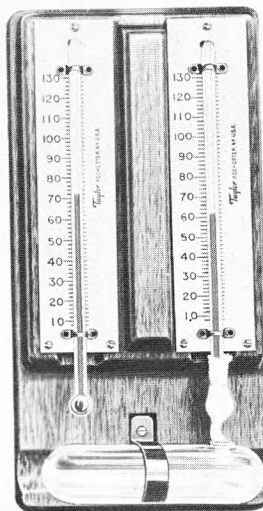


76969

**FORECAST COMPUTER**

A handy calculator for forecasting the weather. Simply set the calculator using the present barometric pressure and wind conditions and then read the probable future conditions.

**NO. 76969 Weather Computer \$0.25**



76971

**MASON HYGROMETER**

For determining both relative humidity and dew point. Glass magnifying thermometers of approximate range 30° to 120° F, are mounted on a metal scale with insulating support and attached to a mahogany finished panel 8 7/8 x 4 1/4 in. With glass cistern and spare wicks, humidity tables and directions for use.

**NO. 76971 Mason Hygrometer \$10.75**

**HYGROMETER GLASS CISTERN**

For replacement in No. 76971 Hygrometer.

**NO. 76973 Glass Cistern Each \$0.90**

**AIR THERMOMETER SET, ABSORPTION DEMONSTRATOR**

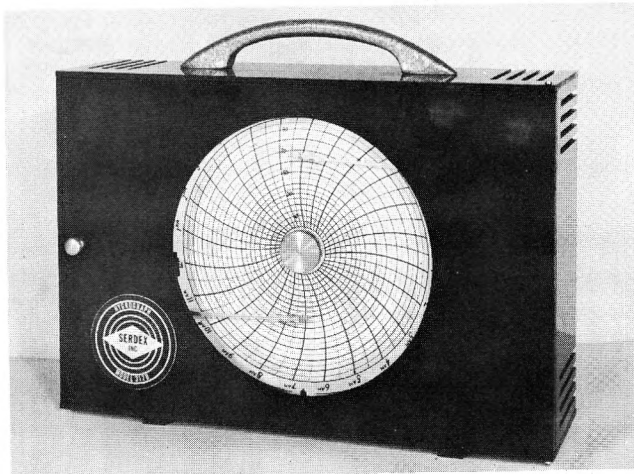
For demonstrating the effect of the type of surface on heat radiation and absorption. Consists of two No. 77305 Air Thermometers, one with bulb painted dull black.

**NO. 77310 Air Thermometer Set Per Set \$2.25**

**UNGRADUATED THERMOMETER**

For showing how calibration and scales are placed on thermometers. Mercury filled with stem range of 0 to 100°C.

**NO. 77320 Ungraduated Thermometer Each \$1.60**



76977-78

**SERDEX CIRCULAR RECORDING HYGROGRAPH**

Furnishes a 24 hour graph of relative humidity over the range of 15% to 95%, at temperatures from +32°F to +130°F. The 6 inch chart provides a continuous graph of ambient relative humidity and is readable to 1%. The accuracy is within ±5% of the original calibration. Patented Serdex animal membrane is the same as used in other Serdex Hygrometers. With mechanical, spring wound, movement in case 10 1/2 in. x 7 in. x 3 in. Complete with 3 months' supply of charts, and recording ink.

**NO. 76977 Recording Hygrograph \$115.00**

**SERDEX CIRCULAR RECORDING HYGROTHERMOGRAPH**

Same as No. 76977 Hygrometer, but with a sensitive coil-type, bimetal element for simultaneously recording temperatures (from 0° to 100°F with an accuracy of ±2°F) as well as relative humidities. Complete with 3 months' supply of charts and recording ink.

**NO. 76978 Recording Hygrothermograph \$165.00**

**CIRCULAR CHARTS**

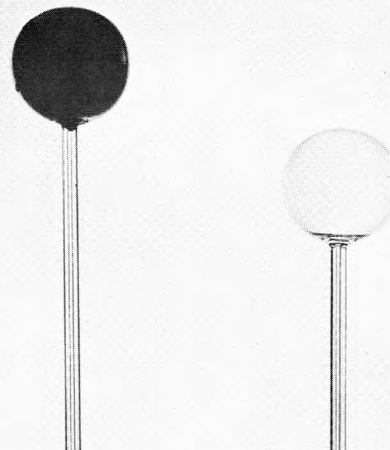
For replacement in Nos. 76977 and 76978 Hygrometers. Six inches in diameter. In packages of 100 charts.

**NO. 76979-1 Charts for No. 76977 Per Pkg. \$4.00**  
**NO. 76979-2 Charts for No. 76978 Per Pkg. 5.00**

**RECORDING INK, RED**

For use with No. 76977, 76978, 76982, 76985 and 76995 Hygrometers. Supplied in 2 dram bottles.

