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Psychological and Physiological Apparatus and Supplies

C. H. STOELTING CO.

MANUFACTURERS-PUBLISHERS-IMPORTERS-EXPORTERS

424 North Homan Avenue

Chicago, Ill., U.S.A.

ORDERS

Specify catalog number and write out the name of the article—it saves time and annoyance for you and insures accuracy and promptness on our part.

Instruct us how you want us to ship—air mail, first-class mail, registered mail, parcel post, regular or special delivery, express, or freight. Parcel post and foreign shipments are always insured and the cost of the insurance charged to the consignee. If shipping instructions do not accompany order, we use our own judgment and ship the cheapest way consistent with speed and safety.

Be sure to write plainly your name, position, street and number or name of institution, state or province, and country. Attention to these details saves time and eliminates annoyance for both of us.

Orders are accepted subject to any price changes that may have become necessary after the catalog leaves the press.

Parties unknown to us will save time by submitting references at time of placing order.

Apparatus shipped for repairs should be carefully labeled or tagged with shipper's name and address, and accompanied by detailed instructions.

CONSTRUCTION

It is impossible to guarantee that apparatus will always conform to catalog illustrations and descriptions. We must reserve the right to make any changes that improved manufacturing practice or fluctuating professional requirements make desirable. The greatest care is exercised in the prevention of deviations from the accepted standard in the production of psychometric tests.

TERMS

Unless otherwise agreed upon, your remittance is promptly expected on the 15th of the month following the date of purchase. No cash discount is allowed.

Owing to the banking regulations of Chicago, collection charges are made on all checks drawn on banks outside of Chicago and New York. If it is not convenient to remit in Chicago or New York exchange, be sure to add the collection charge to your local check on the following basis: $0.10 for amounts of $1.00 to $50.00; $0.15 for $50.00 to $100.00, and ¼ of 1% for amounts of $100.00 and over.

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All claims for damages must be made immediately by the consignee in writing, direct on the carrier. Any information required for the prosecution of claims will be cheerfully supplied.

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Where a mistake has been made in ordering, the consignee has the privilege of returning the goods, but with the express understanding that the transportation charges must be prepaid, and that a charge of not less than 10% of the cost of the goods will be made to reimburse us for the expense incurred in filling the order. The exact charge will depend upon the character of the goods. Goods returned on this basis must be in a salable condition. Printed matter, if opened, is never accepted for credit.

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and
SUPPLIES

for

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PSYCHIATRY, NEUROLOGY, ANTHROPOLOGY,
PHONETICS, PHYSIOLOGY,
and
PHARMACOLOGY.

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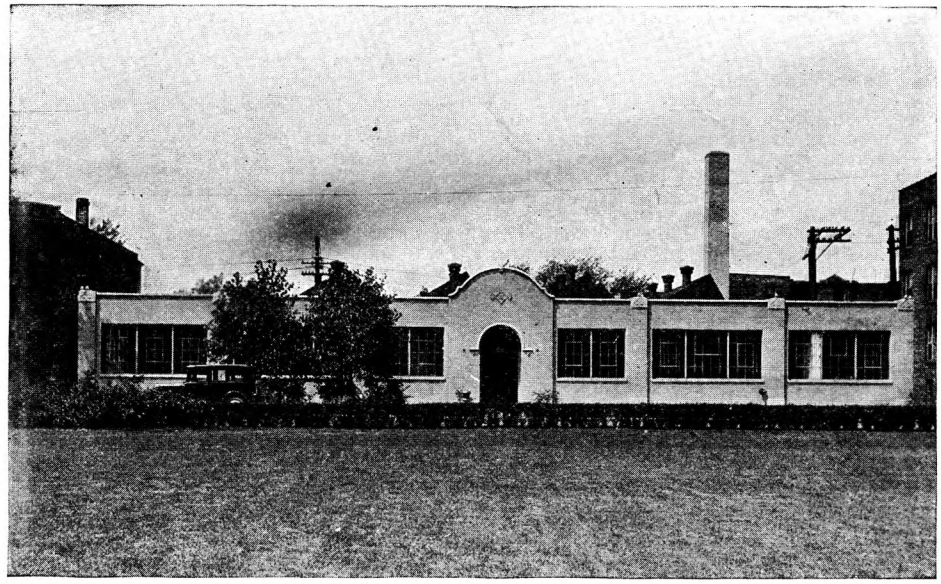
424 N. Homan Ave. Chicago, Ill., U. S. A.

1886 1930



FOREWORD

This catalog, the first approaching a fair degree of completion, while not an outstanding example of the illustrator's and printer's art, and with descriptions frequently curtailed in order to prevent the catalog from becoming too voluminous, nevertheless gives a good idea of what is usually required at the present time by the psychologists engaged in teaching, clinical and personnel work. The physiology section, supplemented by a large number of items in the psychology section, covers the major part of the equipment required by the physiologist and pharmacologist. The physiology section also contains equipment of interest to the psychologist. Considerable space is devoted to apparatus and tests for work in phonetics—clinical, experimental, and demonstrational. This line is a comparatively new venture.

In order to facilitate the easy acquisition of more detailed information on the apparatus and tests than it is possible to give in a catalog of this size, we have introduced the innovation of giving textbook, manual, monograph, and periodical references. Many of these in turn provide extensive additional references. The key and list of publications will be found on pages 201-207. The grouping of apparatus and tests conforms roughly to the divisions of the average textbook and manual, but in the nature of things had to be more or less of an arbitrary character on account of frequent overlapping, occasional wide diversity of material for a certain purpose, a desire to collect somewhat similar items under one heading where at all possible, and the necessity for facilitating work in the stock and shipping room. The index is fairly complete and no difficulty ought to be experienced in locating a desired item.

In addition to the items listed, we have drawings, specifications, or samples—in some cases all three—of a few hundred additional items which have been supplied in the past; for the present, however, it was decided best to confine the contents of this catalog to those items for which there has developed an appreciable demand, or for which we are justified in expecting an increased demand within a reasonable length of time. Our aim is to carry in stock everything listed. If you do not find what you are looking for, please do not assume that we are unable to supply it; we may have it in stock or can produce or obtain it for you on comparatively short notice. Our manufacturing, publishing, and purchase records show close to 2500 items for psychology and physiology. We are always ready to make to order special equipment required for research; also to provide and stock new equipment for which there is good reason to expect a demand. Repairs on either our own or other apparatus will be made promptly and at the lowest figure consistent with first-class workmanship. Suggestions for improvements of existing equipment are always welcomed. As manufacturers and publishers, we favor no particular school, organization, or field of activity and in the future, as in the past, our best efforts will be devoted to providing prompt and intelligent service to all engaged in the sciences in which we are at present specializing.

During the forty-four years of our existence, we have equipped hundreds of all kinds of lecture rooms, laboratories, and clinics; the experience thus acquired we are always ready to share with you. In the course of time our facilities for the production of scientific apparatus have grown to such an extent that now they are about as complete as the most critical could desire. For many years we were engaged in the manufacture of apparatus and supplies for physics, chemistry, botany, zoology,

bacteriology, astronomy, physical geography, and agriculture; and at the same time were pioneering in the requirements of the psychologists and physiologists, including the pharmacologists and phoneticians. During the World War, the greater portion of our facilities was devoted to making government equipment, and, as was often the case with others, we were obliged to neglect our regular lines to such an extent that the end of the war found us with a large number of unfilled orders on hand. This, with the financial and personnel demands made upon us by the rapid growth of the different branches of science, brought about a condition which made it advisable to contract operations and choose our future line of activity. We finally decided to dispose of all but the two lines in which we pioneered, viz., psychology and physiology. All of our time and facilities are now devoted to these two and a few closely related sciences.

In closing, we cannot refrain from making public acknowledgment of the encouragement, support, and friendly constructive criticism so freely extended to us by those pioneers in American psychology: the late Professors E. B. Titchener, Edmund C. Sanford, J. A. Bergström, and Bird T. Baldwin; also those pioneers still in harness: Professors Joseph Jastrow, Carl E. Seashore, James R. Angell, and Edward W. Scripture, including their assistants and graduate students. We also wish to acknowledge our indebtedness to Dr. Guy M. Whipple, whose manual was largely responsible for the impetus given psychometric tests in the United States; to Dr. Henry H. Goddard, Dr. William Healy, Dr. Guy G. Fernald, Dr. J. E. W. Wallin, Dr. Shepherd Ivory Franz, Dr. Howard A. Knox, Dr. Helen T. Woolley, Dr. Arnold Gesell, and their assistants, whose activities were so largely responsible for the progress made in equipment for the study of feeble-mindedness, abnormality, delinquency, and the pre-school child; to Dr. Walter D. Scott, Dr. Henry Link, and Dr. John L. Stenquist, whose work in industrial psychology and mechanical aptitude tests blazed new paths for psychology; finally, that host of others, too numerous to mention, whose disinterested assistance and good will made possible an establishment like ours in the United States.

C. H. Stoelting, Pres.
E. E. Searles, Treas.
W. C. Wideman, Secy.

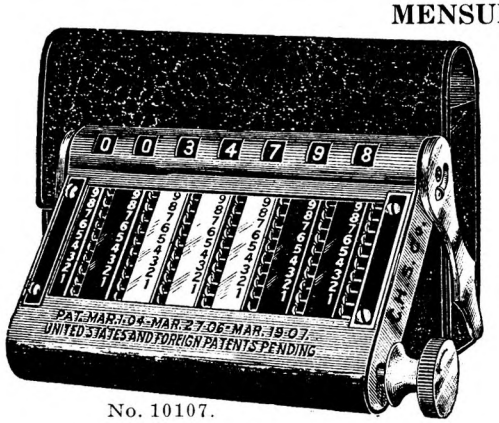
C. H. STOELTING CO.

CONTENTS

(Psychology)

(Physiology and Pharmacology)

MENSURATION



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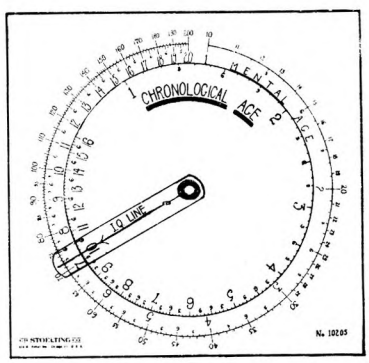

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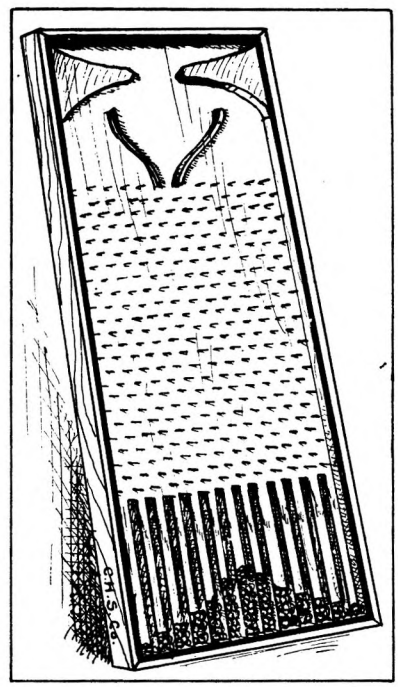
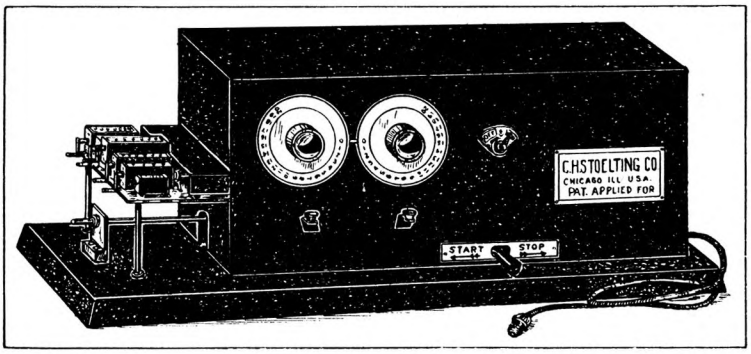


No. 10160.

Number		Price
10107.	**Adding Machine,** "Gem." A substantially constructed, practical and compact machine with a capacity of 9,999,999. Comparatively inexpensive and for most psychological work just as satisfactory as the higher priced machines. (267:39)	**$ 11.20**
10151.	**Computing Tables** (Rechentafeln), Crelle's. Gives the products of every two numbers from 1 to 1000 and their application to the multiplication and division of all numbers above 1000, including tables of squares and cubes from 1 to 1000. (267:39)	**7.50**
10153.	**Tables,** Barlow's. Squares, cubes, square roots, cube roots and reciprocals of all whole numbers up to 10,000. (267:39)	**2.80**
10155.	**Data Sheet,** Thurstone's. A labor-saving device for facilitating the computation of the Pearson co-efficient of correlation. It tends to keep computations together and make them readily available for consultation; furthermore, with the aid of this sheet and instructions, the work can be done by a clerk who knows nothing about correlation statistics. Double letter-size—11x17 in.—and folded in the middle so that it can be filed with letter-size papers and reports. Per 25	**2.00**
	Per 100	**6.00**
46444.	**Instructions,** for using No. 10155 Data Sheet. A reprint of Dr. L. L. Thurstone's article in the Journal of Educational Research, June, 1922	**.60**
10160.	**Frequency Curve Apparatus,** Galton's. An effective piece of apparatus for giving a graphic demonstration of the operation of the Law of Probability. Substantially constructed of wood, with a glass front. An audience can easily observe the order in which the shot collects at the bottom of the apparatus. Dimensions, 40x80x2 cm. (65:406-420; 139:125-127; 227:46)	**50.00**
10161.	**Chartometer.** Supersedes the Wellman measuring disk formerly supplied with the Baldwin and Stecher apparatus and testing material. With this instrument the exact length of a curved or meandering line may be read to 0.1 mm. The small disk above the contact wheel reads to 2 cm. in millimeter divisions, and the large dial to 100 cm. in centimeter divisions. Opposite the large dial is one of the same size with a range of 39 in. in half-inch divisions and 99 cm. in centimeter divisions. (11:104; 98:352-353)	**4.00**
10165.	**Correlation Machine,** Seashore's (R. H.). The three most commonly used statistical formulae are the arithmetic mean, the standard deviation and the Pearson co-efficient of correlation. These formulae are so related that, given two sets of measurements, X and Y, it is possible to obtain six values, ΣX, ΣX^2, ΣY, ΣY^2, $\Sigma(X-Y)^2$, and N, which suffice for the solution of all three formulae. The correlation machine secures these six values automatically in a single type of operation. It thus replaces a large amount of pencil and paper figuring or the use of three separate and double operations upon a standard calculating machine. After these six values are substituted in the formulae, the final steps are speedily and efficiently performed as at present upon either a nomograph or a standard calculating machine. By using step scores from 0 to 20, and assuming the mean at 0 in the "difference" type	



No. 10165.

Number | Price

of Pearson formula, the six values are obtained by adding numbers from 0 to 20, or their squares. This simplifies the work of the machine by avoiding negative numbers or the use of multiplication.

The six values are registered on Veeder counters which are all driven from the same shaft. This shaft moves forward one step per revolution because of screw threads at one end. The number to be run up on any counter is determined by the location of its driven gear upon a keyed shaft. Single numbers are added at the rate of one unit per revolution, while squared numbers are formed by adding the odd numbers in succession. For these squared numbers a special gear has been devised which presents only one gear tooth upon its first contact with a counter gear, three teeth on the next revolution, and so on for each successively higher odd number, until the number of revolutions equals the number to be squared. When the gear has revolved a fixed number of revolutions (20) it automatically releases the motor driven clutch and the half nut on the screws threads, and a stop prevents further turning. The release of the screw allows the shaft to slip back under spring tension to the starting position. The item, or N counter is operated once for each setting of the dials, by the first revolution of the shaft.

The machine is controlled by two dials and a clutch lever. Setting the X dial moves the gears on the keyed shafts of the ΣX and ΣX^2 counters, and similarly the Y dial sets the ΣY and ΣY^2 counter gears. The $\Sigma(X-Y)^2$ counter gear is set automatically by a rack and gear device. Touching the clutch lever sets the machine in operation and registers the six values on the counters, then automatically stops when ready for the next setting of the dials. After each pair of X and Y measures have been dialed and registered, the six values are read off from the counters for final solution on a standard calculator (232:C2) **$550.00**

10201. **Slide Rule, Circular,** Weiss'. One of the first devices offered the psychologist for reducing the tedious mathematical labor involved in making comparisons of mental and physical measurements. The rule is invaluable for rapidly changing the mark in a test or examination to the basis of the average of the class or group, calculating percentage, and for grading where the high figures mean low accomplishment. The rule consists of two sections, both being supplied with a large circular scale with similar divisions, but with one of the small circular scales graduated and numbered in the opposite direction. The former is designated as the "A" scale and the latter as the "inverted A" scale. Detailed instructions for use printed on the back of each rule. (J. o. E.P. Dec. 1914) **1.00**

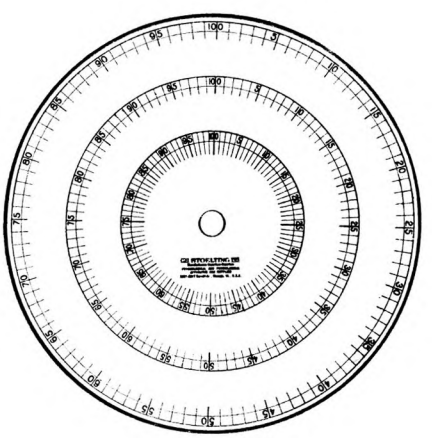
10205. **Slide Rule, Circular,** Kohs'. Another device designed to reduce the monotonous labor incident to compiling psychological data. After a little practice, any I. Q. can be determined in 10 to 15 seconds, and 100 of them in less than 25 minutes. The rule may be used for any other data than ages so long as the ratio desired is between numbers whose whole units are 12; e. g., feet and inches. The rule has three scales. From the center out they are (1) a chronological age scale, 1 month to 16 months or 1 year to 16 years; (2) a mental age scale, 1 month to 20 months or 1 year to 20 years; (3) an intelligence quotient scale, 1 to 20 or 10 to 200. A celluloid indicator is attached to aid in setting one scale above another as well as to assist in the accurate reading of the I. Q. The "I. Q. line" points to the desired I. Q. on the outside scale. Only three moves of the hand are required from the moment the rule is set until the required I. Q. is read off. Detailed instructions are printed on the back of each rule. See illustration on page 1. (S.a.S. Dec. 21, 1918) ..... **.90**

10207. **I. Q. Slide Rule,** Homan's. A straight slide rule, made of wood and similar in construction to the usual rule used for mathematical computations. Range: 20 chronological and 20 mental years **2.80**

10209. **I. Q. Slide Rule,** Vineland Model. Devised by Dr. L. Yepsen, of the Vineland Training School. Similar to No. 10207 but made of cardboard. Range: 16 chronological and 18 mental years. (S.a.S., May 27, 1922) ..... **.60**

10210. **Age Calculator,** Young's. A unique device of cardboard, in two sections, designed by Dr. H. H. Young, Professor of Clinical Psychology, Indiana University. This calculator is very useful in classifying children, giving achievement tests, intelligence tests, and for correct and uniform age-grade distribution. It is good until the year 1960. A manual and card of illustrations accompany each calculator ..... **.85**

Number		Price
10301.	**Xylonite Curves** (transparent). Set of 10 in wooden box. Very convenient for drawing graphs. (267:31)	$ 10.60
10303.	**Splines.** Set of 12 (6 xylonite and 6 pearwood), with 4 spline weights. In strong wooden box. Preferable to the curves. (267:31)	28.00
10311.	**Drawing Instruments.** Leatherette, velvet-lined pocket case, containing one 5½ in. compass with adjustable points, lengthening bar and ruling pen; one 5½ in. plain divider; one 3½ in. adjustable ring-head bow pen; one 3½ in. ring-head compass, adjustable points; one 5 in. ruling pen, and one holder, pencil point and box of leads. (267:T24-25)	7.00
10313.	**Parallel Rule.** Hard wood, ebony finish, nickel-plated brass bars, 18 in. long	3.10
10407.	**Paper Cross Section.** ¼ in. squares; 8½x11½ in. (55:80; 57:73; 267:T25A.) Per 100	1.00
10409.	**Paper, Cross Section.** Ruled in 1 mm. divisions, 40x50 cm. (268:T42.) Per sheet....	.30
	Per quire	4.50
10411.	**Tablet, Cross Section.** 40 sheets, 7¾x9¾ in., 2 mm. divisions	.40



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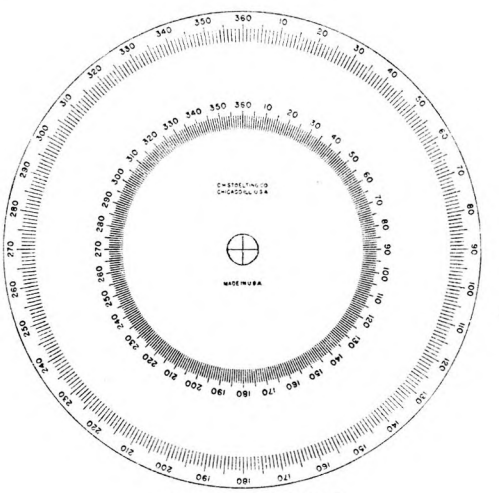
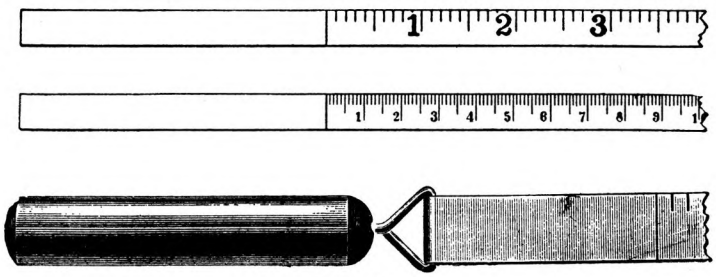


Nos. 10511, 10513.

10503.	**Protractor,** Bristol Board, 8 in. diameter, half-degree graduations	.30
10505.	**Protractor,** Franz's. Semicircular, graduated in units of 10 degrees on 18x21 in. card, with a semicircular "cut-out" on the edge of the long side of the protractor in order to enable the examiner to use it for measuring angular movements of arms, legs, neck, etc. (55:58; 57:51)	1.20
10507.	**Protractor,** Bristol Board. Three concentric circles, 3 3/16, 6⅛, and 8⅜ in. in diameter, graduated in hundredths	.50
10509.	**Protractor,** Titchener's. A nickel-plated brass circle, graduated in degrees inside and outside, with attachable cross-bar with circular opening, in order to enable it to be slipped over color disk arbor of rotator	18.00
10511.	**Protractor,** Bristol Board. Two concentric circles, 5 and 8¼ in. in diameter, graduated in degrees, so that it can be used for setting both the large and small color disks usually used in the Psychological Laboratory	.50
10512.	**Protractor,** Bristol Board, 5½ in. in diameter, degree graduations	.30
10513.	**Protractor,** Aluminum. With two concentric circles, 5 and 8¼ in. in diameter, graduated in degrees. Similar to Bristol board protractor No. 10511. This protractor has three holes so that it can be attached to color disk arbor. Supplied with notched and ruled celluloid guide for making exact readings of color disk sectors	3.50
10514.	**Protractor.** No. 10513 attached to the regular No. 12618 color disk arbor. Supplied with notched and ruled celluloid guide for making exact readings of color disk sectors	7.00
10515.	**Protractor,** Aluminum, 8¼ in. in diameter, with one circle graduated into hundredth divisions. Supplied with notched and ruled celluloid guide for making exact readings of color disk sectors	15.00
10516.	**Protractor.** No. 10515 attached to No. 12618 color disk arbor. Supplied with notched and ruled celluloid guide for making exact readings of color disk sectors	18.50

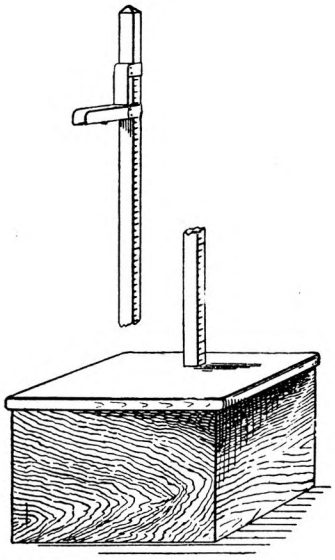
ANTHROPOMETRY

11001.	**Measuring Tape.** Steel, 2 M. long, graduated in millimeters. In nickel-plated case	1.70
11003.	**Measuring Tape.** A non-elastic linen tape, 2 M. long, graduated in millimeters	.35



No. 11005.

Number		Price
11005.	**Measuring Tape,** Anthropometric. Graduated in millimeters to 2 M. on one side, and to 5 ft. in tenths of an inch on the other. It is fitted with a spring handle to eliminate the personal equation of examiners. This tape is not so cold to the touch as steel and not so liable to rust; furthermore, it will not absorb perspiration or dirt like a common tape. (267:T4)	$ 1.15
11101.	**Stadiometer.** A vertical rod, graduated in both the metric and inch systems, provided with a slider at right angles to the rod and mounted firmly on a wooden base which may be used as a seat. This is the standard apparatus for obtaining standing and sitting height. (261:54-58; 267:T1)	28.00
11105.	**Stadiometer,** Baldwin and Stecher. Improved form, with metal scale and slider and 3 benches, 20, 25, and 30 cm. in height. The stadiometer rod is graduated in millimeters at the front and in quarter inches at the rear. The extreme height is 195 cm. and 76 in. (9:19-20; 11:30)	35.00



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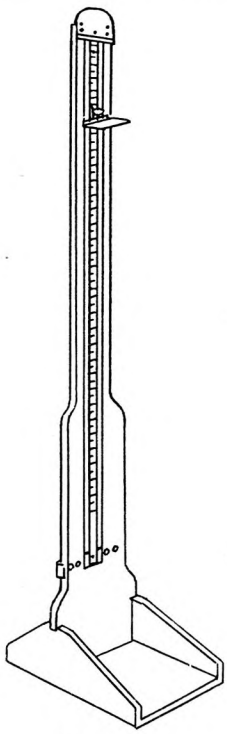

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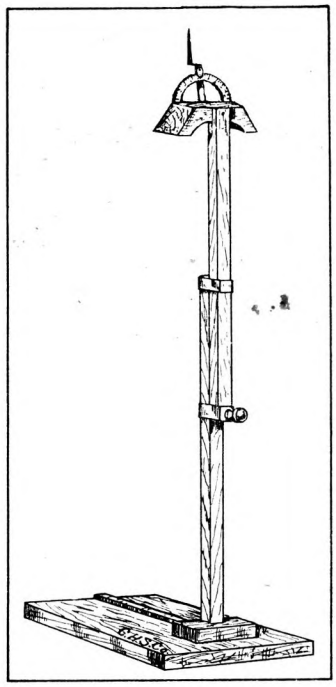
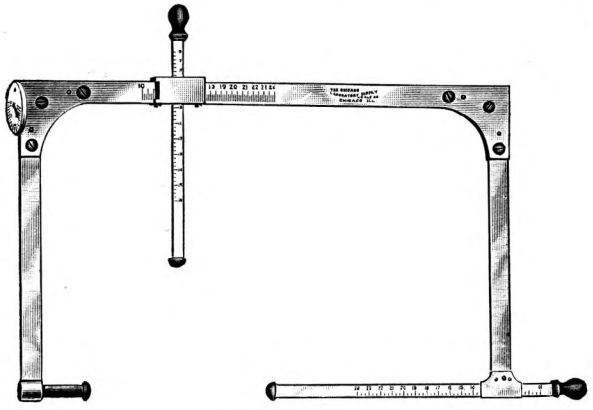


No. 11107.

11107.	**Posturometer,** Walter's. Devised for measuring the "postural angle" or the degree to which the head is inclined forward or backward from the shoulders. Very useful in correcting the "school-room slump," showing the effect of high-heeled shoes upon posture, and for studying the cause of postural pains with a view to relief. (212:7-8, 76-96; 253:90-92)	50.00
11109.	**Stadiometer, Infant.** A simplified form of the Baldwin measuring board for infants. Used horizontally for determining the reclining length and the reclining sitting height of infants. The slider moves on a metal scale graduated in millimeters to 81 cm. on top and below in quarter inches to 32 in. on one edge and in half centimeters to 80 cm. on the other edge. (9:17-18)	17.50



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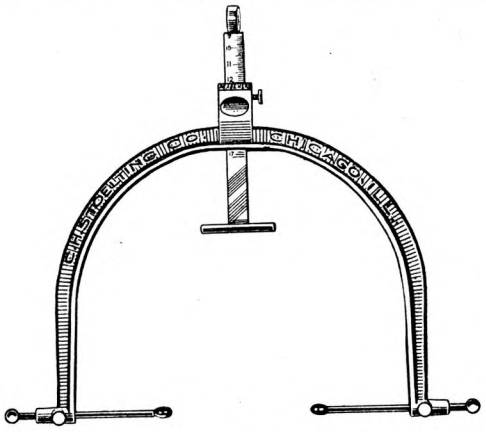
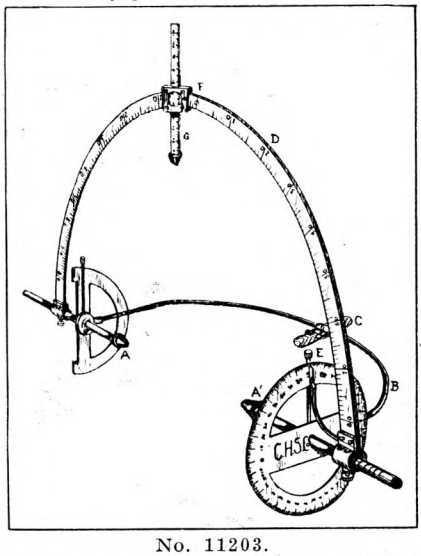


No. 11202.

Number		Price
11201.	**Cephalometer,** Smedley's. For making cranial measurements such as required in anthropological and psychological work	**$ 49.00**
11202.	**Craniometer,** Porteus'. Devised for obtaining the height of the cranium above the ears. Made of aluminum, with adjustable rubber-covered meatus rods. (T.S.B. June 1919 and May 1920)	**25.00**
11203.	**Radiometer,** Hull's. For measuring human facial and cranial angles. It consists of a graduated arc, supporting at the sides, at the aural axis, collars carrying a semicircular wire bracket with an adjustable spring clamp for taking replaceable wooden mouthpieces. Both aural terminals of the graduated arc are supplied with adjustable fiber-covered meatus rods. The right side of the aural axis of the arc is supplied with an indicator for registering its inclination on the circular protractor attached to the collar carrying the mouthpiece bracket. The sliding rider at the top of the graduated arc is provided with a sliding flexible steel rule 21 cm. long, graduated on one edge in millimeters and on the other edge in half millimeters. With the mouthpiece between the teeth and the meatus rods in the ears, the graduated arc may be swung backward or forward and the steel rule pushed through the slot of the rider so as to make contact with any point of the subject's head. This provides a simple means of making correct angular measurements and determining in fractions of a millimeter the distance of any point from the center of the aural axis. (98:131-138)	**50.00**



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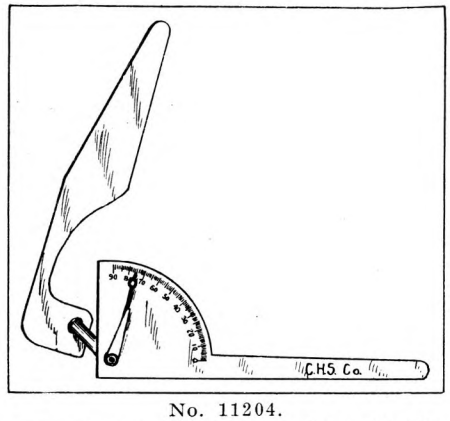
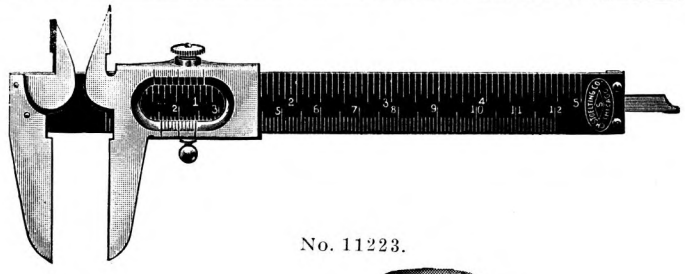


No. 11204.

11204.	**Faciometer.** Devised by T. B. Homan, Professor of Psychology, Iowa State Teachers College. For measuring the facial angle. Made of aluminum and carefully graduated in degrees. The instrument is placed at the neck of the incisors as indicated, and the bar "B" drawn down until it crosses the auditory meatus, leaving the upper end of the bar "A" resting on the forehead as shown in the illustration. The magnitude of the angle is read off the scale "E." This gives the degree of the cleft palate	**27.50**
11207.	**Caliper, Head.** For securing the Bertillon skull measurements. The longitudinal or transverse diameter of the head may be read off directly in millimeters. (9:17; 267:T3)	**19.50**
11211.	**Caliper,** Bertillon. Small, for ear; 23 cm. long, graduated to 10 cm. in 1 mm. divisions. (9:17, 22-25)	**15.00**



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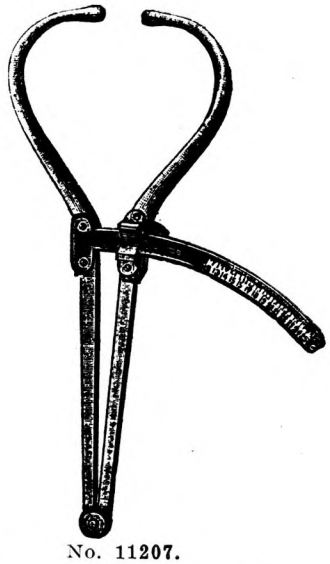

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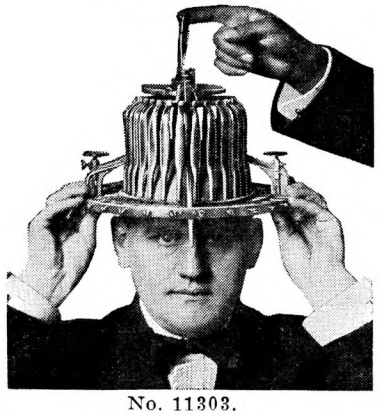
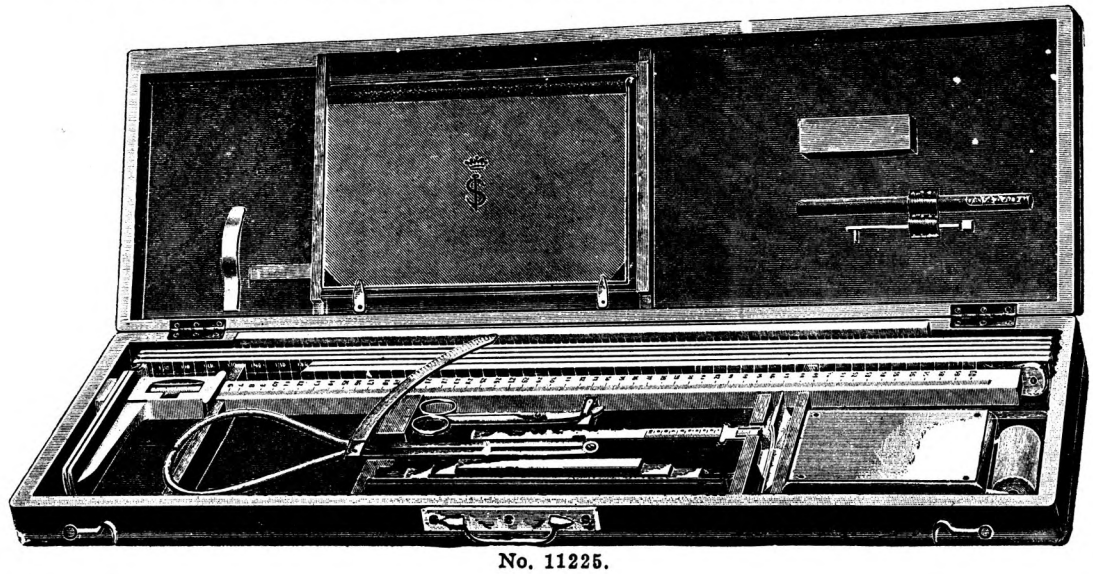


No. 11303.

Number		Price
11215.	**Caliper, Chest.** Made of aluminum, with ebony tips. Designed for taking the maximum and minimum chest depths at the same time. The examiner's personal equation does not come into consideration as the pressure is constant, being applied by a spring. Capacity, 5—11 in. or 13—27 cm. The scales are interchangeable.....	$ 7.00
11219.	**Caliper,** Bertillon. Large, for foot and arm measurements; 70 cm. long, graduated to 60 cm. in 1 mm. divisions. Very light. Graduated bar made of 13x23 mm. rectangular tubing. (9:17, 22—25; 11:32).....	25.00
11223.	**Caliper, Vernier.** May be used for external, internal, and depth measurements. It is very useful for getting the height of the subject's heels, etc. Graduated in both the metric and inch systems and provided with a vernier for each. May be read to .1 mm. or 1/128 in., and to 12 cm. and 5 in. respectively. (267:T1).....	2.75
11225.	**Anthropometric Instruments,** Bertillon. A nicely finished, substantially constructed, wooden case containing the following instruments: 1 folding rule, 2 M. long, graduated in millimeters; 1 rule, 1 M. long, graduated from 100—200 cm. in centimeters; 1 rule, 50 cm. long, graduated from 70—120 cm. in millimeters; 1 rule, with handle, graduated 20 cm. of its length in millimeters; 1 head caliper; 1 small caliper for ear;	

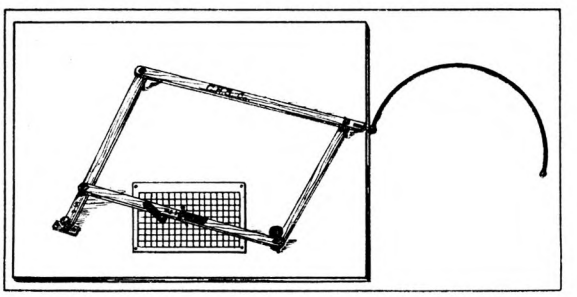


No. 11225.