**NO. 19510 Recording Ink Per Bottle \$0.90**

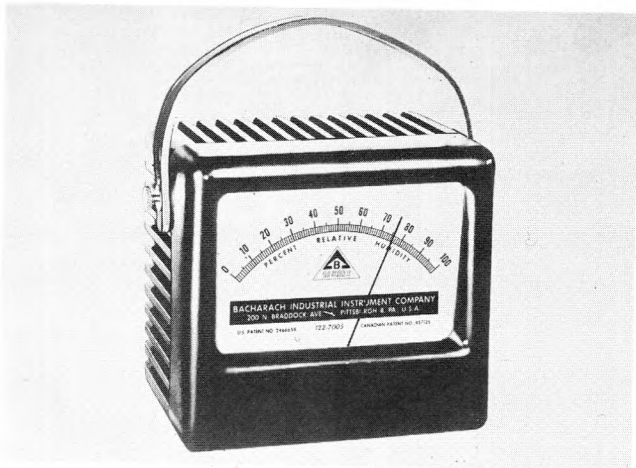


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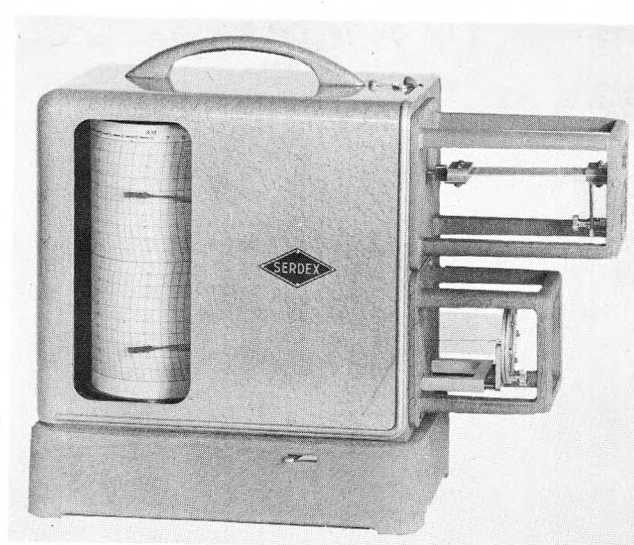


CENTRAL SCIENTIFIC COMPANY





76980



**SERDEX RECORDING HYGROTHERMOGRAPH**

For providing an accurate 24 hour record of relative humidity and temperature. The instrument gives relative humidity measurements within an accuracy of  $\pm 3\%$  over the range from 15 to 95% temperature measurements within an accuracy of  $\pm 1^\circ\text{F}$  over the range from 0 to 100°F. The Hygrothermograph only records temperature measurements in the range from 0 to 100°F. However, the hygrometric sensitive element records the % of relative humidity in the temperature range of 32° to 130°F. For use at lower temperatures (to  $-10^\circ\text{F}$ ), a correction chart will be furnished on request.

The hygrometric sensitive element has time lag constant of approximately 50 seconds at a ventilation velocity of 500 feet per minute or greater. The lag constant is defined as the time in seconds the element requires to cover 63.21% of the relative humidity range, 90 to 40%, when subjected to sudden exposure at 40% starting from equilibrium at 90%. Zero adjustment can be made by the user.

Drum is gear driven by a 30 hour clock, mounted in the base of the instrument. The chart provides two full scale records of relative humidity and temperature. Three inches are for humidity; three inches, for temperature. No. 76983 Chart covers 29 hours of operation. The pen and linkage parts are of stainless steel. Base, drum and case are of aluminum. Over-all dimensions: height, 12 in.; length, 15 in.; width, 6 in. Complete with 3 months' supply of charts and recording ink.

**NO. 76982 Recording Hygrothermograph \$318.00**

**HYGROTHERMOGRAPH CHARTS**

For use with No. 76982 Hygrothermograph. In packages of 100 charts.

**NO. 76983 Charts for 76982 Per Pkg. \$5.00**

**SERDEX RECORDING MICROHYGROGRAPH**

Similar to No. 76982 Hygrometer, but designed for critical study of fluctuations in relative humidity in controlled areas either indoors or outdoors. The Microhygrograph may be used in the temperature range of  $+32^\circ$  to  $+130^\circ\text{F}$ ; for operation at lower temperatures (to  $-10^\circ\text{F}$ ), a correction chart will be furnished on request. The chart provides a 6 in., full-scale record for the range from 0 to 100% relative humidity. No. 76986 Chart covers 29 hours of operation and is readable to 1%. Over-all dimensions: height, 12 in.; length, 12 in.; width, 6 in. Complete with charts for three months and instruction sheet.

**NO. 76985 Recording Microhygrograph \$325.00**

**MICROGRAPH CHARTS**

For use with No. 76985 Microhygrograph. Numbered at 1 hour intervals with subdivisions of 1% relative humidity. Printed on special paper which has low moisture absorbence to prevent ink from blotting. In packages of 100 charts.

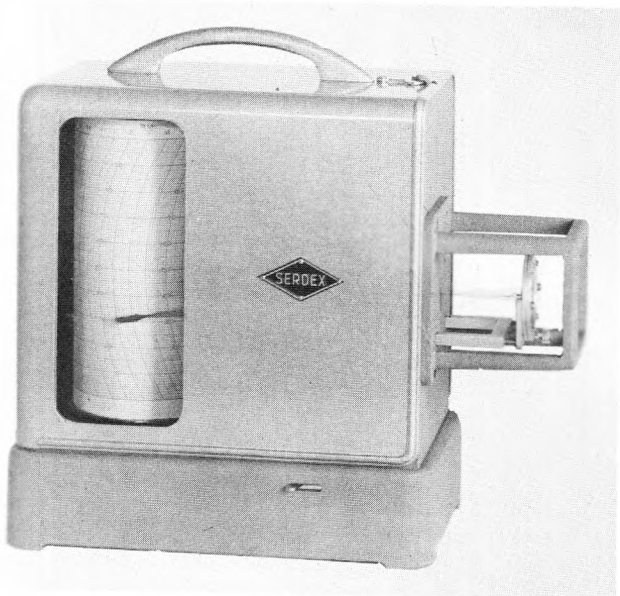
**NO. 76986 Charts for 76985 Per Pkg. \$5.00**