Number | Price

1 large caliper for foot and arm; 1 small pointed rod for ear; 1 curved nail scissors; 1 wedge for proving calipers; 1 metal plate, 1 ink roller, and 1 tube with black ink for taking impressions of fingers and hands; and 1 dermatographic pencil..... **$116.00**

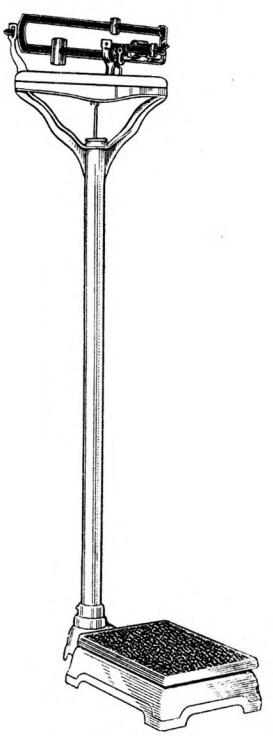
11303. **Conformateur,** Hatter's. Used to secure a graphic record of the contour of the skull. Simple and rapid in operation. (267:T3) **65.00**



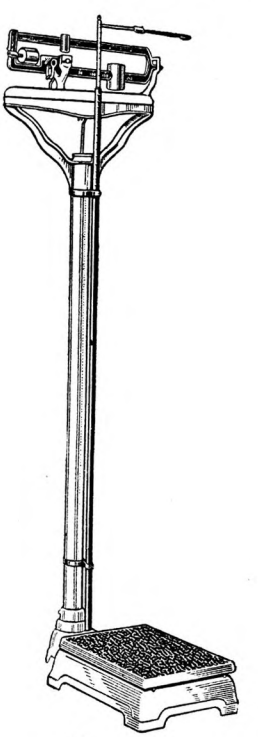
No. 11305.

11305. **Stethogoniometer.** A pantograph devised by Dr. Winfield S. Hall for outlining the thorax at any level. (H.T.P.: 203-204)..... **20.00**

11306. **Charts,** tablet form. For Hall's stethogoniometer..... **1.00**



No. 11401.



No. 11404.

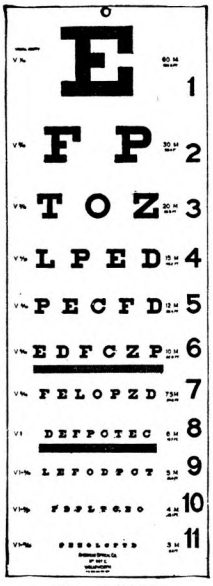
11401. **Scale, Anthropometric.** Designed for the office or laboratory. Nicely finished in white enamel and nickel, and supplied with castors. This scale is graduated in both the English and metric systems, and has a capacity of 300 lbs. and 130 kgs. The lower part of the beam is graduated on one side to 275 lbs. in 25 lb. divisions, and on the other to 120 kgs. in 5 to 10 kg. divisions. The upper part of the avoirdupois side is graduated to 25 lbs. in tenth-pound divisions, and the other (the metric side) to 10 kgs. in twentieth-kilo divisions. The beam is provided with an easily adjusted counterpoise for making zero adjustments, also a tare weight sliding on a supplementary beam graduated in pounds and kilos. With the tare weight, allowance can be made for a tray, blankets and clothing, and the net weight read directly from the beam. The bracket carrying the beam can be turned in the supporting column so that the beam may be read with the zero at either the left or right hand of the observer. (261: 58-61; 267:T2) **67.50**

Number — Price

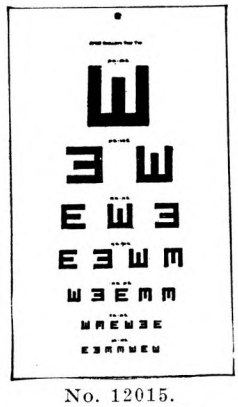
11404. **Scale, Physicians'.** In appearance and construction very much like No. 11401, except that the platform is a trifle smaller and that the scale is supplied with a stadiometer. The beam is graduated on both sides and can be turned in the supporting column so that it may be read with the zero at either the left or right hand of the observer. The lower part of the beam is graduated from 0—290 lbs. in 10 lb. divisions, and at the top from 0—10 lbs. in sixteenth-pound divisions, giving a total reading of 300 lbs. The beam is provided with an easily adjusted counterpoise for making zero adjustments, also a tare weight so that allowance can be made for a tray, blankets and clothing. The telescoping stadiometer extending upward from the platform parallel with the column supporting the beam has an inner tube graduated to 78 in. in quarter-inch divisions. The upper part of this tube is graduated from the top downward so that the readings may be made at the visual level by a person of average height. A slot in the outside tube enables the head-piece to be brought down to measure a height of 30 in. The outside tube is graduated from 30 in. upward to 51 in. in quarter-inch divisions ..... $ 45.00

VISION

12003. **Visual Acuity Test.** Two white slips of paper, each 3 mm. long, 1 mm. wide and 1 mm. apart, on black cardboard. (55:19-20; 57:13-14) ..... .50



No. 12011.



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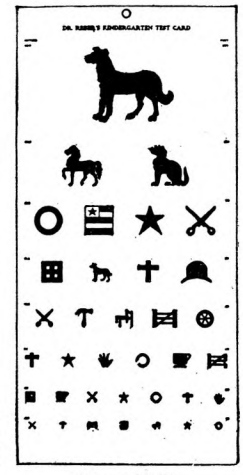

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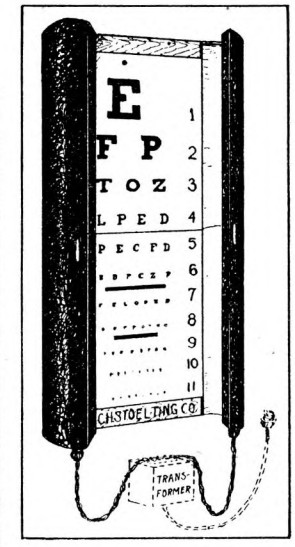


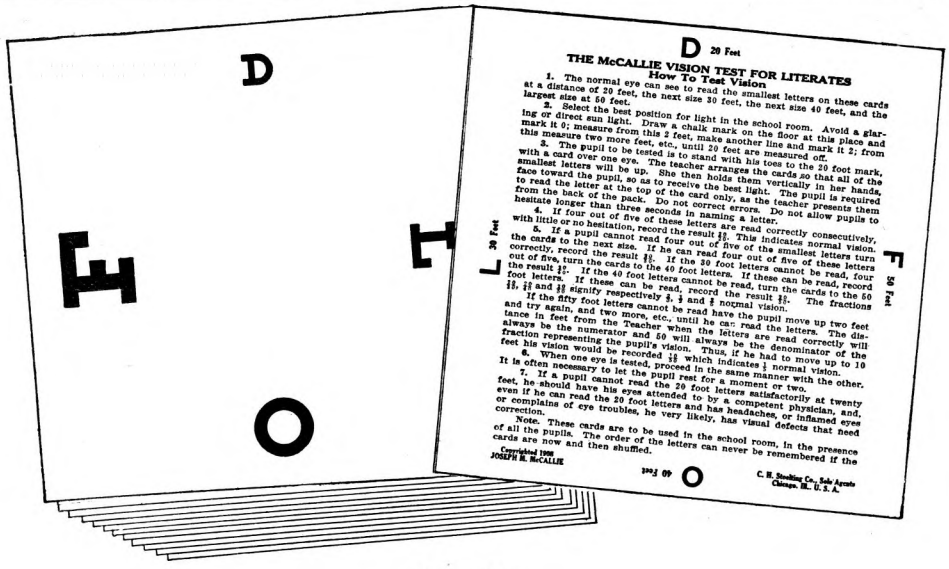
No. 12115.

12011. **Visual Acquity Test.** Lowell's. This modification of the Snellen test type chart has become the standard and meets all the requirements for the testing of visual acuity. Each line of type is numbered with large figures, and in addition, a 1 cm. wide green line is placed below the 10 M. (32.8 ft.) type, and a red line of the same width below the 6 M. (19.7 ft.) type. These two colored lines are useful for obtaining an idea of the subject's color perception, (51A:X10; 121:398; 175:52-55; 239:X11; 267:T14)..... .50

12015. **Visual Acuity Test,** Cohn's; for illiterates. In this chart the letter "E" is used throughout. This chart is also provided with green and red lines (51A:X10; 175:52-55; 267:T14) ..... .50

12021. **Visual Acuity Test.** Seitz's; for children and illiterates. This chart is made up of pictures of a horse, the heads of a cat and dog, a star, shoe, and other objects. (239:X11) 1.00

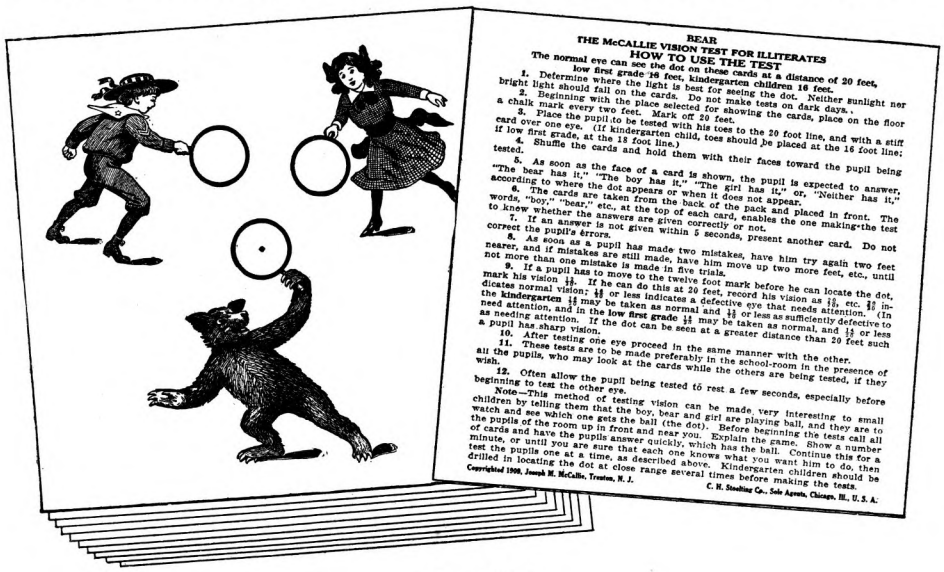
12025. **Visual Acuity Test,** Literate; McCallie's. This test is now being used wherever visual acuity is a desideratum. Oculists, optometrists, pediatrists, psychiatrists, and psychologists use it daily. It is also extensively used by instructors in the public schools, and in fact in all educational, charitable, and penal institutions where it is desirable to detect the presence or absence of visual defects. The deviser of this test, Joseph M. McCallie, Ph. D., Director of Educational Research and Efficiency in the Public Schools of Trenton, N. J., long recognized the importance of the vision of school children and its relation to school standing and general intelligence; also its effect on occupation and intimate relation to bodily disturbances, and saw the desirability of placing in the hands of instructors, nurses, and others something compact, with instructions of such a concise nature that anyone of fair intelligence would be able to detect defective vision. The test consists of a series of 12 cards, 5⅝ in. square, with the test type on one side and instructions for the examiner on the other. The letters are scientifically correct in size; i.e., they subtend a visual angle of 5° for distances of 20, 30, 40, and 50 ft. The cards may be readily shuffled so as to make it impossible for anyone to commit them to memory. (175:52-55; 267:T14). Per set..... .85



No. 12025.

Number | Price

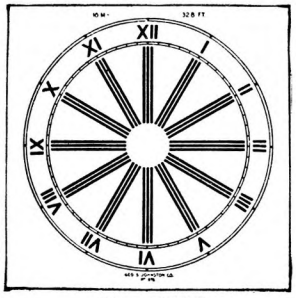
12027. **Visual Acuity Test,** Illiterate McCallie's. This test is particularly effective with small children, foreigners, illiterates, and mental defectives. It consists of 10 cards, 5⅝ in. square, with the test on one side and instructions for the examiner on the other. All of the test cards contain a picture of a boy, a girl, and a bear, each with a hoop. The subject should be able to locate a ball in one of the hoops. This ball subtends a visual angle of only 1°, as all that is required of the subject is the location of the ball in one of the hoops; hence, no necessity for increasing the size of the visual angle in order to relieve the eye from strain. This test, like the literate test, may be used as a game, thus interesting the subject and eliminating the possibility of any undesirable attitude, or in fact any knowledge that a visual test is being made. (175:52-55; 267:T14). Per set **$ 0.85**



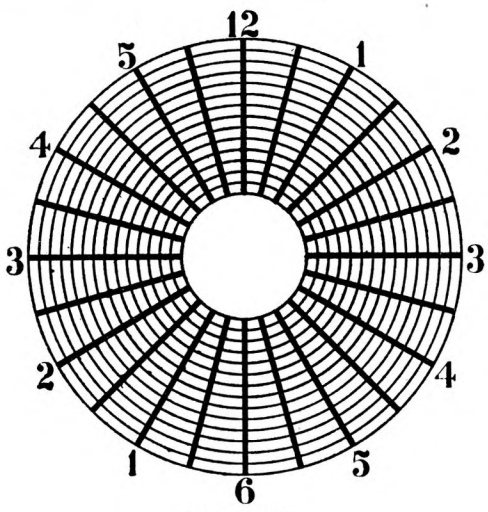
No. 12027.

12031. **Astigmatic Chart,** "Clock-Dial" Type. Used for detecting astigmatism, i.e., the unequal curvature of the cornea or crystalline lens, which prevents the subject from seeing clearly in all meridians ..... **.50**

12035. **Astigmatic Chart,** Verhoeff's. This chart is also devised for the detection of the unequal curvature of the cornea or crystalline lens, and the concentric circles connecting the radial lines or spokes have a tendency to make the astigmatism, particularly that of a small degree, more apparent than the ordinary "clock-dial" type. (51A:X10; 267:T14) ..... **.50**

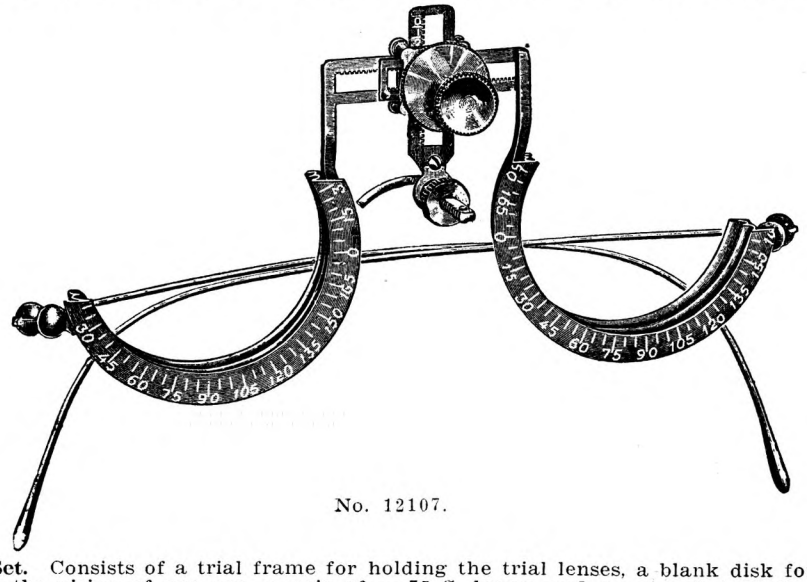


No. 12031.



No. 12035.

Number		Price
12039.	**Blind-Spot Cards,** Langfeld and Allport. Set of 4. (119:X1-1)	$ **1.30**
12041.	**Blind-Spot Cards,** Meyer's. Set of 10. (129:D12)	**3.30**
12051.	**Visual Acuity Test,** Jaeger's; for near vision. (121:398)	**.30**
12103.	**Trial Set,** Hall's. A leather-covered, velvet-lined case, containing 1 each convex and concave spheres .50, .75, 1., 2., 3. D., and 1 each convex and concave cylinders 1. and 2. D., a simple double-cell trial frame, and a blank disk. (H.L.P.: 232-264)	**36.00**

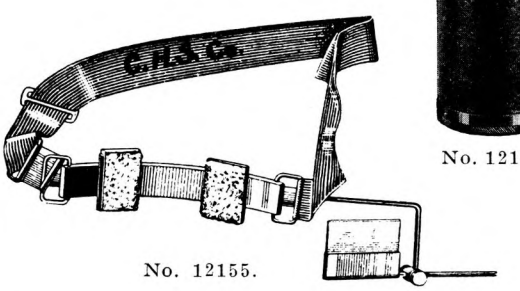


No. 12107.

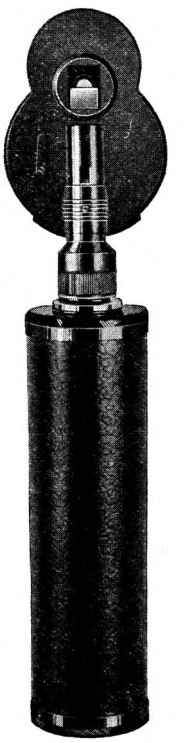
12107.	**Trial Set.** Consists of a trial frame for holding the trial lenses, a blank disk for eliminating the vision of one eye, a pair of —.75 S. lenses and a pair of +.75 S. lenses. (267:T14)	**15.60**
12111.	**Trial Set.** This set consists of the trial frame used in No. 12107, 6 pairs each convex and concave spheres and cylinders, 1 each Maddox rod, stenopaic slit, pin-hole disk, blank disk, and a red disk. Complete in black seal-leather pocket case 9x5½x¾ in. (267:T14-15)	**70.00**
12115.	**Portable Test Card Illuminator,** Slaughter's. Devised for road work. May be operated from the storage battery of an automobile. A compact and handy device for the examiner who is obliged to make visual acuity tests in poorly illuminated places. May also be used on 110V. A.C. or D.C. by putting a rheostat with the requisite resistance in the circuit, or substituting a set of 110V. lamps. See illustration on page 8	**45.00**
12117.	**Smoked Glasses,** in trial rings. One pair each, shades 2, 3, and 4. (227:X9; 228:72)	**7.80**

Number		Price
12119.	**Spectacle** with medium dark blue glass	$ **3.00**
12123.	**Trial Frame,** Simple, Double-Cell. (227:X9)	**2.50**
12127.	**Trial Set.** A single-cell trial frame with a blank disk and 1 lens each of —1.S. and +1.S. for determining approximately the type of refractive error	**5.30**
12131.	**Colored Trial Glasses.** One pair each light and dark shades of blue, green, yellow, red, and smoke (10 pair in all), in metal rims to fit trial frame. (139:X114)	**26.00**

No. 12111.

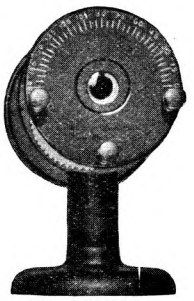


No. 12155.

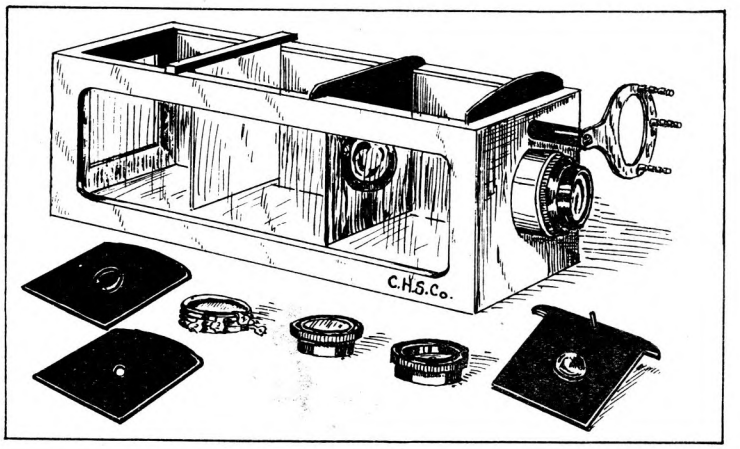


No. 12151.

12151.	**Ophthalmoscope,** with battery in handle. Has a lens range of +16.D. and —20.D. This instrument is extremely simple in construction and can be handled by an inexperienced person for examining the optic nerve, retina, and circulation	**42.50**
12155.	**Eye Observation Mirror,** Freeman's. Consisting of a head-band with a bracket for holding the mirror on the right or left side of the subject's head, so that eye movements can be seen by an observer at the rear. (59:X9)	**8.00**
12176.	**Schematic Eye,** De Zeng's. A modification of the Thorington eye, made of metal and supported on a base. The front part of the eye is provided with an adjustable diaphragm, semicircular graduations, and supports for trial lenses. The sliding tube is graduated so that the eye can be set to reproduce hypermetropic and myopic conditions	**10.80**
12181.	**Demonstration Eye,** Kuehne's. A rectangular metal case with glass side and rear. The front of the apparatus is made with a tubular projection in which can be inserted cells with lenses representing the normal cornea, the astigmatic cornea, and the neutralizing effect of water when the cornea is immersed. There is also furnished a set of frames with lenses, etc., for suspension on the inside of the tank in order to demonstrate hypermetropia, myopia, effect of a large and a small iris, the difference in focus between central and marginal rays, etc. Filling the tank with water to which a few drops of eosin have been added, and using a cardboard cross illuminated from the rear in a dark room, a demonstration can be given of all of the errors of refraction and their correction. The series of trial lenses which is part of the apparatus can be supported in the circular ring suspended from the front of the apparatus. The formation of the image can be traced at the glass side of the tank, and the final image seen at the rear on the suspended ground glass. Complete as illustrated, with instructions. (S.P.:1061; S.P.P.:350-352)	**80.00**



No 12176.



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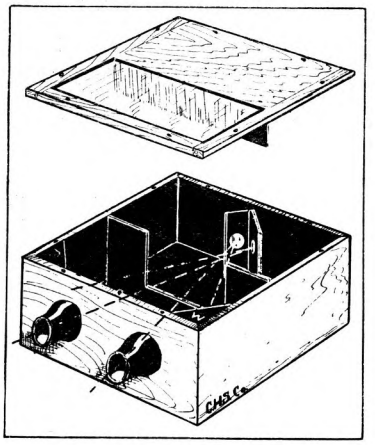

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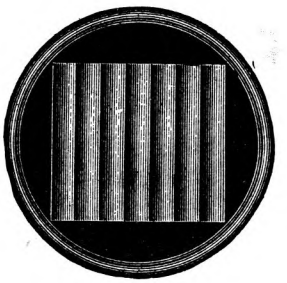

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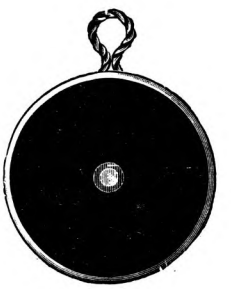
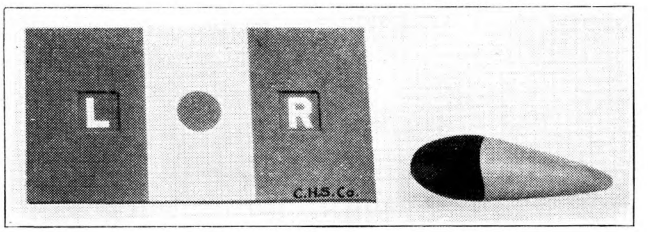
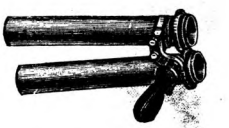


No. 12207.

Number		Price
12191.	**Box,** Flees'. An excellent device for the detection of feigned blindness in one eye. The subject is asked to look into the box with both eyes and report what is seen. The interior construction is such as to transpose the images of the two eyes in a way not readily detected. A one-eyed subject would report an image on the side of the blind eye, or a truthful individual would report an image on the side of the closed eye; while the malingerer would report the image on the side of the eye admitted to be good, thus demonstrating conclusively that the blindness of the other eye was feigned. Neither of the two images can be seen simultaneously with both eyes. (101:190-193)	**$ 25.00**
12192.	**Multiple Image Apparatus,** Jastrow's. A tube with a disk at one end. In the center of the disk is an aperture with a pin	**4.50**
12203.	**Multiple Rod,** Maddox. A series of red glass rods mounted on a disk in a trial ring so that it can be inserted in the trial frame. Used for detecting muscular imbalance by disassociation of images. (267:T15)	**4.20**
12207.	**Stenopaic Lens,** Stevens'. A short-focus lens mounted in a disk and inserted in a trial ring so that it can be used in the trial frame. Used for the detection of muscular imbalance by disassociation of images. (267:T15)	**4.50**
12215.	**Prism.** A 2.△ prism mounted in a trial ring so that it can be used in the trial frame. for heterophoria tests. (267:T15)	**1.20**
12219.	**Prism.** An 8.△ prism mounted in a trial ring so that it can be used in the trial frame. (267:T15)	**1.70**
12223.	**Prisms.** A pair of 20.△ prisms mounted in trial rings for use in the trial frame for heterophoria tests. (267:T15)	**7.00**
12227.	**Manoptoscope,** Parson's. This is a simple inexpensive device for diagnosing the twin phenomena "eyedness" and "handedness." The manoptoscope, as will be noticed in the illustration, consists of a conical-shaped aluminum sighting tube about 9 in. long, the wide end of which is placed against the face like a stereoscope. The target, customarily placed about 2 ft. from the subject, consists of an exposing device and a sliding chart carrying the targets or fixation disk and test objects. The exposing device has a target or central fixation disk flanked by two square apertures. The chart bearing the letters "R" and "L" may be moved back and forth so that the letters are either ex-	



No. 12227.



No. 12230.

Number | Price

posed or hidden. Ordinarily the determination of "eyedness," the factor thought by many to govern "handedness," is a rather intricate process requiring elaborate apparatus and the knowledge of an experienced ophthalmologist, optometrist, or psychologist. However, with the manoptoscope, the diagnosis can be made by anyone of average intelligence without special training or experience. The procedure is simplicity itself. Complete as illustrated, with sightingtube and exposure apparatus with fixation disk and chart for literates (153) ..... $ 5.80

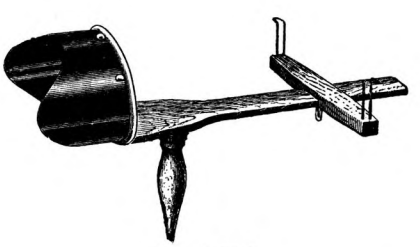
12227A. **Manoptoscope,** Parson's. Includes sighting-tube and exposure apparatus with fixation disk and chart for children or illiterates..... 6.50

12227B. **Manoptoscope,** Parson's. Includes sighting-tube and exposure apparatus with fixation disk and charts for both adults and children..... 9.10

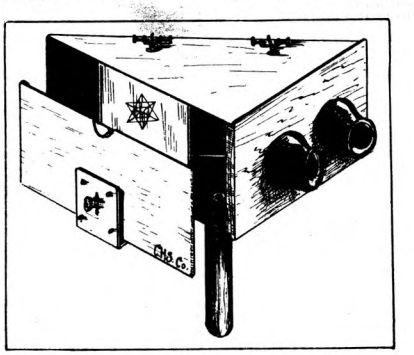
12229. **Stereoscope Tubes,** Helmholtz's. Set of 2 cardboard tubes. (226:260-261, 272-273)..... .10

12230. **Tropostereoscope,** Ludwig's. A refined form of the Helmholtz tube stereoscope. The two metal tubes are attached to a handle in such a way that the interocular distances can be varied to suit the observer. The far ends of the tubes directly above the supporting handle are supplied with threaded caps, within which colored glass diagrams, metal disks with radii, etc. can be inserted. The caps are geared together so that the objects can be brought into the required position. (226:272-273)..... 30.00

12235. **Stereoscope, Universal,** Brewster's. Made of aluminum, with removable partition. (225:X27) 12.50



No. 12237.



No. 12239.

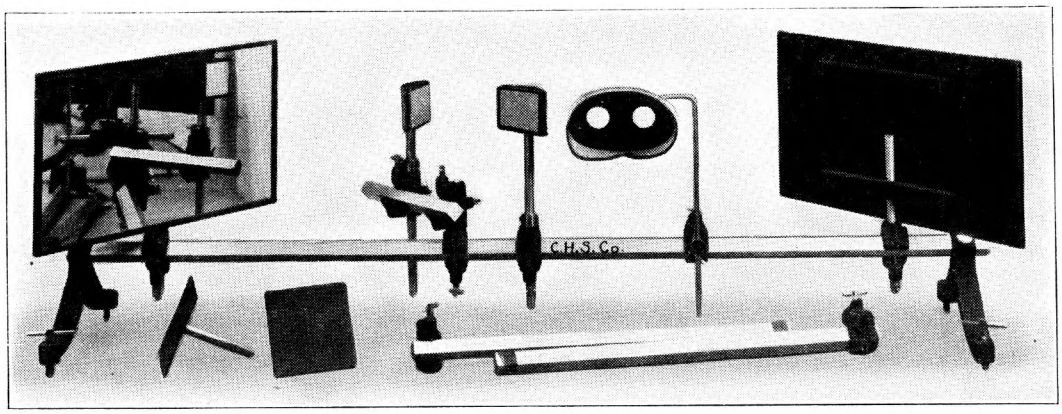
12237. **Stereoscope,** Brewster's. Made of wood. (51A:X11; 111:X47, 49; 225:X27; W.)..... 1.50

12239. **Perspectoscope,** Jastrow's modification. Can be used as either a stereoscope or a pseudoscope. The two mirrors are set in position by means of levers and adjusted with the greatest degree of accuracy by means of two finely threaded screws acting on each side of the lever. The card-holder carried at the end of the slider is large enough to take the ordinary stereogram, and beside being adjustable for height may, by means of adjusting screws, be inclined forward or backward. (226:298)..... 45.00

12241. **Stereoscope,** Wheatstone's. A simple model consisting of a support carrying two mirrors set at the proper angle, and two panels supported on bases for carrying cards. Cards with figures, etc. are attached to the panels by means of thumb-tacks. (224:316-317; 226:263-267) 35.00

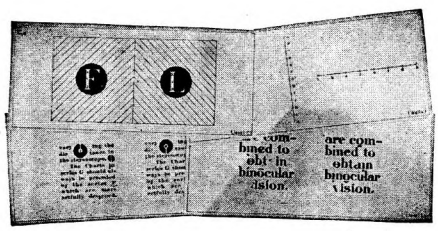
12242. **Stereoscope,** Zeiss'. A high-grade stereoscope with a "wandering" indicator for making approximate measurements of depth. This stereoscope embodies all desirable adjustments and is recommended to all who want the best. (129:D13) 69.00

12243. **Combination Stereoscope, Telestereoscope, and Pseudoscope,** Titchener's. This is a substantial piece of apparatus constructed on the order of the optical bench used in the Physics Laboratory, and comprises all the accessories required to rapidly convert it into the following: Wheatstone's mirror stereoscope, Helmholtz's telestereoscope, Stratton's form of Mach's mirror pseudoscope, Ewald's pseudoscope, and the Meyer eye-transplanting pseudoscope for transplanting both eyes simultaneously. (103:X5; 224:319-320; 226:263-267, 296-297) 115.00



No. 12243.

Number		Price
12244.	**Stereogram Cards.** Blank with the exception of the outline showing proper location for drawings. (165:X29). Per doz.	$ 1.00
12245.	**Stereogram Cards,** Blank. (111:X47; 165:X29). Per doz.	.40
12246.	**Stereogram Blank,** Transparent Celluloid. (165:X29). Per doz.	3.40
12247.	**Stereograms,** Martius-Matzdorff's. A set of 12, showing luster. (224:321; 226:273)	3.50



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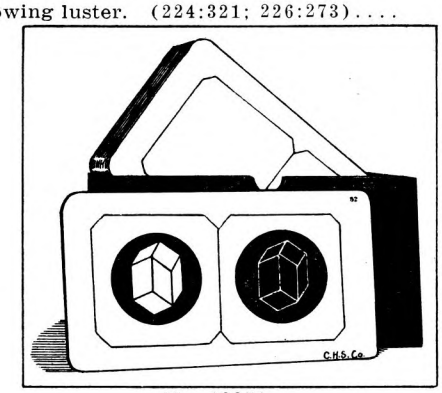
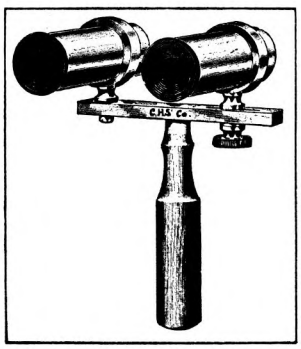


No. 12251.



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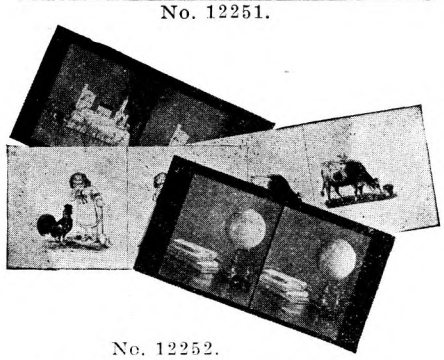


No. 12252.

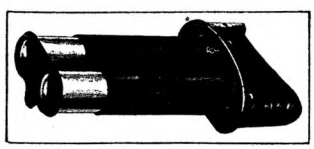
12248. **Stereograms,** Wells'. Comprising the best from the Javal, Kroll, Dahlfeld, and Hale series; several original charts by Dr. Wells, several geometric stereograms published through the courtesy of D. C. Heath and Co., and a chart for testing aviators, employed by the United States Government. The entire series comprises 49 black and white and 21 colored stereograms. Designed for cultivating binocular visions and the treatment of heterophorias. (226:273-274; W.) 3.35

12249. **Stereograms,** Martius-Matzdorff's. Set of 36, showing all the interesting phenomena accompanying stereoscopic vision. With explanatory text. (226:273-274) 9.00

12250. **Stereograms.** An abridged set consisting of 27 stereograms selected from the No. 12251 Titchener series of 43 7.00

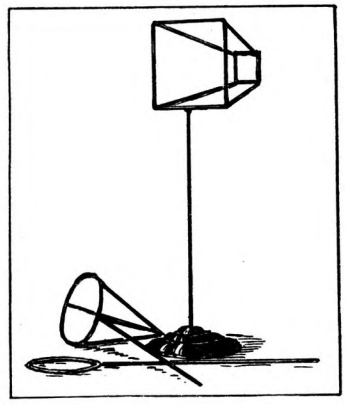
12251. **Stereograms,** Titchener's. The diagrams, pictures, and colored figures were selected by Prof. Titchener with his customary critical evaluation of available material offered by the many investigators of stereoscopic vision, and cover the interesting phenomena of this phase of vision in a very comprehensive and satisfactory manner. This set of

Number		Price
	43 stereograms is printed from virtually faultless plates and the greatest care is exercised by the printer in producing sharp, clear-cut impressions of both diagrams and pictures. (51:X21; 51A:X8,11; 111:X74; 129:D13; 165:X30; 217:L37; 226:273-295)....	$ 10.75
12252.	**Stereograms,** Kroll's. Set of 28. Complete in case with directions. (165:X33).....	2.35
12253.	**Stereograms.** Two pairs of vertical lines, with a distance of 64 mm. between the left-hand members of the pair, scratched on a piece of transparent celluloid. (224:311)...	2.00
12254.	**Stereograms.** A set of 2:A, one half pink the other half green; B, one half dark yellow and the other blue. (129:D13).....	2.00
12255.	**Stereogram.** A vertical and a slightly oblique line scratched on a piece of transparent celluloid. (224:312)	2.00
12256.	**Parallax Stereogram.** A picture consisting of alternate strips derived from the two halves of a stereogram, mounted back of a screen in such a manner that each eye sees its appropriate set of strips and so obtains binocular relief. (129:D14).....	11.00
12257.	**Stereogram.** For demonstrating rivalry. (224:320)	.50
12258.	**Anaglyphs.** A set of 3 stereograms with one half printed in red and the other in green ink. With the aid of the accompanying reversible spectacle frame, glazed with red and green glass, it is possible to show binocular relief in resultant color, rivalry, and the detection of visual malingering. (165:X30; 187:298-300; S.P.P.:363).....	7.50
12259.	**Truncated Cone,** Wood. (225:X27)	2.50
12260.	**Plastographs,** Packard's. Often referred to as anaglyphs. Invented by Duscos du Hauron. A book of sculptural printing; containing six views which, with the aid of the accompanying "Macyscope"—a cardboard lorgnette glazed with red and greenish-blue gelatin—throw the partially superimposed red and greenish-blue pictures into binocular relief. The effect is virtually that obtained with the stereogram and stereoscope. Reversing the lorgnette or anaglyphoscope produces a pseudoscopic effect. The cover and the reduced facsimile on page 3 provide excellent material for demonstrating rivalry. (129:D14; 165:X30)	.60
12261.	**Wire.** Stiff brass, 2 ft. long, 1/32 in. in diameter. (225:X27).....	.25
12262.	**Sticks.** Set of 2, painted black. On wooden blocks. (51:X21; 51A:X8).....	.80
12263.	**Pins, Hat.** Short; black head. (225:X27). Per set of 4.....	.20
12264.	**Pins.** Set of 3, mounted on corks. (51:X21; 51A:X8).....	.30
12271.	**Pseudoscope, Total-Reflection,** Dove and Wheatstone. Two tubes with eye-pieces carrying prisms with bases parallel to the axes of the tubes and mounted in collars on a bar, supported by a wooden handle. The bar is slotted at one end to permit separation of one of the collar-carrying tubes in order to make interocular adjustment. Both collars carrying the tubes are provided with set-screws to keep the prismatic oculars in proper alignment. (129:D14; 225:X28; 226:295-296).....	75.00
12272.	**Pseudoscope,** Dove and Wheatstone; Prof. Max Meyer's modification. Similar in construction to the No. 12271, but provided with tubes of a larger diameter and larger prisms	100.00



No. 12275.

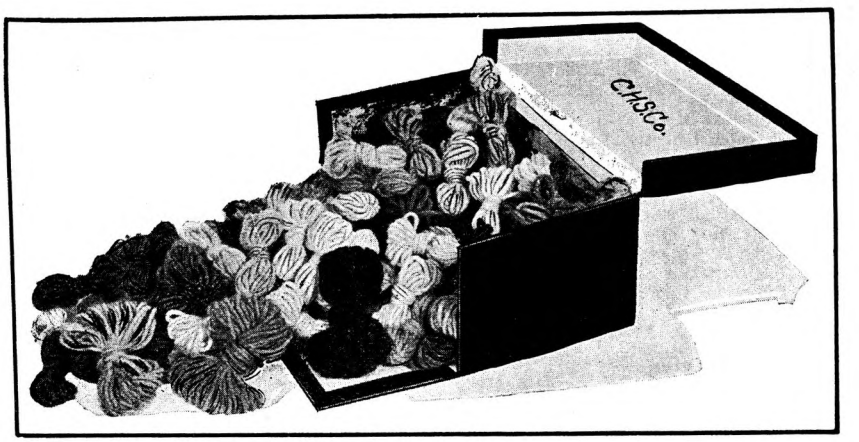
12275.	**Pseudoscope, Lenticular,** Wood's. A modification of the Brewster stereoscope. The stereogram carrier has been removed and the hood fitted with a pair of tubes. Within these tubes slide two other tubes attached to an end plate at the farther end, in which are double convex lenses. The plate joining the tubes enables the observer to adjust the length of the tube to suit his eyes. (225:G28; 226:298-299).....	40.00
12276.	**Pseudograms.** Set of 6. (165:X31).....	3.00
12277.	**Balls.** Set of 2, red and green; 1 in. diameter. (225:X28).....	.25
12278.	**Sticks.** Set of 2, one white and the other black. About 8 in. long and ⅛ in. diameter. Mounted on wood base. (165:X28)	1.00
12279.	**Bust,** Plaster. About 5 in. long. (Lincoln if obtainable). (225:X28).....	2.25
12280.	**Half-Hoops,** Wood. (225:X28)	.50
12283.	**Mask,** of human face. Painted inside and outside with strongly contrasting colors. (225:X28)	.65
12285.	**Medallion,** Plaster. (225:X28)	2.00
12286.	**Tea-cup.** Painted on the outside. (225:X28)	.65



No. 12290.