**SERDEX LABORATORY STANDARD HYGROMETER**

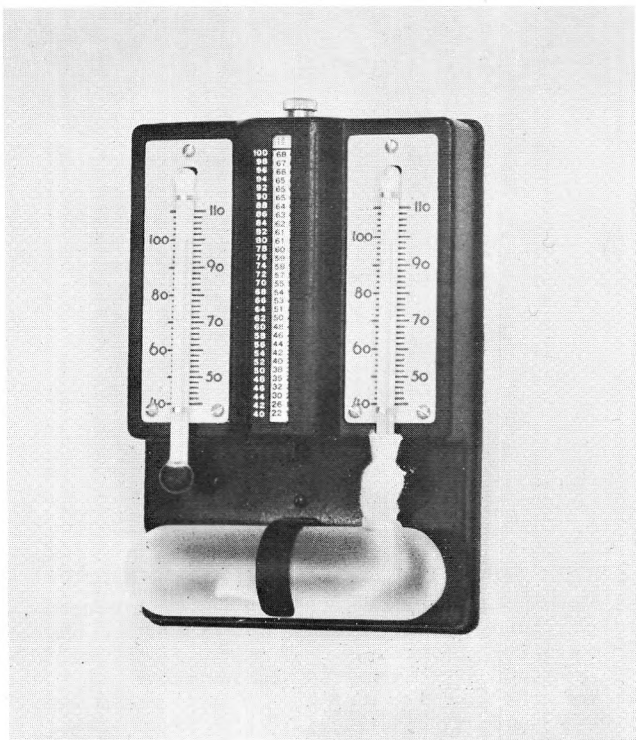
For accurate measurement of relative humidity in the laboratory or in small, partially enclosed spaces. Accuracy of the instrument is  $\pm 1.5\%$  within the range of 15 to 95% at temperatures from  $+32^\circ$  to  $130^\circ\text{F}$ . For operation at lower temperatures (to  $-10^\circ\text{F}$ ), a correction chart will be furnished on request. The dial is calibrated from 1 to 100% relative humidity in divisions of 1%. For the most rapid measurements of relative humidity, it is necessary to maintain a minimum ventilation rate of approximately 100 feet per minute. Time lag constant of indicating element is less than 6.5 seconds for 90% of range covered. A decrease in the ventilation rate will cause the time lag constant to increase by a small percentage.

Open grill work of the case permits adequate ventilation for normal use. If the instrument is used to measure relative humidity around a small object, the back of the case may be removed. Thus, minute changes in relative humidity may be measured even where the air circulation is almost negligible. If the ventilation rate falls below 100 feet per minute, it is recommended that the back cover be removed. The dial has white figures on a dark background and a red pointer. Height, 4 in.; width, 4½ in.; depth, 3 in. Complete with instruction sheet.

**NO. 76980 Standard Hygrometer \$78.00**



76985



76990

**TAYLOR STEWART HUMIDIGUIDE**

For determining both relative humidity and dew point. Consists of wet and dry bulb thermometers, mounted on a bakelite frame; between them is a cylinder with a table of percentages of humidity. The cylinder is set into the base exposing only one column of figures; turning the knurled top knob, another set comes into view. There are 20 columns of humidities for differences by single degrees from 5 to 24. Figures are large and distinct. A glass cistern keeps the wet bulb wick moist. Directions are on an etched metal plate on the back of the instrument. Humidity range is 1% to 83%; temperature range, 40° to 116°F. Dimensions: length, 6 in.; width, 3¾ in.; thickness, 1¼ in. May be wall mounted.

**NO. 76990 Humidiguide** **\$10.00**

**HUMIDIGUIDE GLASS CISTERN**

For replacement on No. 76990 Hygrometer.

**NO. 76991 Glass Cistern for 76990** **Each \$0.90**

**HYGROMETER COTTON WICK**

For replacement on wet bulb thermometer of No. 76990 Humidiguide or No. 77005 Psychrometer. In packages of 12.

**NO. 76976 Cotton Wick for 76990** **Per Pkg. \$0.80**

**RECORDING HYGROGRAPH**

Provides a continuous record of humidity over a period of 7 days. Consists of a multiple hair unit exposed to the atmosphere in a well-ventilated screen protective covering and connected to a recording pen through a sensitive multiplying system. Humidity changes are recorded as the pen moves across the chart. This gives a continuous relative humidity record from 0 to 100% for 7 days.

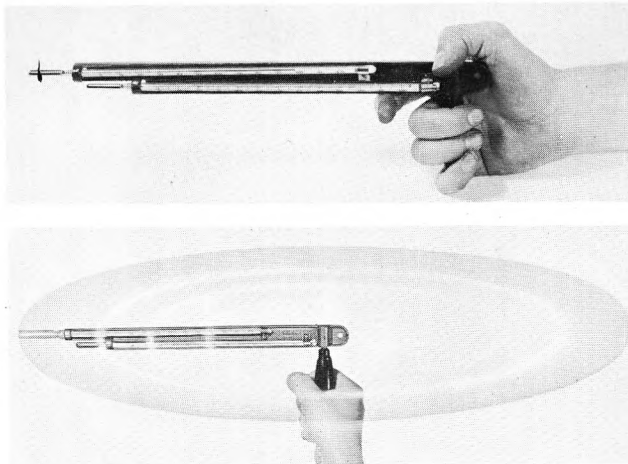
Working mechanism is mounted in a metal case hinged at one end to the base, providing access to the pointer and recording drum inside which a 7 day clock is mounted. Base is finished in gloss black enamel and case in light grey enamel with a clear glass window for observing the chart. Case is 12.5 cm wide, 25 cm long and 18 cm high. Complete with charts for one year.

**NO. 76995 Recording Hygrograph** **\$167.50**

**HYGROGRAPH CHARTS**

For No. 76995 Hygrograph. In packages of 55.

**NO. 76997 Charts for 76995** **Per Pkg. \$6.15**



**CENCO SLING PSYCHROMETER**

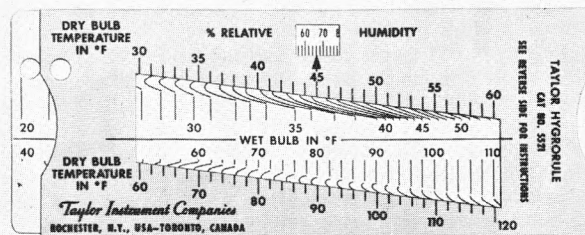
For obtaining quicker and more accurate readings of relative humidity than are possible with the stationary wet-and-dry bulb instruments. Two special thermometers, carefully selected, are mounted on a metal casting provided with a wooden handle and swivel for whirling. Range, 0 to 120°F in 1° divisions. Complete with wick, humidity tables and directions.