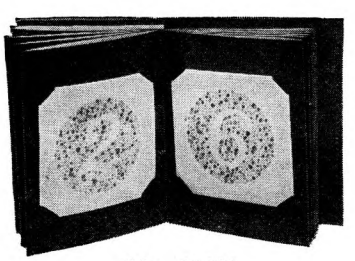
No. 12321.

Number		Price
12287.	**Tea-cup.** Painted on the inside. (225:X28)	$ 0.65
12288.	**Wire Model.** Frustrum of pyramid. 51:X21; 51A:X8)	2.00
12289.	**Wire Models.** Cube and pyramid. (225:X28)	4.00
12290.	**Wire Models.** Cone, pyramid, and ring. (165:X29)	6.00
12291.	**Figured Squares.** Four, of cardboard. (225:X28)	.50
12292.	**Occlusion Screen,** Foster's. 12x30 cm., with aperture of 1x12 cm. Attached to wood base. (51:X21; 51A:X8)	1.00
12293.	**Fixation Cross,** White cardboard. (225:X28)	.20
12294.	**Screen,** Black cardboard, 12x30 cm. Attached to wood base. (51:X21; 51A:X8)	1.00
12295.	**Pencils.** Set of 6 of different outside colors. (225:X28)	.40
12296.	**Mailing Tubes.** Set of 2; 1 in. diameter, 12 in. long. (119:X12-44)	.10
12297.	**Screen,** Dead black, 1 M. square. On support. Used with Galton bar, etc. (225:X28; 227:X15)	13.00
12298.	**Match Box,** Safety. (225:X28)	.10
12303.	**Balls,** De Sanctis'; Wood, 50 mm. in diameter. Set of 5: red, orange, yellow, blue, and green. (266:T12)	.40
12305.	**Color Test.** A card containing oblong strips of different color papers on one side and 6 postage stamps, 3 green and 3 red, on the other. (69; 266:T54)	.55
12307.	**Color Test,** Binet and Simon. A card with four colors: green, blue, yellow, and red. (221:T5, 2)	.50
12309.	**Color Naming Test,** Woodworth and Wells. One of the tests of the association series. (23:T98; 277:C5)	.10
12311.	**Color Patterns Test.** Set of 50 sticks; 10 each red, yellow, green, blue, and purple. (285:T19)	.60
12313.	**Color Matching Test,** Stutsman's. Four colored telescoping boxes with the requisite number of colored disks	.60
12321.	**Color Sense Tester,** Scripture's. In appearance this color sense tester resembles an ophthalmoscope. On the side toward the subject there are three windows of glass, numbered 1, 2, and 3 respectively. The opposite side consists of a rotating disk carrying twelve glasses of different colors. As the disk is rotated the operator brings the various colors behind the three windows. At each movement of the disk the subject calls off the color seen at the windows. Window No. 1 of the tester carries a dark smoked glass, No. 2 a piece of ground glass, and No. 3 a light smoked glass. The twelve glasses in the rotating disk consist mainly of reds, greens, and grays. There are thus thirty-six possible combinations. This tester was devised for the examination of railroad employees, soldiers, and sailors, and in fact the testing of any subject employed in a business where the ability to distinguish colors is a desideratum. The tester was constructed to replace the somewhat cumbersome Edridge-Green lantern officially adopted by the English Board of Trade. (194:485-487; Sci. 9, 231:771-774)	50.00
12323.	**Semaphore Lantern**	25.00

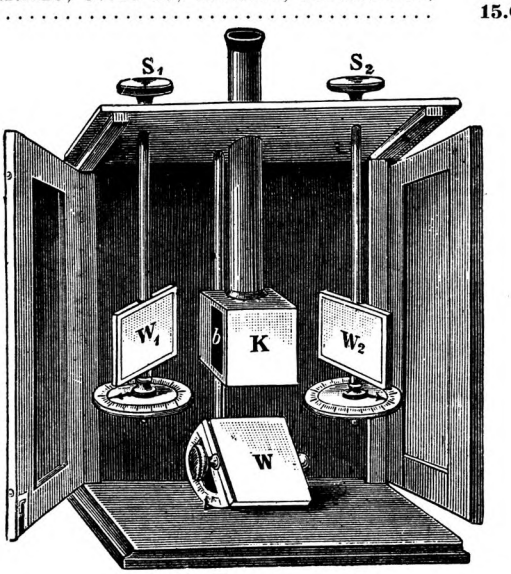


No. 12325.

Number		Price
12324.	**Sorting Boxes,** Baldwin and Stecher. Set of 4 for distribution of the Holmgren worsteds. (11:124)	$ 1.00
12325.	**Worsteds,** Holmgren's; modified by Whipple. For testing color perception. This is the largest set of worsteds available, and consists of 125 small skeins and 3 large test skeins. The skeins are all tagged with metal tags. The test skeins are numbered 101 (green), 102 (rose), and 103 (red). The small skeins are numbered from 1 to 100. The test colors—greens and reds—have the odd numbers and the confusion colors the even numbers. There are also 25 small skeins of confusion colors with tags lettered A to Z, omitting the letter I. The first forty colors, 1 to 40, correspond to the numbers on Thomson's stick. (11:123-126; 55:21-22; 51A:X10; 57:15-16; 239:X12; 245:231-233; 267:T16)	15.00



No. 12326.

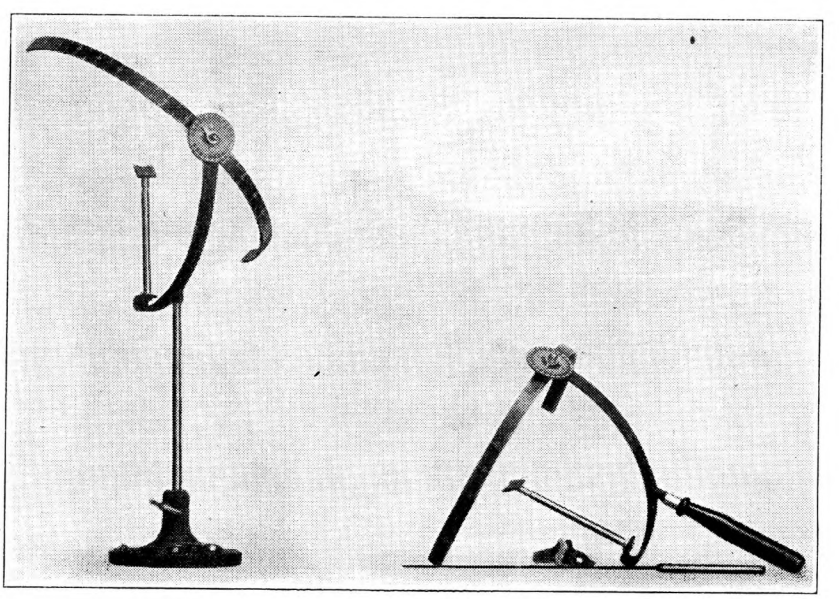


No. 12329.

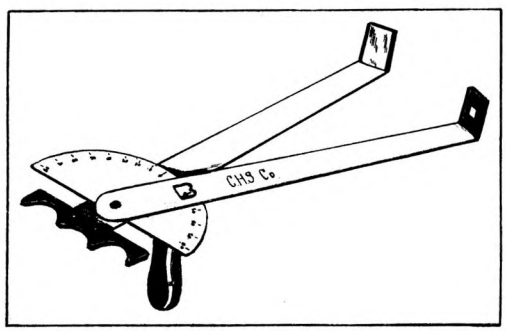
12326. **Color Perception Test.** Ishihara's. This test consists of a series of 16 color plates, printed on dull white cardboard and mounted substantially between stiff covers in book form. Detailed instructions for applying the test are bound into the cover with each set of color plates. Many devices for the detection of color-blindness are in use, and while all are more or less meritorious and can be used with a fair measure of satisfaction and success, nevertheless the Ishihara test is probably the most practical so far devised. Dr. J. H. Clark, of the School of Hygiene and Public Health, Johns Hopkins University, has made a study of color-blindness and tests, and in an article in the American Journal of Physiological Optics, remarked that the ingenuity and simplicity of this test, and the clear-cut results obtained with it in practice, made it the most successful of the color-blind tests offered to the clinician and investigator. (A.J.o.P.O. July 1924:269-276; 51A:X10; 245:231-233) 6.00

12327. **Color Perception Test,** Nagel's. This test was devised to discover the more difficult cases of color perception occasionally remaining undetected by some of the other tests. This set of cards is very desirable for detecting color weakness and differentiating between the more difficult subtypes of red and green color-blindness. (245:231-233; 267:T16) 1.75

Number		Price
12328.	**Color Perception Test,** Stilling's. This pseudo-isochromatic test for color-blindness consists of 60 plates printed in colors and bound in book form with a heavy cover. (51A:X10; 245:231-233; 267:T16)	**$ 7.50**
12329.	**Color Perception Test,** Hering's. The new model of this apparatus deviates from the illustration in that a small metallic case has been introduced between the eye tube and the large case "K". Through an ingenious arrangement of glass plates on the interior of the cases, light is reflected through the yellow, green, blue, and red glasses carried in the sides of case "K". An observer looking down the eye tube sees a disk accurately divided into a front and rear half. The four colored glasses provide for comparison of all the necessary colors. The illumination is controlled by the hinged sides and by the milk-glass reflectors W, W_1 and W_2. The first two are operated from the top of the apparatus by S_1 and S_2 and the third by the knob at the left. All reflectors are provided with indicators and carefully graduated protractors. (S.P.P.:352; 224:84; 226:7)	**160.00**
12330.	**Anomoloscope,** Model I, Nagel's. This apparatus was devised for diagnosing the different types of color-blindness by means of a spectroscopic mixing of spectrum colors. It enables the examiner to identify the different types of trichromates by means of the so-called "Rayleigh-comparison," and differentiate between the principal types of dichromates by the red-yellow and green-yellow comparisons. The subject sees a circular field, one half of which is permanently illuminated by a homogeneous light of a wave length corresponding to $\lambda=589.3$ (sodium-line), the intensity of which may be regulated by means of an adjustable slit controlled by a micrometer screw with a graduated head. The other half of the visual field may be filled with a clear red corresponding to $\lambda=665.6$ (approximately the lithium line), or a green corresponding to $\lambda=537.3$ (approximately the thallium line), or any desirable combination of both. The slits controlling these two fields are controlled by a coupling, so arranged that one is being opened while the other is being closed. Including base and Auer burner with metal cylinder, disk and support. N. B. An alcohol glow-lamp may be substituted for the regularly supplied Auer burner. An extra charge of $36.00 is made for this substitution. A certificate of inspection can be furnished for $24.00 additional.	**480.00**
12333.	**Cloth.** Light gray Canton flannel, 1 sq. yd. Used as a background for displaying color perception tests. (267:T16)	**.50**
12403.	**Campimeter,** Titchener's. This apparatus consists of two supports with clamps, adjustable for height, supporting a large sheet of heavy gray cardboard with an aperture in the center and millimeter graduations extending in two directions at right angles from the aperture. The adjustable eye-rest accompanying the apparatus is placed directly over the aperture in the cardboard panel. The apparatus also includes a handle for holding and moving the small colored squares along the graduated part of the cardboard panel. (129:D15-17; 225:X2; 226:17-26)	**16.50**
12405.	**Eye Shade.** For use with No. 12403 campimeter	**.50**
12407.	**Fixation Point.** On gray card. (225:X2)	**.15**
12409.	**Campimeter,** Carr's; modified by Hunter. This campimeter is substantially constructed and is used in a horizontal position. An electric color mixer operates behind a screen with an adjustable aperture. (99:269-271)	**67.00**



No. 12424. No. 12423.



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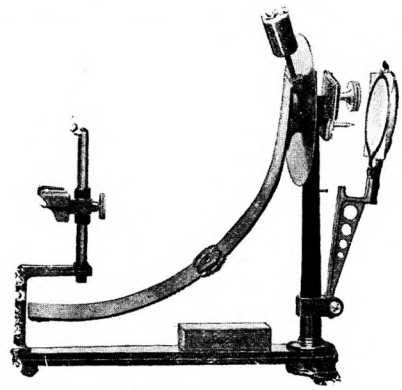
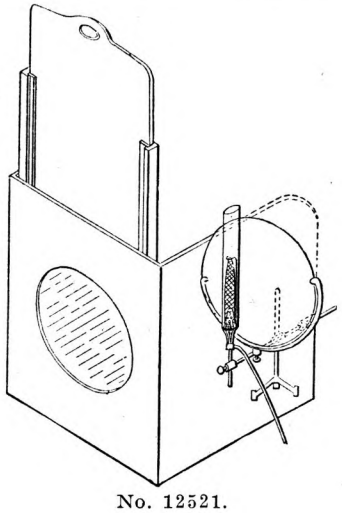


No. 12431.

Number		Price
12421.	**Perimeter,** Franz and Kline. This is a perimeter of the simplest form, made of aluminum, and while used to a great extent in the Psychological Laboratory, was designed especially for use in connection with the neurological and psychiatric tests devised for abnormal work by Dr. Franz. The protractor is graduated every 10 degrees and is sufficiently accurate for all practical purposes. (55:20-21; 57:14-15; 111:X38).....	$15.75
12423.	**Perimeter, Hand,** Schweigger's. The model used by the United States Surgeon General's office and in many of the Psychological Laboratories of educational institutions for experimental work. It consists of a hand support, carrying an eye-rest and a graduated metal arc whose angular position is recorded by an indicator on a small protractor attached to the front of the support. A small mirror at the back of the protractor serves as a fixation point. Each instrument is supplied with a holder for carrying the five color disks which are moved along the metal arc until the subject under examination recognizes the colors.....	30.00
12424.	**Perimeter, Schweigger's.** Similar in construction to the No. 12423 but mounted on a base instead of a handle. The color disks are attached to small clips which slide along the graduated arc. (51A:X10)	30.00
12429.	**Perimeter Charts, Rights.** In pads of 100.....	2.00
12430.	**Perimeter Charts, Lefts.** In pads of 100.....	2.00
12431.	**Perimeter, Automatic Recording.** The model used by the oculists and optometrists. It answers every requirement of clinical and experimental work. The movement of the object-carrier on the metal arc and the automatic recording release are both conveniently controlled from the experimenter's side of the instrument. The object carrier contains five colors, each having 1, 3, 5, 10, and 15 mm. apertures, and since each passes beneath the point of fixation, it is possible to take a central field. The chin-rest is adjustable and made of mahogany. An improved clip on the chart-holder facilitates rapid interchange of charts. The metal automatic recording device is supplied with a guard for protecting the hand of the experimenter. Complete as illustrated, with 50 pairs of charts. (32:112-113; 224:80-83).....	178.00
12431R.	**Perimeter Charts, Rights.** For No. 12431. In pads of 100.....	1.95
12431L.	**Perimeter Charts, Lefts.** For No. 12431. In pads of 100.....	1.95
12455.	**Perimeter Paper,** Engelking and Eckstein. Produced under the supervision of an oculist and physiologist of the University of Freiburg. A set of 5 standardized papers, 13.5 x 21 cm., consisting of a neutral gray and 4 colors (yellow, blue, green, and red), invariable and peripherally equal in good daylight. For the detailed theoretical fundamentals and use of the colors, see "Physiologische Bestimmung von Musterfarben für die klinische Perimetrie." (Klin. Monatsbl. f. Augenheilk. 1920, Bd. 64, S. 88.).....	1.75
12503.	**After-Image Apparatus, Negative,** Titchener's. Made to order. (225:X4). Price on application.	
12505.	**Induction Boxes,** Meyer's. A set of 4 boxes, arranged so that they can be readily placed over the head of the subject. Fitted with yellow, blue, green, and red glases. (129:D15-17)	33.50
12506.	**Sateen, Black,** 3 yds.; for covering head. Used with No. 12505.....	2.70
12513.	**Colored Glasses.** One each yellow, green, red, and blue, 6 in. square (225:X4).....	1.60
12515.	**Cloth,** Dead Black Finish, 1 yd. (225:X4).....	2.00
12516.	**Cardboard,** Black, 35x55 cm. (225:X4).....	.15
12517.	**Cardboard,** White, 35x70 cm. (225:X3).....	.20



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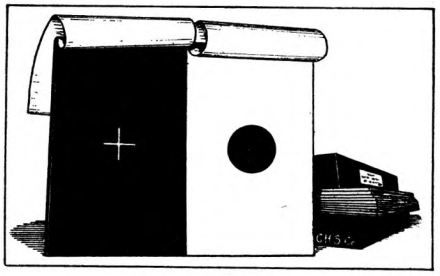

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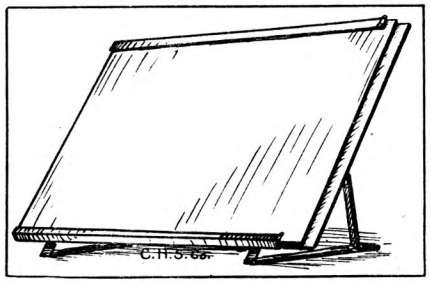

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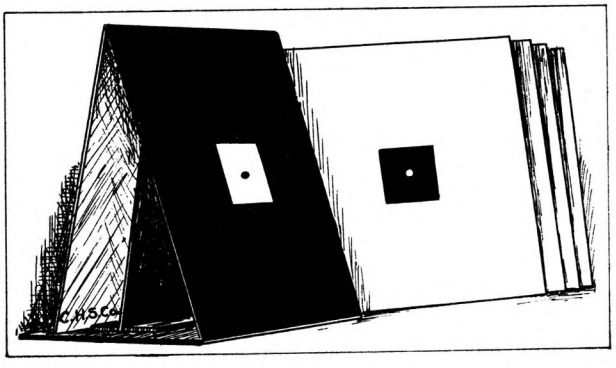
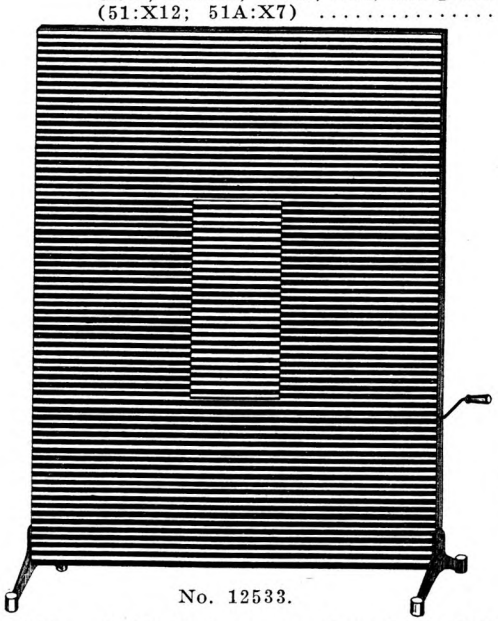


No. 12524.