**NO. 77005 Cenco Sling Psychrometer** **\$12.95**  
with cast metal housing & rigid wood handle.

**PSYCHROMETER THERMOMETER**

For replacement in No. 77005 Psychrometer. A No. 76976 Wick should also be ordered separately.

**NO. 77007 Thermometer only for 77005** **Each \$3.90**

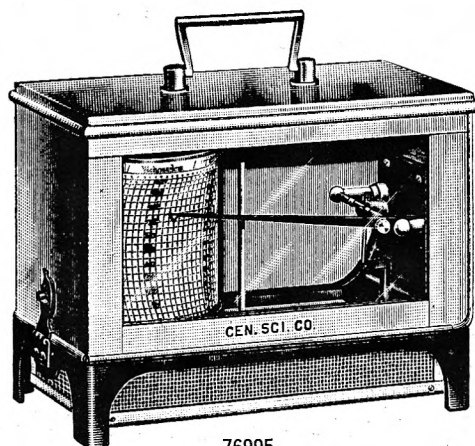


77008

**HYGRORULE SLIDE RULE**

Provides a handy pocket-size reference table for converting wet and dry bulb thermometer readings into relative humidity values. Over-all dimensions: 6¼ x 7⅞ in.

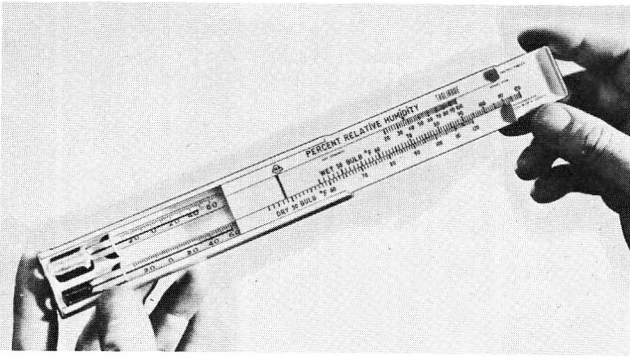
**NO. 77008 Hygrorule** **Each \$1.35**



76995



CENTRAL SCIENTIFIC COMPANY



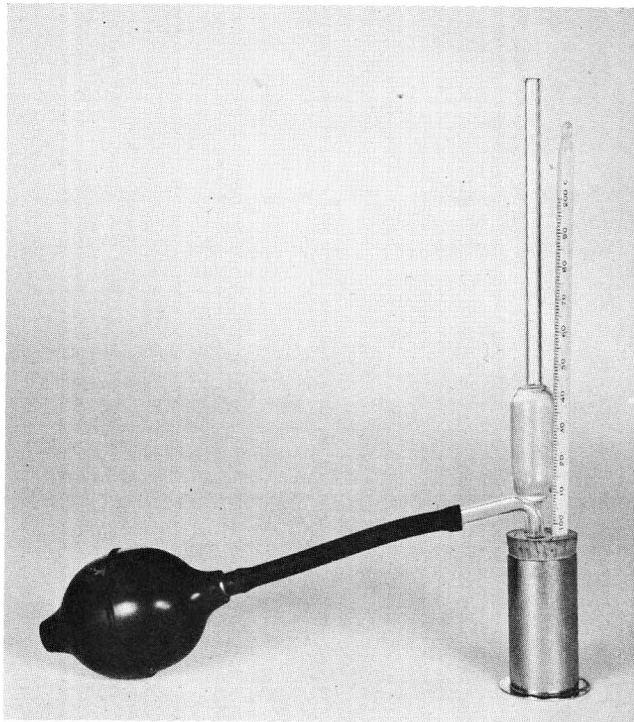
**TAG POCKET HYGROMETER, HUMIDICATOR**

For rapid and convenient determinations of relative humidity by use of the fundamental psychrometric (wet-and-dry-bulb) principle. After wetting the wick and swinging, the operator sets the thermometer readings on a slide calculator which forms the cover of the hygrometer case. No charts or tables are required. Relative humidity is read directly on the calculator; accuracy is  $\pm 2\%$  under normal conditions, and within 4% under extreme temperature or rare atmospheric conditions. Two individually calibrated, etched-stem thermometers (range,  $-30^{\circ}$  to  $+120^{\circ}\text{F}$  in  $2^{\circ}$  graduations) give readings accurate to  $20^{\circ}\text{F}$ . The dry bulb scales on both the thermometer and calculator are red; the wet bulb scales are blue. When attached to a wall and equipped with a long wick and covered water jar, this instrument serves as an excellent fixed humidity indicator.

Pocket-size case and calculator are made of durable white plastic. The thermometers are held firmly in place by plastic loops and are well protected from injury. Over-all dimensions: length,  $5\frac{7}{8}$  in.; width,  $1\frac{1}{4}$  in.; depth,  $\frac{3}{8}$  in. Complete with two thermometers, extra wicks and slide calculator.