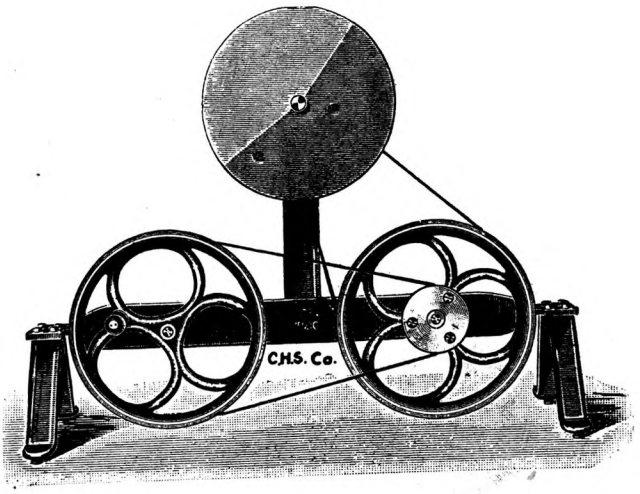
Number		Price
12518.	**Cardboard,** Gray, 35x55 cm. (225:X1)	$ 0.15
12519.	**Cardboard.** One sheet each black, white, and gray, 35x55 cm. (119:X1-3)	.50
12521.	**After-Image Apparatus, Negative,** Wundt's. A blackened box with a round aperture containing a ground glass which is illuminated from the inside by a gas flame. Behind the ground glass is a grooved frame for inserting the accompanying red, green, yellow, and blue glass plates and the black drop-shutter for rapidly covering the illuminated aperture. (224:74-75)	37.00
12523.	**After-Image Frame,** Titchener's. A substantially constructed easel, with metal supports and horizontal grooves for taking 14x20 in. cards from the left side. (225:X4)	17.00
12524.	**After-Image Apparatus,** Hering's. A cardboard easel, about 15½x18½ in., with a white field and black fixation spot on the front surface and a hinged gray field with a black fixation spot which folds over the former, and four cards which slip into the clips on the face of the easel. The four cards comprise the following: a white surface with a black field and white fixation spot, and black surface with a green field and black fixation spot; a green surface with a red field and black fixation spot, and a yellow surface with a blue field and black fixation spot; a blue surface with a yellow field and black fixation spot, and a black surface with a red field and black fixation spot; a red surface with a green field and black fixation spot and a red surface with a black fixation spot. (226:50)	10.00
12526.	**Fixation Card,** Poffenberger's. A gray card, about 6 in. sq., with ½ in. sq. black spot in the center. (165:X27)	.25
12527.	**After-Image Cards,** Wallin's. A series of 15. Group experiments on after-images can often be carried out with less annoyance and more dispatch than individual experiments. Dr. J. E. W. Wallin has devised for this purpose a set of cards, each of which contains at one end a colored or black or white disk which the students are instructed to regard fixedly until they are instructed to fixate an object at the outer end of the card. Few students experience difficulty in obtaining the desired results no matter where they may be situated in the room. The six sets of cards included in the series bring out the following after-image phenomena: increased saturation with grays and colors, mixture of colors, and the production of gray through mixing colors and their complementary after-images. The cards are 8x11 in.	15.00
12529.	**Papers,** Colored, Oblongs and Squares, Foster's. A series of black, white, gray, and colored papers, pasted on 4x6 in. cards. For visual adaptation and after-images. (51:X12; 51A:X7)	2.50

Number — Price

12530. **Shade and Chroma Chart.** A hinged chart of pure spectrum scales, a rainy-day spectrum, spectrum standards of red, orange, yellow, green, blue, and violet; a set of light, dark, neutral, warm, cool, and green grays; and a color circle of complementary colors. (51:X12; 51A:X7) ..... $ 1.70



No. 12533.



No. 12607.

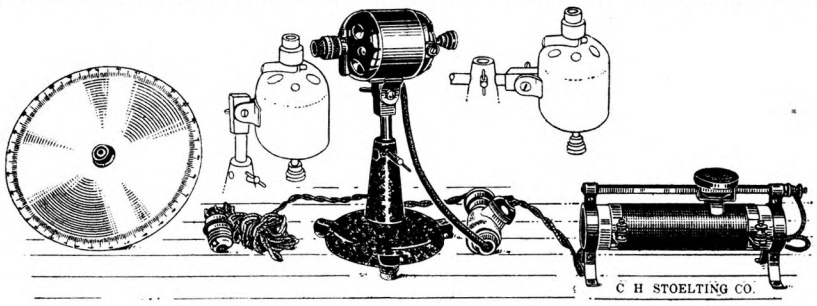
12533. **Antirrheoscope,** or James' Artificial Waterfall. For demonstrating after-images of motion. A large horizontally black and white striped background, in the center of which is a movable section operated over rollers by means of a crank. (224:358-360) **45.00**

12561. **Thumb Tacks.** Per doz..... **.10**

12570. **Window,** Hering's. A large screen with two openings of variable width, about 1 ft. high and 1 ft. apart. We must be supplied with the exact measurements of the window on which this piece of apparatus is to be used. Made to order. (129:D18). Price on application .....

12571. **Easel and Screen.** An inexpensive easel with a 2 ft. sq., thin white board screen. (129:D18) **9.00**

12607. **Color Mixer.** A high-speed rotator, operated by hand. Capable of eliminating flicker with very little effort on the part of the operator. Color mixer takes standard disks... **65.00**



Nos. 10516, 12614, 12611, 25536, 12622.

12611. **Color Mixer, Electric.** Can be operated on either the 110V. A.C. or D.C. Mounted on support so that it can be operated horizontally or vertically at any angle. Furnished with color disk arbor and pulley. (Z.L.E.P.:165)..... **29.50**

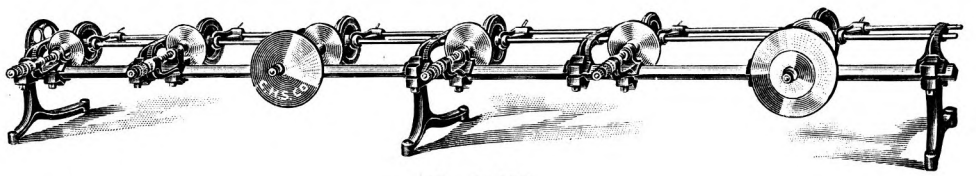
12614. **Connecting Cord.** This cord is supplied with a plug and key socket for connecting color mixer to lighting circuit..... **2.25**

12618. **Arbor, Color Disk.** Does not tear paper. Will fit any of our color mixers..... **3.50**

12622. **Rheostat.** Very necessary for reducing and varying the speed of the No. 12611 color mixer **8.75**

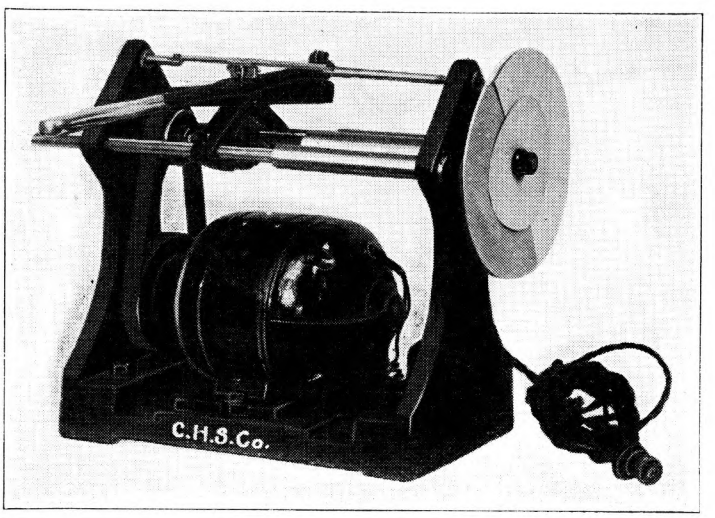
25536. **Series Attachment Plug.** A convenient device for connecting rheostat and color mixer. **2.50**

12627. **Color Mixer, Demonstration,** Titchener's. This color mixer is made with 2, 3, 4, 5, or 6 spindles, and constructed so as to permit starting and stopping the disks separately or simultaneously. The speed of the disks may be varied individually or collectively. A ⅛ h.p. motor will supply sufficient power to operate the color mixer with anywhere from 2 to 6 spindles. Two-spindle color mixer. (224:67-71) **115.00**

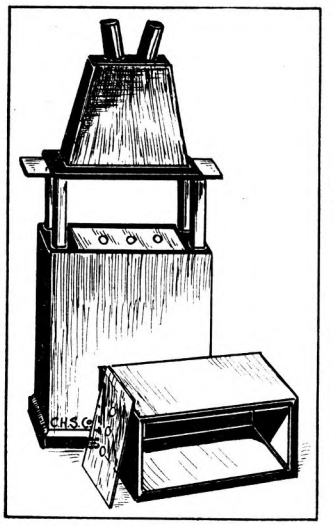


No. 12631.

Number			Price
12628.	**Color Mixer,** Titchener's.	Similar to No. 12627 but with 3 spindles.....	**$161.25**
12629.	**Color Mixer,** Titchener's.	Similar to No. 12627 but with 4 spindles.....	**211.25**
12630.	**Color Mixer,** Titchener's.	Similar to No. 12627 but with 5 spindles.....	**265.25**
12631.	**Color Mixer,** Titchener's.	Similar to No. 12627 but with 6 spindles.....	**317.50**



No. 12638.



No. 12639.

12638. **Color Mixer, Differential,** Twitmyer's. Designed to enable the experimenter to carry the proportions of two disks while they are being rotated, and to compare and rapidly match a smaller central disk without resorting to the "trial-error" method. The two large disks have a radial slit and are placed on the shaft. After overlapping one of the slits, the edge of each is clamped to an arm on the shaft, operated by the lever projecting at the side of the mixer. An indicator attached to the lever passes over a scale and shows the proportion of each color. This color mixer is designed for hard service and supplied with a 110V. D.C. motor. A substantially constructed rheostat is furnished with each color mixer. The color mixer takes the standard color disks... **350.00**

12639. **Color Mixer, Binocular,** Hering's. The base is a black box with four posts for supporting the hood. Between the right and left posts are grooves for taking a white glass slide carrying three carefully-placed white paper circles or squares. The upper part of the hood is supplied with eye tubes, and the lower part with a slide into which a red glass may be inserted from one side and a blue glass from the other, so as to cover the slide below on the top of the base. (139:X130; 187:164-165; 224:320-321; 226:291) **28.50**

12640. **Paper, Tissue,** White, 50x75 cm. (119:X1-2). Per quire..... **.30**

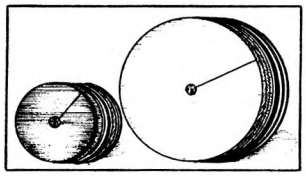
12643. **Color Disks,** Hering's Paper, 114 mm. diameter with 13.5 mm. hole. Machine cut. Complete series of 19 disks with one backing disk. See illustration on page 23..... **1.00**

12643M. **Color Disks.** Similar to above but with disks mounted on strong, light cardboard..... **1.50**

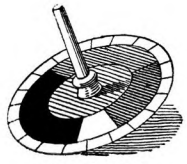
12645. **Color Disks.** Domestic Paper, 114 mm. diameter with 13.5 mm. hole. Complete series of 19 disks with one backing disk..... **.90**

12646. **Color Disks,** Hering's Paper, 200 mm. diameter with 13.5 mm. hole. These disks are hand cut as an exact covering at the periphery is not necessary and does not affect equations. Complete series of 19 disks with one backing disk. See illustration on page 23 ..... **2.00**

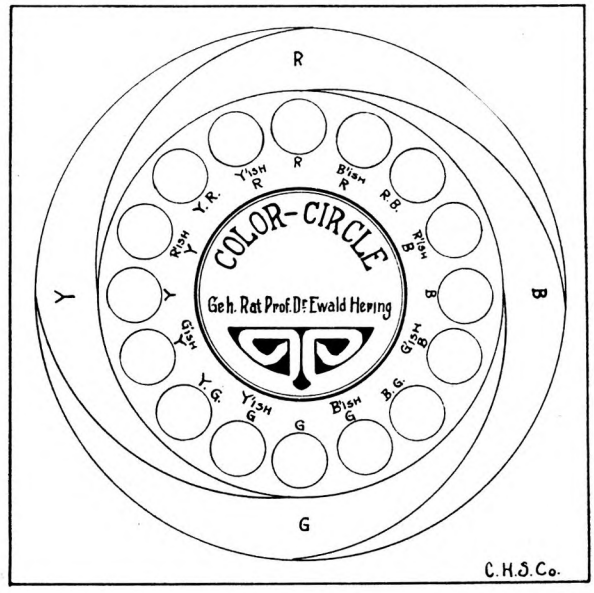
12646M. **Color Disks.** Similar to No. 12646 but with disks mounted on strong light cardboard.. **3.00**



Nos. 12643, 12646

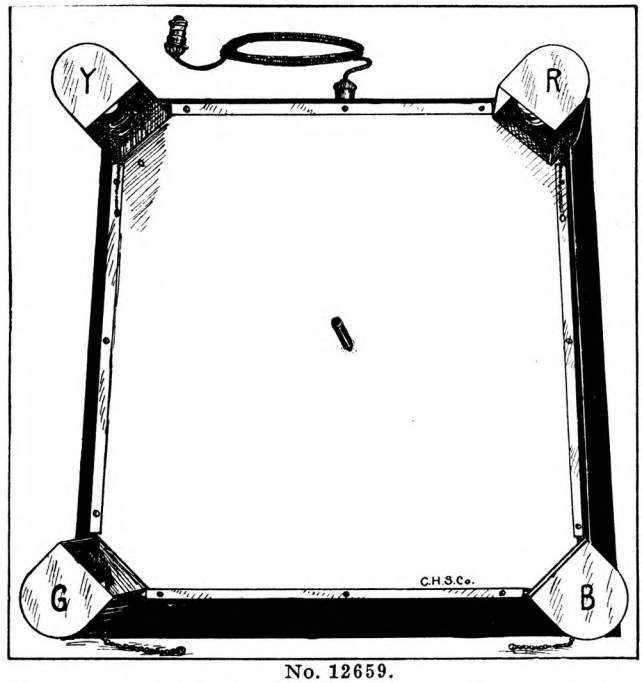


No. 25421.



No. 12647.

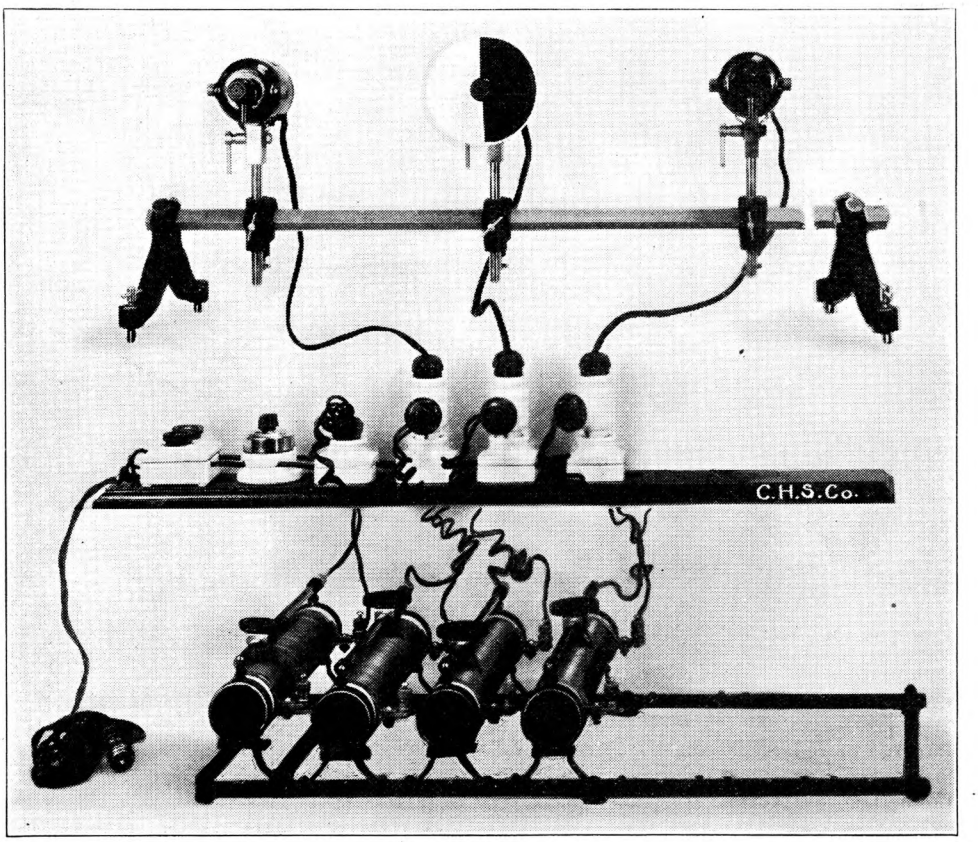
Number		Price
12647.	**Color Circle,** Hering's. The red, yellow, green, and blue crescents, also the circles, used in the construction of this color circle are cut from the Hering papers and mounted on heavy gray cardboard about 9½ in. square. (51A:X11)	$ 0.90
12648.	**Color Disks.** Domestic Paper, 200 mm. diameter with 13.5 mm. hole. Complete series of 19 disks with one backing disk	1.75
12653.	**Paper, Colored.** One sheet each of standard colors: two tints, two shades, and book of samples—90 shades in all. (225:X3)	6.75
25421.	**Color Top and Disks.** (51:X11; 119:xv)	.20



No. 12659.

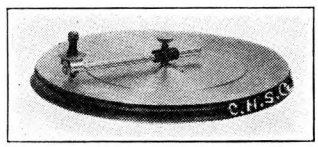
12659. **Contrast Apparatus for Colored Shadows.** A large white screen mounted on a base, with colored lamps (yellow, red, green, and blue) on the corners and electrical connections for use on the 110V. D.C. or A.C. (27:44; 187:162-163; 226:36) 75.00

N. B. The above apparatus can be supplied with small lamp-socket rheostats for individual lamp adjustment or a rheostat for collective adjustment. Price on application.

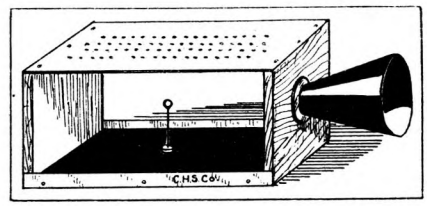


No. 12663.

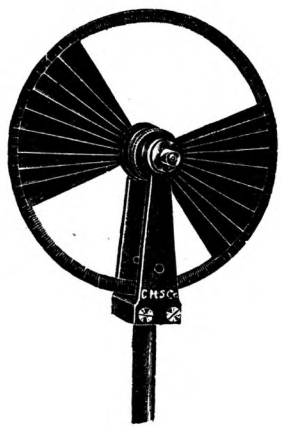
Number		Price
12662.	**Color Mixer, Multiple,** Electric. The advantage of this type of color mixer lies in the fact that it is possible to easily regulate the color mixers both individually and collectively, and to remove the color mixers and place them on separate supports for individual use. The rheostats may also be readily removed from the rack. Additional color mixers, connectors, and rheostats may be added as occasion requires or finances permit. The color mixers are carried on a heavy metal rod, supported by two substantial supports with leveling screws. The support, like the base for the connections and the rack for the rheostats, is of sufficient length to carry six color mixers, connectors, and rheostats. This color mixer is furnished with a connecting cord for the incandescent lamp socket and can be used on either the 110V. D.C. or A.C. The initial outfit consists of support for color mixers, 2 clamps, 2 color mixers of the No. 12611 type without base, baseboard with connections for 2 color mixers and 3 rheostats, and a rheostat rack with 3 rheostats	**$143.00**
12663.	**Color Mixer, Multiple,** Electric, with 3 color mixers	**192.50**
12664.	**Color Mixer, Multiple,** Electric, with 4 color mixers	**242.00**
12665.	**Color Mixer, Multiple,** Electric, with 5 color mixers	**291.50**
12666.	**Color Mixer, Multiple,** Electric, with 6 color mixers	**341.00**
12670.	**Papers,** Hering's. One sheet each black, gray, and white; 50x60 cm	**.45**
12671.	**Papers, Colored.** One sheet each blue, yellow, red, green, blue-green, yellow-green, orange, red-violet, cool gray No. I, cool gray No. II, and white 50x60 cm. (129:D515-17). Per sheet	**..10**
12672.	**Paper, Photographic,** Black. (129:D15-17)	**.75**
12673.	**Papers, Colored,** Hering's. Set of 19 sheets, 16 colors and 1 each of white, black, and gray; 50x60 cm (Above papers per sheet .15)	**2.85**
12674.	**Papers, Colored,** Domestic. Same as above (Above paper per sheet .10)	**1.90**
12677.	**Backing Disks,** Plain. For Nos. 12643 and 12645 color disks	**.10**
12679.	**Backing Disks,** Plain. For Nos. 12646 and 12648 color disks	**.10**
12680.	**Color Disks.** Four sets of colored cardboard disks, 2½, 3¼, 4, and 5½ in. in diameter, with a radial slit and a 13.5 mm. hole in center to fit the standard arbor used on color mixers. Each set of disks contains a black, white, blue, yellow, red, green, cool gray No. I, cool gray No. II, orange, red, and violet disk. (129:D15-17)	**8.00**



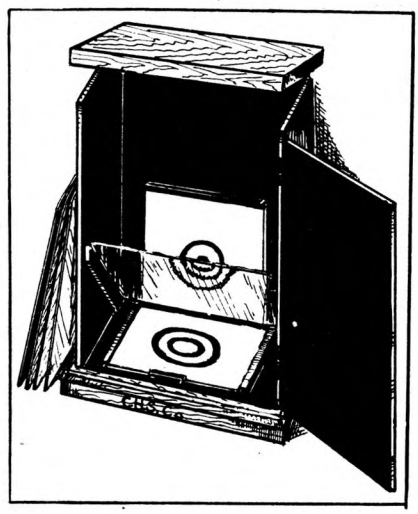
No. 12682.