**NO. 77010 Humidicator**

**\$12.25**

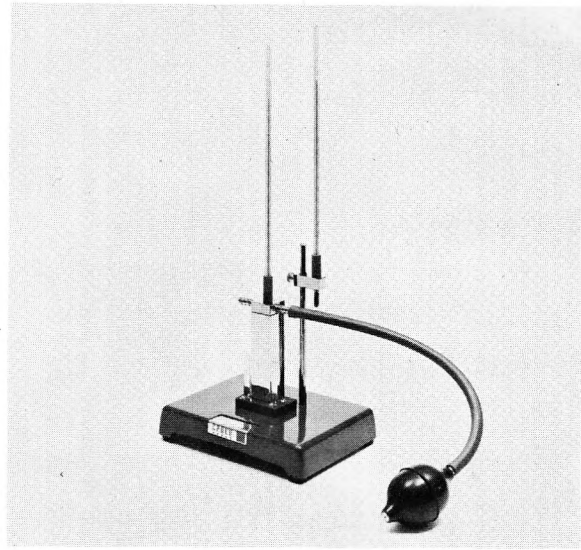


**DEW POINT APPARATUS**

Air is blown through ether contained in a small nickel-plated brass vessel, 28 x 54 mm. Complete with glass reservoir tube and rubber bulb, but WITHOUT thermometer.

**NO. 77015 Dew Point Apparatus**

**Each \$2.75**



77020 with 27299-1 Thermometer.

**ALLUARD'S FORM DEW POINT HYGROMETER**

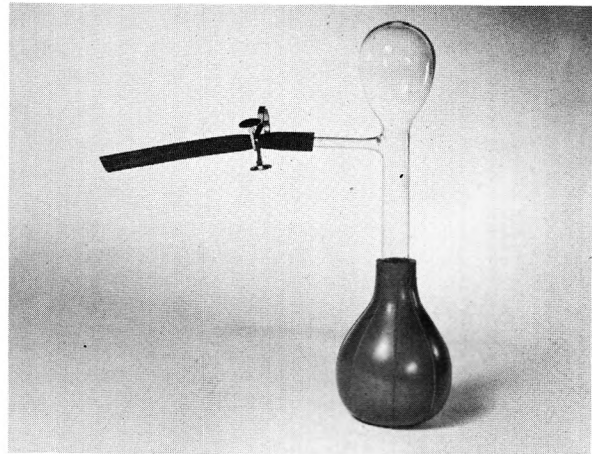
For precise determination of the relative humidity of the atmosphere. Consists of a polished and plated metal container for the volatile liquid, mounted on a heat insulated support. To facilitate accurate determination of the temperature at which condensation begins on the surface of the container, there is mounted on each side of it, but not in thermal contact with the latter, a strip of highly polished plated metal. By observing the adjacent surfaces simultaneously, the formation of the mist is readily perceived. A support for a thermometer to allow observation of atmospheric temperature is mounted on base. A means for supporting another thermometer in the container is also supplied. With rubber bulb, but WITHOUT thermometer.

**NO. 77020 Dew Point Hygrometer**

**\$28.50**

(For experiment employing this apparatus, see No. 71990-391.)

No. 27299-1 or No. 77007 Thermometers may be used with No. 77020.



**CLOUD APPARATUS**

For demonstrating the formation of clouds. Consists of a glass bulb with a tube, having two openings. To the larger opening is attached a rubber bulb; to the other, a rubber tube and pinch-clamp for the introduction of gases. When the rubber bulb is filled with water, compressed moderately, and then released suddenly, a dense cloud will be formed in the glass bulb. The effect of dust particles and ionized air on the formation of this cloud can also be shown. Diameter of tube, about 2 cm; over-all length, about 21 cm.

**NO. 77022 Cloud Apparatus**

**\$4.65**



77025



77026

**RAIN GAGE**

Similar to the U. S. Weather Bureau type, but smaller and therefore not as 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 one inch in diameter in which the amount of rain is measured. Tube is provided with an overflow opening and a graduated measuring stick for reading rainfall directly to 0.01 in.

**NO. 77025 Rain Gage \$18.00**

**MEASURING STICK**

Same as supplied with No. 77025 Gage.

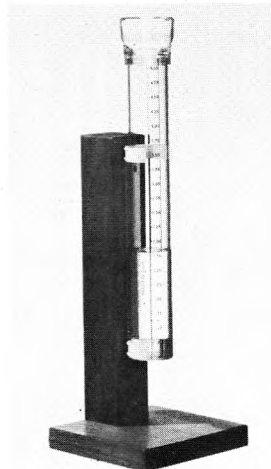
**NO. 77027 Measuring Stick only for 77025 Each \$1.25**

**CLEAR-VU RAIN GAGE, CAPACITY 11 INCHES**

For accurate measurement of precipitation in the form of either rain, snow or sleet. Because it is made of clear plastic, visual observations can be made and a measuring stick is not required. The gage is composed of a top funnel, a measuring tube and an outer cylinder. Measuring tube is graduated in 0.01 inch increments to one inch and has holes near the top to permit excess precipitation to flow into the tube. The excess is measured by adding to the emptied graduated tube. Furnished complete with aluminum mounting brackets, a 5-year supply of record forms and instructions.

**NO. 77026 Rain Gage**

**\$14.50**



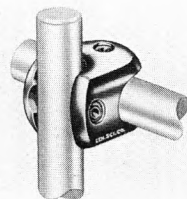
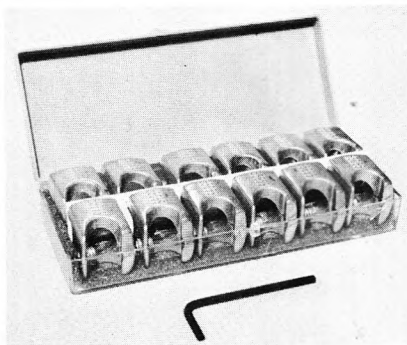
**CLEAR-VU RAIN GAGE, CAPACITY 5 INCHES**

Similar to No. 77026 but with capacity of 5 inches of rain for use by teacher, gardner, farmer, nursery man, etc. Made of tough "Tenite" plastic, 12 inches in height, and 1½ inches in diameter, with 0.05 inch graduations numbered every 0.25 inch. Funnel to measuring tube area ratio is 2 to 1. WITH rainfall record sheet and propylene mounting bracket for attachment to fence or post but WITHOUT support stand.

**NO. 77028 Rain Gage \$3.75**

77028 shown on a support.

**CENCO LATTICE ROD CLAMPS**



**CLAMPS, CENCO LATTICE ROD**

For use with No. 19094 Rods for erecting lattice rod supports for assembly of various laboratory equipment. High strength, corrosive-resistant zinc die-cast alloy with ¼ inch cadmium plated Allen head screws. Open V-shaped slots on each side permits attachment to and assembly of rods without dismembering structure already set up. Compact design provides rigid lattice construction with minimum interference from clamps and screws. Package of 12 with 1 Allen wrench.

**NO. 19092 Lattice Rod Clamps Per Pkg. \$6.50**

**BASE PLATE**

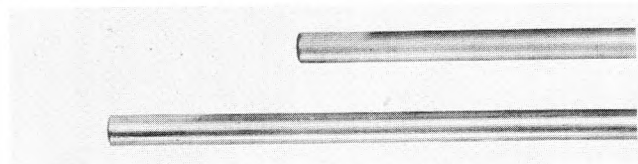
For use with ½-in. rods (No. 19094) Unthreaded for mounting on table top. With Allen screws, but without mounting screws. Diameter, 2½ in.

**NO. 19096 Base Plates \$0.60**

**SWIVEL BASE PLATES**

Same as above, but with two Allen set screws and angle-drilled at top to permit locking rods at any position within a single plane up to 22½° from vertical.

**NO. 19097 Swivel Base Plate \$0.60**



**CENCO ALUMINUM UNTHREADED SUPPORT RODS, ½ INCH**

Made of tough aluminum alloy with both ends smoothly finished.

Cenco No.	Length, inches	Each
19094-2	2	\$ .30
19094-6	6	.50
19094-12	12	.70
19094-24	24	1.20
19094-36	36	1.50
19094-48	48	1.95
19094-60	60	2.35
19094-72	72	2.85

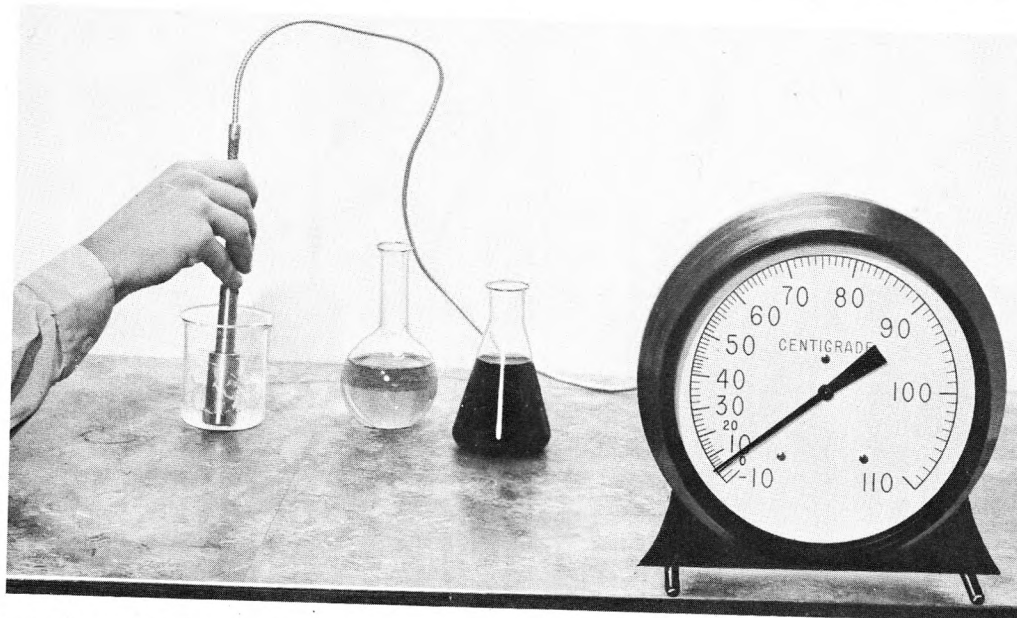
**CENCO ALUMINUM UNTHREADED SUPPORT RODS, ¾ INCH**

Same as No. 19094, except for larger diameter.

Cenco No.	Length, inches	Each
19095-2	2	\$ .55
19095-6	6	.90
19095-12	12	1.40
19095-24	24	2.40
19095-36	36	3.50
19095-48	48	4.75
19095-60	60	5.95
19095-72	72	6.95



## THERMOMETERS

**DEMONSTRATION THERMOMETER**

- Now temperature effects can be observed in classroom demonstrations
- Remote sensing probe on five foot cable
- Large 8-inch dial

Has 8-inch dial face and 5-foot flexible cable with brass probe. Without disturbing any of the experimental apparatus or moving the thermometer itself, the physics instructor can demonstrate a wide range of temperature changes almost instantaneously. Place the probe into an ice-water mixture and the larger pointer swings to zero. Move probe into boiling water, at once pointer goes to 100. The low range is 10° below zero C., so the effect of freezing

point lowering can be shown; also the effect of boiling point elevation as the thermometer reads to 110°C.

Solidly mounted in an attractive brown frame, the Demonstration Thermometer comes with a removable stand. It can also be attached to a wall. The finest quality components are used throughout. Most important, the Thermometer, in spite of its large size, can be used with medium-sized flasks and beakers. The cylindrical probe is only 1 x 2¼ inches, which means that it can be inserted in a variety of glassware. Complete with detailed experiment manual.

**NO. 77312 Demonstration Thermometer**

**\$99.50**

**GLASS AIR THERMOMETER TUBE**

For use in heat experiments on thermometry and expansion of gases or liquids. With stem 30 cm long. Diameter of bulb, 50 mm.