No. 12804.



No. 12801.



No. 12821.

Number		Price
12681.	**Disk Punch.** For punching 13.5 mm. holes in center of color disks	**$ 3.90**
12682.	**Disk Cutter.** A heavy metal base carrying a cutter at the end of an adjustable graduated arm. This cutter cuts disks from 2 in. to approximately 12 in	**43.00**
12683.	**Spectacles,** for adaptation. A set of 4, glazed with red, yellow, green, and blue glass. (63:157-158)	**6.75**
12684.	**Spectrum Chart,** in black frame. Carefully painted in oil. (51A:X11; 225:1-5)	**15.75**
12685.	**Color Pyramid.** Made to order. (224:59-64). Price on application.	
12686.	**Gelatin Sheets,** Colored, 20x25 cm. Any color. (225:X4). Per sheet	**.65**
12688.	**Pseudoptics,** Muensterberg's.	**16.70**
12690.	**Black Velvet,** 54 in. wide. (129:D15-17; 225:X3). Per yd	**5.75**
12691.	**Paper,** Black, 50x60 cm. (225:X3)	**.10**
12693.	**Paper,** Hering's, Gray. Four sheets each of 2 medium shades	**.70**
12694.	**Paper,** Hering's, Gray; 30 shades, 50x60 cm. Per sheet	**.15**
12697.	**Paper,** Hering's, Gray. Book of 50 shades, 3¾x7 in. (228:72)	**2.00**
12699.	**Paper, Colored,** Munsell's. A series of 100 sheets, 9 x 12 in., in psychologically even steps of hue where the value and chroma have been kept constant throughout. (135A; 135B)	**222.25**
	Above papers per sheet	**2.25**
12699A.	**Color Disks,** Munsell's. A series of 100 of the No. 12699 colors, 4½ in. in diameter	**133.35**
12699B.	**Color Disks,** Munsell's. Similar to No. 12699A, but 2½ in. in diameter	**44.45**
12699G.	**Paper,** Munsell's, Gray. A series of 50 sheets, 9 x 12 in., in psychologically even steps of value. (135A; 135B)	**111.25**
12699J.	**Paper,** Munsell's, Gray. A book of 50 psychologically even steps of value, 3 x 5 in	**27.80**
12699I.	**"A Practical Description of the Munsell Color System,"** by T. M. Cleland	**.60**
12801.	**Episcotister,** Aubert's, 10 cm. diameter. For varying the intensity of the illumination from a source of light. A support carrying a graduated circle with adjustable sectors. The circle may be operated by means of a cord, and the end of the axle is also supplied with a small grooved pulley to permit operation by a small motor. (228:79-80)	**50.00**
12802.	**Episcotister,** Aubert's, 15 cm. diameter	**72.00**
12803.	**Episcotister,** Aubert's, 20 cm. diameter	**75.00**
12804.	**Dropping Test,** Hering's. Used for demonstrating the unreliability of monocular vision in judging distance. The apparatus consists of a rectangular box, in the center of	

Number — Price

which is supported a small white sphere. The top of the box contains a series of holes, both in front and back of the supported sphere, so that similar spheres can be dropped in front or at the back of the supported sphere in the observer's field of vision when he looks through the funnel-shaped tube in the front of the box. (129:D8; 139:X129) ..... $ 24.00

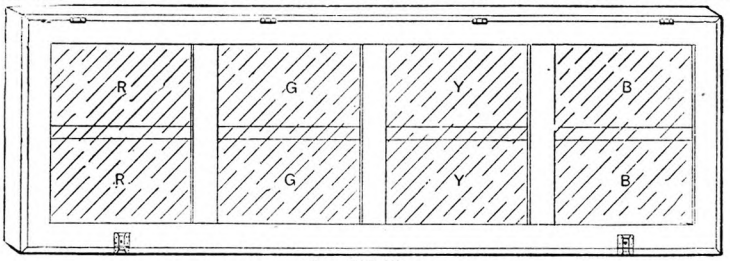
12813. **Dark Box,** Sanford's. With electrical connections for introducing a Geissler tube or lamp. Used for experiments in perception. (187:389-391) 14.00

12815. **Disk,** Masson's. Will fit any of our color mixers. A white cardboard disk with a broken black radial line. (27:142-144; 139:X148; 224:291-293; 225:X25) 1.00

12817. **Disk, Spiral.** Will fit any of our color mixers. A white cardboard disk with a black spiral. For demonstrating apparent movement. (S.P.P.:350; 224:358) 1.00

12819. **Disk,** Bourdon's, with observation screen. For demonstrating illusion of movement. Will fit any of our color mixers. (224:359-360) 4.50

12821. **Contrast Apparatus,** Hering's. For simultaneous contrast. The large wooden case is supplied with a hinged door for admitting light, and a cover. The lower part of the case is supplied with two cleats at an angle of 45° for taking the red, blue, yellow, and green glass plates used for producing contrast. The comparison figures are painted in black on two milk-glass plates. The one with the single black circle and the small central black disk is slid into the rear and the one with the two concentric circles into the bottom. Looking downward from the top through the colored plate, there is seen a small disk surrounded by three concentric circles, the disk and inner circle contrasting with the outer and central circles. (S.P.P.:356-357) 27.50



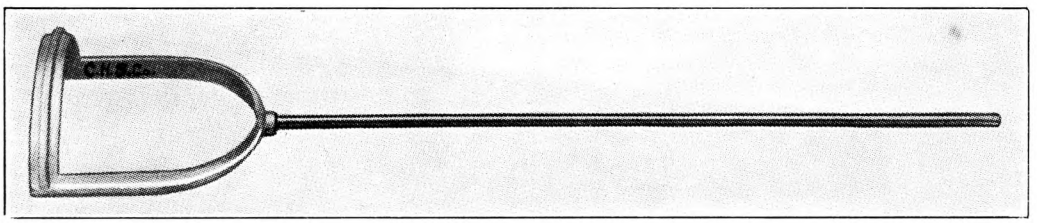
No. 12823.

12823. **Contrast Frame,** Titchener's. Composed of two wooden frames, 221x74 cm., hinged on the long side. The rear of the frame contains four vertical panels of colored paper (Y, R, G, B), divided horizontally by a strip of neutral gray paper. The front part of the frame is faced with four panels of tissue paper which serve to bring color and gray into the same plane, and also to obscure the outline of the gray strip. (29:X5; 51A:X11; 111:X38; 224:76; 227:X15; 228:152-187) 56.00

12825. **Wire, No. 18;** 1 M. each white and gray. (225:X28) ..... .50

12833. **Pins.** Paper of assorted sizes. (225:X3) ..... .25

12835. **Shears,** 8 in. blade. (225:X3) 5.00



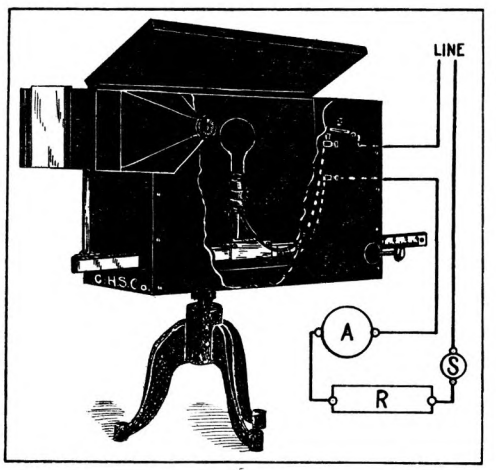
No. 12851.

12851. **Head-Rest,** Aluminum. With steel rod to fit table clamps. (225:4; 267:T17) 5.50

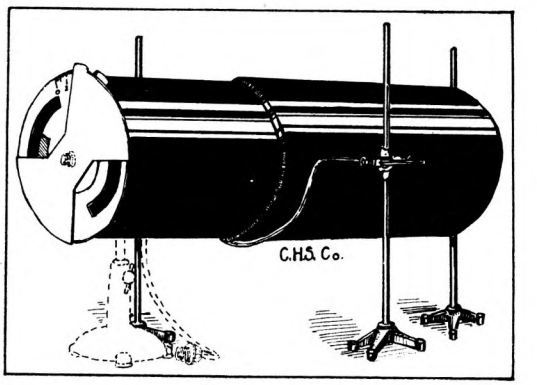
25620. **Clamp, Table.** Will take the No. 12851 head-rest. (29:X5; 111:X38; 267:T17) 4.00

12855. **Disks.** Set of 6: 3 white and 3 black; 114 mm. diameter. For use on color mixer. (227:X19) 1.00

12856. **Photometer, Daylight,** Ferree and Rand. A simple daylight photometer devised to meet the requirements of the undergraduate laboratory. The heavy sheet-metal casing is designed to take a 25- 40- or 60-watt Mazda lamp and allow the adjustment required to bring the centers of the filament in line with the center of the opening of the photometer head. The photometer head is placed at one end of the casing and the other end is made of heavy fiber and fitted with binding posts and a switch. The top of the casing is a tightly-fitted hinged lid which permits convenient and easy entrance to the interior. Projecting through the side of the casing is a milled head which operates the rack and pinion adjustment of the lamp carriage. To this carriage is attached a brass scale, graduated in millimeters, which extends through an opening in the fiber plate forming one end of the case. The photometer head is of the Bunsen type, and carries a screen with a translucent figure, two mirrors at an angle of about



No. 12856.



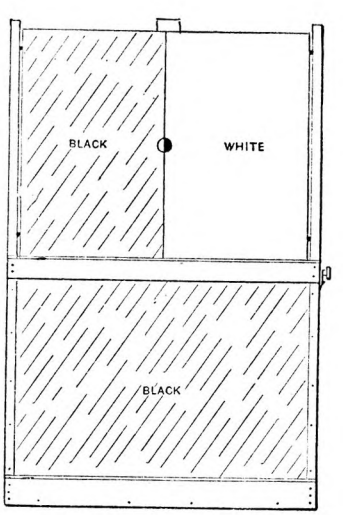
No. 12857.

Number Price

65°, and milk-glass plates on the interior and exterior sides. The milk-glass plates diffuse the light and give a more uniform illumination of the two sides of the screen. In order that the lamp may be operated directly from the line, a rheostat and finely graduated ammeter should be used to keep the supply of current constant. (A.J.O.P. 27, 1916:335-340) **$50.00**

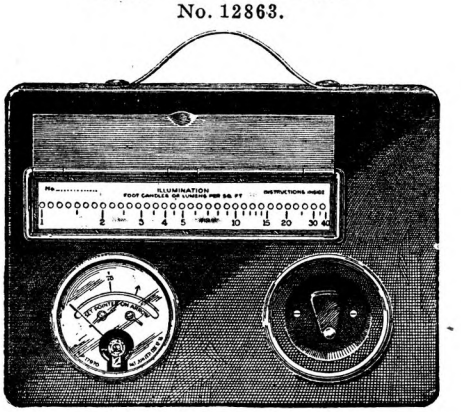
12857. **Photometer,** Kirschmann's. The telescoping dark chamber, made of heavy millboard, is supported by means of a bracket and clamp on three tripod supports and is adjustable for height. The outside tube is closed, and one end of the open inner tube is slotted to permit the introduction of a color mixer. In addition there is supplied a set of 3 cardboard disks for use on a colormixer, as shown in the illustration. (227:X12-13) **32.25**

12859. **Disk,** Delboeuf's. A white cardboard disk with two series of three black sectors projecting in opposite directions across one diameter of the surface, and an attachable black sector for use on the color mixer in connection with the Kirschmann photometer. (103:X3; 187:158; 227:X19) **3.75**



No. 12861.

No. 12863.



No. 12864.

12861. **Adaptation Frame,** Titchener's. Consisting of a wooden frame having a sliding holder for supporting a black and white card. The lower front half of the frame is covered with black cardboard, and the upper half—behind the sliding holder—with a gray card. By means of a release button, the sliding card—holder may be dropped so as to expose the neutral gray screen behind it. (224:71-73) **35.00**

12863. **Disks, Weber's Law.** Set of 4, two of which are shown in the illustration. For use on color mixer. (187:335-336; 224:219; 228:77-78) **6.00**

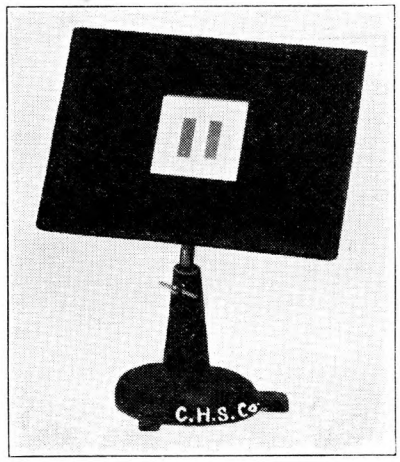
12864. **Photometer.** Constructed on the principle of the Bunsen photometer. For measuring

Number | Price

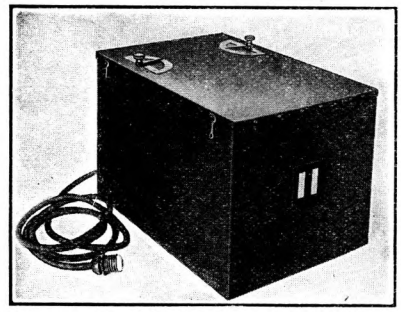
direct in foot-candle power the illumination on any surface or locality. The instrument is self-contained, and is operated by a small battery, controlled by means of a rheostat and voltmeter. For speed and convenience this photometer leaves nothing to be desired. It is mounted in a metal case about 20x25 cm. and supplied with a handle for carrying ..... $ 38.75

12866. **Disks,** Martius'. Set of 2 disks of the same size, one black and one white, on which are mounted rings of the same color. For use on the color mixer. (228:87)..... 3.00

12867. **Disks,** Hering's. Set of 3 disks for demonstrating Weber's law. For use on the color mixer. (228:88-89) 4.50



No. 12871.



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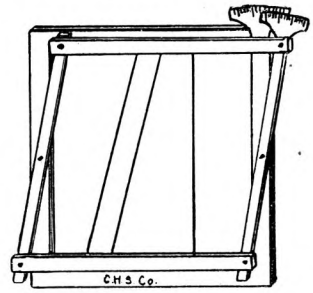


No. 12885.

12871. **Discrimination of Gray Apparatus.** For reflected light. An exposure apparatus for displaying, one at a time, a set of 10 test cards through an 8 cm. sq. opening. The card-holder may be rotated through 180° so that the position of the two gray rectangles on the test card may be changed at will. Complete with set of 10 test cards. (267:T17) 22.50

12873. **Test Cards.** For No. 12871 discrimination of gray apparatus..... 6.50

12875. **Discrimination of Brightness Apparatus.** Consisting of a blackened box with two rectangular openings at the front, covered with translucent paper. A powerful tungsten lamp is used for illuminating the rectangular openings by light reflected from two adjustable plates of milk-glass. Each of the mirrors is provided with an indicator and a protractor so that the plates can be set any desired angle. By rotating the milk-glass plates, the intensity of the illumination of the two windows may be varied and comparison of brightness made by means of transmitted light. (267:T17)..... 56.25

(On account of the risk in shipping lamps, we would suggest that the lamp be bought from a local dealer. The most satisfactory lamp for this piece of apparatus is a 40-watt frosted tungsten lamp.)

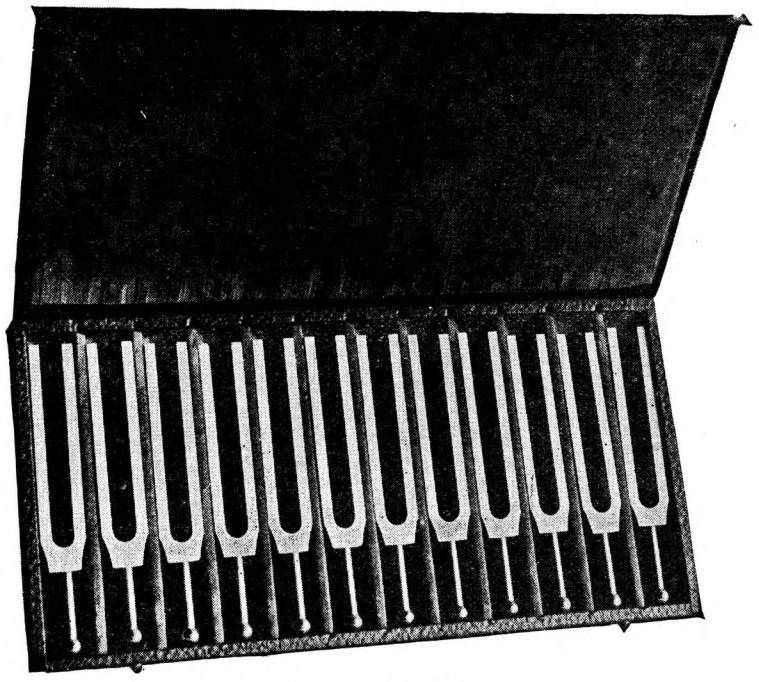
12879. **Tungsten Lamp,** 40-Watt, Frosted. For No. 12875. (Shipped at purchaser's risk).... 1.00

12885. **Isoscope,** Donder's. For the determination of the subjective retinal vertical. (228: 409-410) 27.50

12887. **Mirror Haploscope,** Hering's. Resting on a horizontal metal base are two symmetrical sectors, slightly adjustable to the right and left, each supporting a long arm pivoted at the observer's end and carrying a small adjustable mirror. The two mirrors, when properly adjusted, should form an angle of 45°. Sliding along each of the long arms is a cariage designed to support a frame with a ground glass for designs, reading matter, etc. The angle at which the two arms are placed may be readily read off in degrees on the edge of the sectors. In order to keep the head in position, the apparatus is supplied with a head-rest and a bit-board..... 150.00

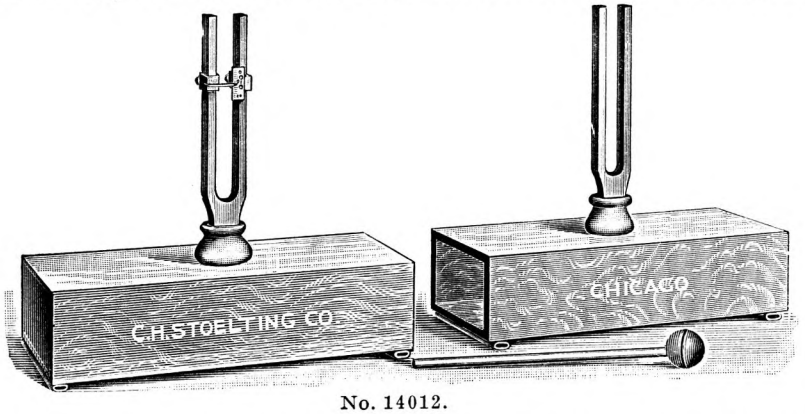
12888. **Supplementary Frames** for No. 12887. These frames, one for each arm, are provided with a set of 3 vertical black hairs. The central hair is fixed permanently in a vertical position, and the two adjacent hairs are attached to screws at the top and bottom, so that the distance of each from the central hair may be varied and inclined to the right or left from the vertical. The lower screws controlling the adjustable hairs are pierced at the end, and after the hairs pass through, weights are attached to keep them taut irrespective of the angle of inclination..... 37.50

Audition



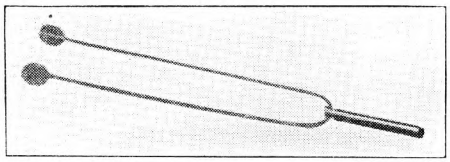
Nos. 14003, 14007.