**NO. 77300 Thermometer Tube**

**Each \$0.80**

**GLASS AIR THERMOMETER TUBE, CAPILLARY STEM**

Same as No. 77300 Thermometer, but with capillary stem.

**NO. 77305 Air Thermometer Capillary Tube**

**Each \$1.05**

**REMOTE READING TAYLOR "WEATHER-HAWK" THERMOMETER**

Outdoor temperatures are transmitted to an indoor chart by an 8-foot armored, liquid-filled tubing with outdoor temperature sensing bulb. Readings from -40°F to +120°F are recorded on an electrically driven drum which carries a 7-day chart with 1-hour segments and 2°F divisions. Colored bands clearly indicate significant temperature zones. For operation on 115 volts, 60 cycles, ac. Movement and recording arm are enclosed in a clear, plastic case, 13 x 6 x 5¾ in. over-all. Complete with 13 charts, ink and instructions.

**NO. 19503 Weather-Hawk Thermometer**

**\$44.55**

**"WEATHER-HAWK" CHARTS**

For replacement in No. 19503 Thermometer. Package of 52—a one year supply.

**NO. 19504 Charts only for 19503**

**Per Pkg. \$4.50**

**AIR THERMOMETER SET, ABSORPTION DEMONSTRATOR**

For demonstrating the effect of the type of surface on heat radiation and absorption. Consists of two No. 77305 Air Thermometers, one with bulb painted dull black.

**NO. 77310 Air Thermometer Set**

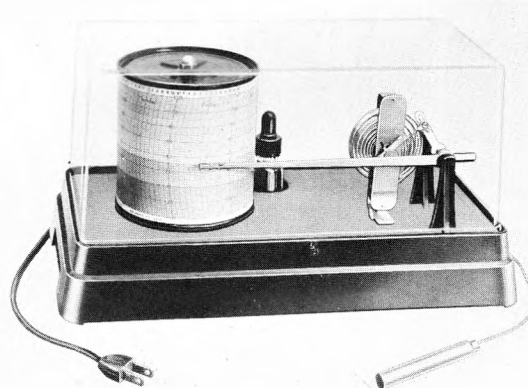
**Per Set \$2.25**

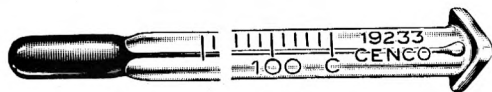
**UNGRADUATED THERMOMETER**

For showing how calibration and scales are placed on thermometers. Mercury filled with stem range of 0 to 100°C.

**NO. 77320 Ungraduated Thermometer**

**Each \$1.60**

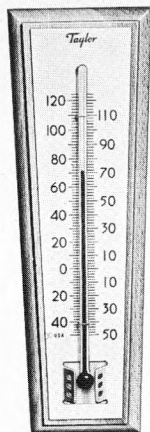




**STUDENT TYPE CENTIGRADE THERMOMETER**

A special design to reduce breakage in student hands, this thermometer has a large triangular tip which keeps it from rolling when laid on a lab bench. Mercury filled with a yellow background for maximum visibility. Range is  $-10^{\circ}$  to  $+110^{\circ}$ F in  $2^{\circ}$ C divisions. Over-all length is 155 mm.

**NO. 19233 Non-Roll Student Thermometer \$2.00**



**WALL FAHRENHEIT THERMOMETER**

Consists of a magnifying, permanent red-liquid thermometer with black lettering on an ivory-lacquered scale, mounted on a hardwood back. Open graduations and large figures are easily read. The bulb is protected by a metal guard. Range,  $-40^{\circ}$ F to  $120^{\circ}$ F in  $2^{\circ}$  divisions. Over-all length, approximately 8 inches.

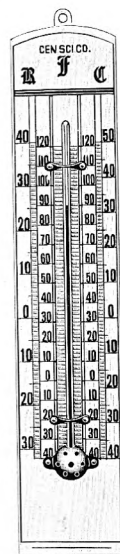
**NO. 19450 Wall Thermometer \$1.35**



**LARGE CLASSROOM THERMOMETER**

This is a large, easily-read thermometer for use in the elementary grades to help students learn how to use a thermometer, introduce the concept of degrees and show the relationship between the Centigrade and Fahrenheit scales. Graduated from  $-35^{\circ}$  to  $+55^{\circ}$ C and from  $-30^{\circ}$  to  $130^{\circ}$ F. The freezing point of water and normal body temperature are indicated in red type. Thermometer is filled with red liquid and mounted on a 24 x 5 in. white board.

**NO. 19451 Demonstration Thermometer \$8.55**

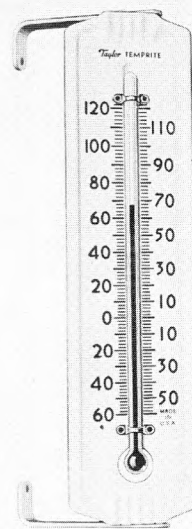


19455

**TRIPLE SCALE THERMOMETER, CENTIGRADE-FAHRENHEIT-REAUMUR**

For indicating air temperatures in all three temperature systems. Consists of a lens-front, permanent red-liquid wall thermometer mounted on a lacquered wood back upon which the scales and figures are printed. The bulb is protected by a metal guard. Range,  $-30^{\circ}$ F to  $120^{\circ}$ F ( $-28^{\circ}$ R to  $40^{\circ}$ R and  $-35^{\circ}$ C to  $50^{\circ}$ C) in  $2^{\circ}$  divisions. Over-all length, 10 in.

**NO. 19455 Triple Scale Thermometer \$1.40**

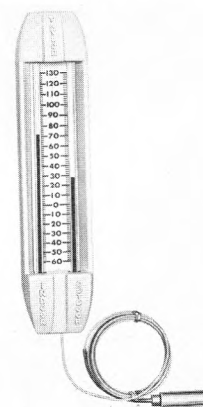


19470

**TAYLOR TEMPRITE FAHRENHEIT WINDOW THERMOMETER**

For mounting on a window frame to permit observation of outdoor temperature from the inside. Consists of a lens-front, permanent red-liquid thermometer mounted upon a white vitreous-enameled metal back with fired-in black figures and graduations. Simple brackets are provided for easy attachment to the window frame. Over-all length,  $8\frac{1}{2}$  in. Range,  $-40^{\circ}$  to  $+110^{\circ}$ F.

**NO. 19470 Window Thermometer \$1.78**

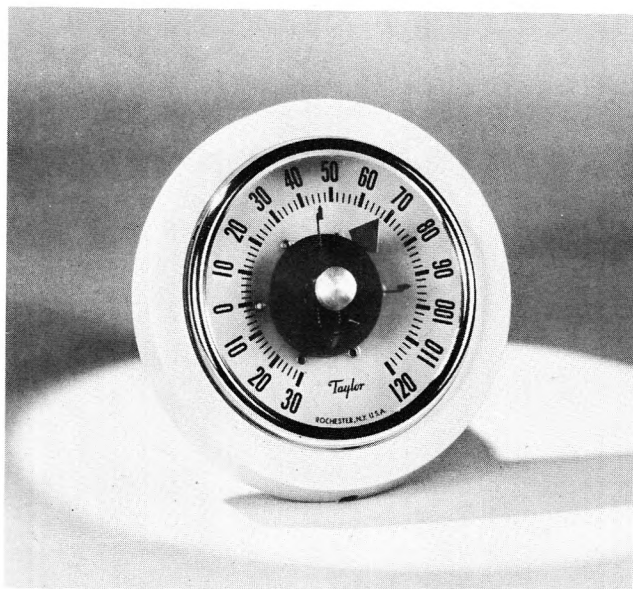


**TAYLOR OUTDOOR-INDOOR FAHRENHEIT THERMOMETER**

Two glass tubes, red-liquid filled, are mounted on a common scale which permits accurate comparable readings. Metal scale has off-white background, brown figures and graduations for contrast which gives easy identification for indoor or outdoor readings. Thermometer finish is antique white. Has ranges for any part of the country, as low as  $-70^{\circ}$  and as high as  $130^{\circ}$ . Keyhole slots provide easy hanging. Five feet of armored tubing connects tube to outside bulb, which has a stainless steel bulb bracket. Thermometer case measures 9 x 2 in.

**NO. 19473 Outdoor-Indoor Thermometer \$4.50**





### THERMOMETER, MAXIMUM-MINIMUM, DIAL TYPE

For indicating the highest and lowest temperatures reached within a given interval. Consists of a temperature sensitive bi-metallic helix mounted in a grey plastic case, 3¾ in. in diameter with large, easy-to-read scale and three pointers. As temperature varies, the large pointer moves two pre-set high and low temperature indicating pointers, thus leaving a permanent reference of the temperature extremes. Range, -30 degrees to +120 degrees F in 2 degree divisions. Accessories for wall mounting and directions are also furnished.

NO. 19474 Max-Min Dial Thermometer **\$7.65**

### LINEAR EXPANSION APPARATUS, ROLLER FORM

Readings for making calculations of the change in length are made from a graduated dial over which a pointer moves as the length of the expansion tube changes. Consists of a heavy metal tailpiece with notch to receive the expansion tube and an indicating device with graduated dial. The tailpiece holds the end of the expansion tube stationary, while the axle of the pointer turns freely in nearly frictionless bearings as the expansion tube changes in length. Linear values for the dial graduations are computed from the diameter of the axle of the pointer and the pointer length. Complete with brass expansion tube.

NO. 77370 Linear Expansion Apparatus **\$13.00**  
with circular expansion scale graduated in degrees.

### ACCESSORY EXPANSION TUBES

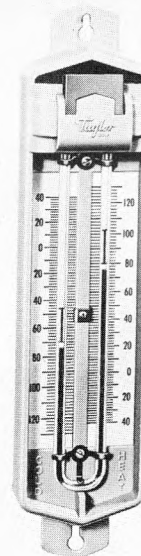
For use with No. 77370 Apparatus. Length, 36 inches. The No. 77374 is the same as supplied with the above instrument.

NO. 77372 Aluminum Tube	Each \$1.30
NO. 77374 Brass Tube	1.55
NO. 77376 Glass Tube	0.85
NO. 77378 Steel Tube	3.00

### DRY BATTERY, 1½ VOLT

For replacement or use with the No. 77411 Linear Expansion Apparatus.

NO. 79145 Dry Battery, 1½ V. **\$1.25**



### MAXIMUM-MINIMUM REGISTERING THERMOMETER

Especially useful for classroom weather stations where a daily record is kept of temperature variations. It can be mounted on a window frame or some other convenient outdoor location. Mercury filled, with metal indicators above each column for registering the highest and lowest temperature reached since the last setting. Resetting is by means of a novel ceramic magnet which has its own receptacle set in the case. Scales are of etched metal and case is of durable plastic. Range, -40° to +130°F; length, 10¼ in.; width, 2¾ in.

NO. 19485 Max-Min Thermometer **\$11.65**



77370

### VOLUME COEFFICIENT TUBE (CHARLES' LAW)

For determining the volume of coefficient of expansion of a confined gas (air). Consists of a glass capillary tube about 40 cm long, sealed at one end. A small drop of mercury is introduced into the open end of the tube and worked by means of a wire down about ⅓ or ½ of the length of the tube. The drop of mercury serve effectually to confine a given amount of air, the volume of which is directly proportional to its length, which may, therefore, be used in the calculation in place of the volume.

NO. 77340 Volume Coefficient Tube **\$0.85**