Number		Price
14003.	**Tuning Forks.** Set of 12 for pitch discrimination. These forks conform to the specifications accepted as the standard by the Standardization Committee of the American Psychological Association and laid down by Prof. C. E. Seashore in his paper entitled "Measurements of Pitch Discrimination." The set comprises 2 standard, a^1 (435 d. v.), and 10 forks with the following series of increments above the standards: .5, 1, 2, 3, 5, 8, 12, 17, 23, and 30 d. v. (165:X38; 198; 265:C1-2)	**$144.00**
14005.	**Tuning Forks.** Set of 12. Like No. 14003 but untuned	**114.50**
14007.	**Case,** Plush-lined. For Nos. 14003 and 14005	**4.50**

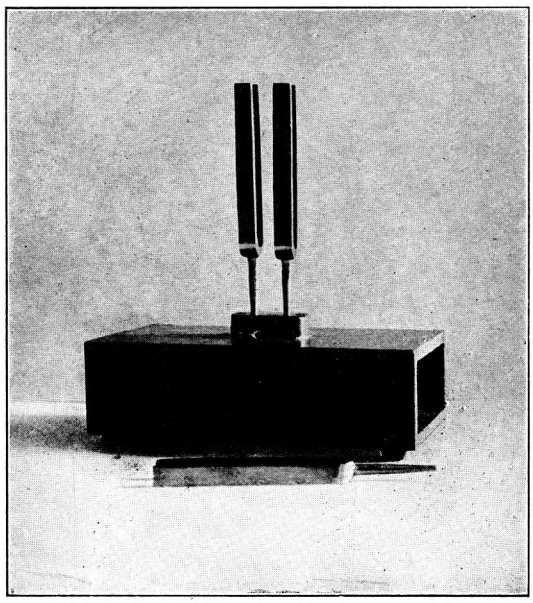


No. 14012.

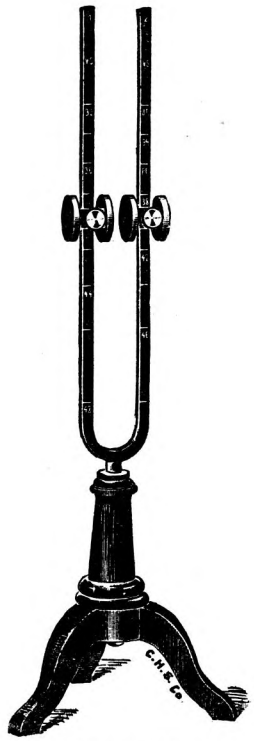
14012.	**Tuning Forks,** Differential. A set of 2 extra loud forks mounted on synchronized resonance cases. One fork is tuned to c, 256 vibrations; the other is graduated and adjustable by means of sliding weights so that it will give vibrations ranging approximately from 230 to 280. Unexcelled for demonstrating beats, sympathetic vibrations, etc. Striking hammer included. (119:X2-11; 227:X14)	**35.00**
14013.	**Tuning Forks,** Weighted Wire. These forks are manufactured in vibrations of even number from 10 to 60 inclusive. They are made of steel wire, accurately adjusted, and have a hollow handle which acts as a resonator. The number of vibrations of each fork is stamped on the weighting disks. When ordering, be sure to specify the number of vibrations. (224:99; 228:14) Each	**9.00**
14017.	**Tuning Forks,** Weighted Wire. Set of 7, comprising the following forks: 12, 20, 28, 36, 44, 52, and 60	**63.00**



No. 14013.



No. 14021.

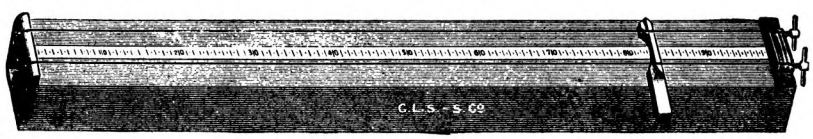


No. 14018.

No. 25335.

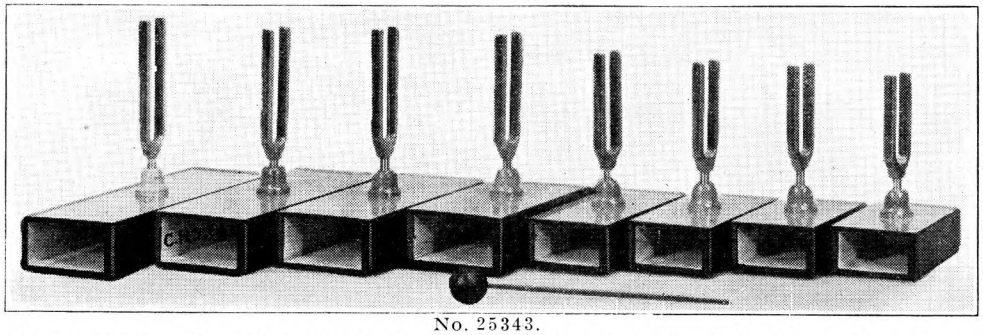
No. 14041.

Number		Price
14018.	**Tuning Fork.** A giant fork with sliding weights giving tones 16 to 25 s. v. A good demonstration fork. (195:134; 228:13-14)	**$150.00**
14019.	**Resonance Case,** for use with No. 14018 giant tuning fork	**25.00**
14020.	**Tuning Forks.** Set of 7: 800, 800.1, 800.2, 800.4, 800.6, 800.8, and 801 vibrations. (224:99)	**105.00**
14021.	**Tuning Forks.** For discrimination of pitch. A set of 11 forks, including case and a specially designed resonance case for supporting two forks. The standard fork has a vibration rate of 435 d. v. The other 10 forks have .5, 1, 2, 3, 5, 8, 12, 17, 23, and 30 vibrations above the standard. These forks are not standard psychological forks like the No. 14003 but have the same intervals. (265:C1-2; 267:T19)	**40.00**
14022.	**Tuning Forks.** Set of 13, giving octave with semitones, c^1—c^2 (258.6 d. v.—517.3 d. v.), international pitch of tempered scale. Each fork is mounted on an accurately synchronized resonance case	**227.50**
14026.	**Tuning Forks,** Standard, Dr. M. Th. Edelmann's. A set of 8 forks ranging from c^1—c^2. Standardized with the greatest degree of accuracy and mounted on perfectly synchronized resonance cases. Recommended for all experiments requiring accurately rated forks of this octave	**150.00**
14029.	**Tuning Forks.** A set of 22 small forks covering three octaves and ranging from 10000 to 50000 vibrations. The forks are actuated by bowing across the tines. (224:99; 228:31-46)	**540.00**
14031.	**Tuning Fork.** Standard c^3 (1024 d. v.)	**3.75**
14039.	**Tuning Fork.** Standard c^4 (2028 d. v.)	**6.00**
14041.	**Tuning Fork.** Blake's c^1 (512 s.v.). For acuity and diagnostic tests by the temporal... or "ringing-off" method. (267:T18)	**2.50**
14042.	**Tuning Fork,** g^1 (384 d. v.), 6½ in. long. On synchronized resonance case. (224:93)	**9.40**
14043.	**Tuning Fork.** Approximately 100 d. v	**2.25**
14044.	**Starter** for No. 14043 fork. This device, when placed over the top of the tines and withdraw, sets the fork to vibrating. (Z.L.E.P.:27)	**.65**



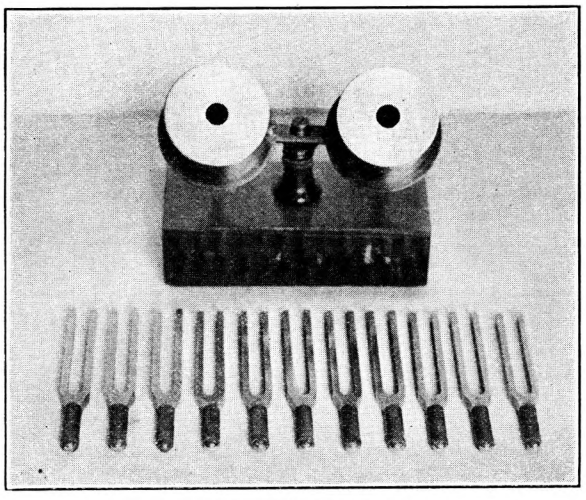
No. 25321.

Number		Price
25321.	**Sonometer,** Differential. Fitted with two tension keys, bridge, wire, and a meter scale graduated in millimeters. (225:X9)	**$ 11.25**
25813.	**Brushes,** Camel's Hair. Three each Nos. 4, 5, 6, and 7. For use with sonometer	**.50**
25335.	**Tuning Fork,** a^1 (435 d. v.). International pitch of tempered scale. (225:X5-6; 226: 61-64)	**.75**
25339.	**Tuning Fork,** c^2 (517.4 d. v.). International pitch of tempered scale. (225:X5-6; 226; 61-64)	**.75**
25341.	**Tuning Fork,** c^1 (256 d. v.). On synchronized resonance case	**6.70**
25342.	**Tuning Fork,** a^1 (426 2/3 d. v.). On synchronized resonance case	**6.70**

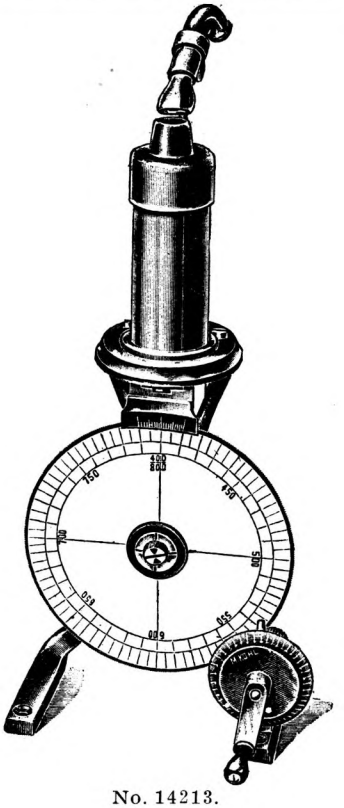


No. 25343.

25343.	**Tuning Forks.** Set of 8 forks, physical scale, ranging from c^1—c^2 (256 d. v.—512 d. v.). Mounted on synchronized resonance cases. (119:X2-12)	**56.00**
25375.	**Xylophone.** A series of wooden bars suspended on cord. One octave, f^1—f^2. (224:96)	**2.50**
14045.	**Lamella,** Appun's. A steel blade graduated to indicate a range of vibrations from 4 to 24 d. v., with a specially constructed metal clamp with fiber jaws for attaching to the table. (227:X1; 228:1-13)	**20.00**
14053.	**Differential Tube.** Soft rubber tube 100 cm. long, 4 mm. internal diameter, fitted at the ends with hard rubber tips. (267:T18)	**1.25**
14055.	**Rubber Stoppers** for ear plugs. Ten each of Nos. 00, 0, and 1. (267:T18)	**1.25**
14057.	**Ear Protectors,** Elliott's. Designed to prevent shock from gun-fire or loud noise. They make excellent ear plugs for psychological work. Per pair, in aluminum pocket case. (267:T18)	**1.25**
14059.	**Screen,** with hole for ear. (P.M. Dec. 1914)	**1.00**
14071.	**Hammer,** Felt, for striking forks. A piano hammer on a flexible handle. (225:X5-6)	**1.00**
14073.	**Hammer,** Rubber, for striking forks. A heavy rubber ball mounted on a flexible handle	**1.00**
14075.	**Sounder.** A rubber-covered rod mounted horizontally on an iron support. (165:X38; 198)	**7.50**
14076.	**Felt,** Harness, 8 in. sq., ½ in. thick. For placing on table when striking fork. (129:D19)	**1.00**
14080.	**Tuning Fork.** 250 d. v. On synchronized resonance case. (129:D19)	**10.00**
14081.	**Tuning Forks.** A set of 2, one of 525 d. v. and one of 600 d. v., each mounted on a synchronized resonance case. (129:D19)	**20.00**
14082.	**Tuning Fork** with adjustable weight, giving a range of 55 to 95 vibrations. (129:D19)	**5.00**
14103.	**Resonator,** Adjustable, Koenig type, mi_3—la_3 (e_3=1280 d. v.—a_3=1706 2/3 d. v.) (165:X38; 198)	**25.00**
14105.	**Resonators,** Universal, Koenig's. A set of 14 adjustable resonators with a range from g_{-1} (96 d. v.)—e_3 (1280 d. v.) Each resonator is graduated and marked. (226:77-78)	**297.25**
14107.	**Resonators,** Adjustable. A set of 2 resonators similar to No. 14105, with a range of .5—30 d. v., mounted on a base. To be used in connection with the strandard pitch discrimination forks No. 1403. (200:42-50)	**84.50**
14203.	**Glass Bottle** with mouth-piece. The pitch of the bottle tone may be raised or lowered by pouring in or letting out water. (224:93-94)	**12.50**
14205.	**Variator,** Stern's. For securing a steady even tone of the middle region of the musical scale. The range of the variators is limited and under the circumstances a series of extended experiments may require a number of variators. We list those usually required in the Psychological Laboratory. No. 1, 100—165 vibration range (103:X7; 139:X30; 224:100-103; 228:139-140)	**188.25**
14207.	**Variator,** Stern's. No. 2, 150—300 vibration range	**173.50**
14209.	**Variator,** Stern's. No. 3, 200—400 vibration range	**168.50**
14211.	**Variator,** Stern's. No. 4, 300—600 vibration range	**128.75**
14213.	**Variator,** Stern's. No. 5, 400—800 vibration range	**119.00**
14215.	**Variator,** Stern's. No. 6, 500—1000 vibration range	**114.00**
14217.	**Variator,** Stern's. No. 7, 600—1200 vibration range	**90.75**
14221.	**Piston-Whistle,** Metal, Bezold's. Graduated in semitones from c^3—c^5. (225:X8; 226:75)	**21.50**
14223.	**Tone-Tester, Gilbert's; for pitch discrimination.** An adjustable pitch-pipe mounted on a handle, with a support carrying a graduated arc. The pitch-pipe has a range in semitones from f^1—f^2. The piston scale carries a long indicator which registers fractional tones on the graduated arc. (194:317-319; 195:141-143)	**18.00**



Nos. 14107, 14003.



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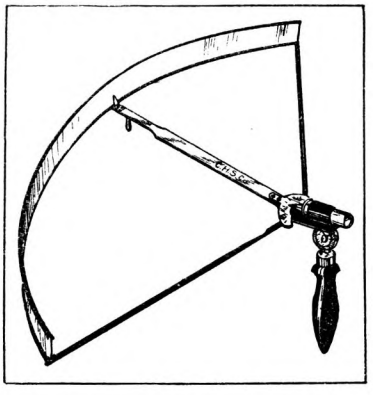
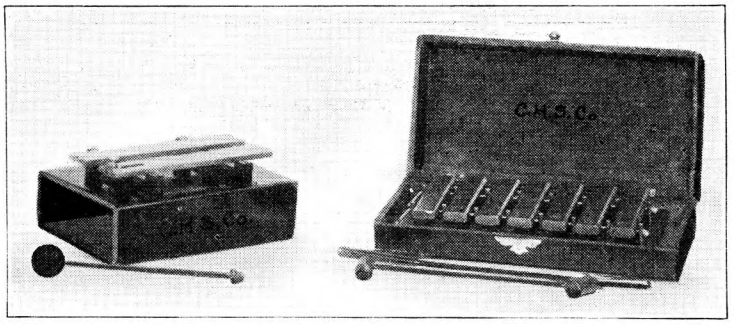


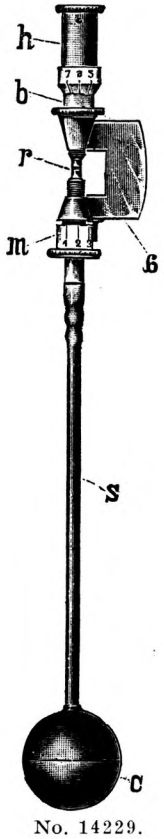
No. 14223.

No. 14225.

Number		Price
14225.	**Whistle,** Galton's. This is the simple form usually used for qualitative work in both the laboratory and the clinic. The whistle is graduated, and the length of the vibrating air column measurable in tenths of a millimeter. (55:23; 57:17; 195:135; 227:X3)....	**$ 15.75**
14229.	**Whistle,** Galton's; Edelmann's improved form. This is the type used for quantitative work. A booklet giving much useful information and valuable data accompanies each whistle. (27:67; 103:X7; 194:321-324; 224:99-107; 227:X3; 228:31-46).....	**40.00**
14241.	**Harmonicas.** A set of 5: c, d, e, f, and a. Ten holes each. (225:X30).....	**4.00**
14243.	**Harmonium,** Portable. The Ellis harmonical is no longer obtainable, and under the circumstances we have induced an American organ manufacturer to produce a similar instrument, which is carried in stock and can be properly tuned in the course of a few days. This instrument is possessed of unusual volume, together with the most perfect pipe tone quality that it is possible to obtain from reeds. The bellows are extra large. The action is simple and of durable construction and not at all liable to get out of order. The key board is four octaves long and the instrument has a length of 30 in., a height of 38 in., and a depth of 11 in. Key note: a^1 440 d. v. Net weight: 35 lbs.; boxed for transportation: 70 lbs. (165:X45; 225:X7-8; 226:79-80).	**75.00**
14244.	**Tunable Bars,** Youngs. The bars are supported on strings so that the only direct contact with a resonating body is through the strings. Since the vibratory motion at the points of support is zero, no energy is lost at the supports, and the resonance error is eliminated. The load on the adjustable bar can be moved along a graduated slot extending from the node to the end of the bar. The series of increments represented by the lines on the bar conform to the recommendations of the Standardization Committee of the American Psychological Association and are as follows: .5, 1, 2, 3, 5, 8, 12, 17, 23, and 30 d. v. above the standard. The other bar is tuned to the standard a^1 435 d.v. (P.B. Sept. 1918:293).....	**40.00**
14246.	**Difference-Tone Bars,** Young's. This set of 7 bars, like the tunable bars, is supported on strings. Without a doubt the best piece of apparatus available for the demonstration of difference-tone. The bars are actuated by two hardwood hammers. The seven bars are tuned as follows: 2600, 2700, 2800, 2900, 3000, 3100, and 3200 d.v. (A.J.o.P. July 1922).....	**40.00**



No. 14244. No. 14246.



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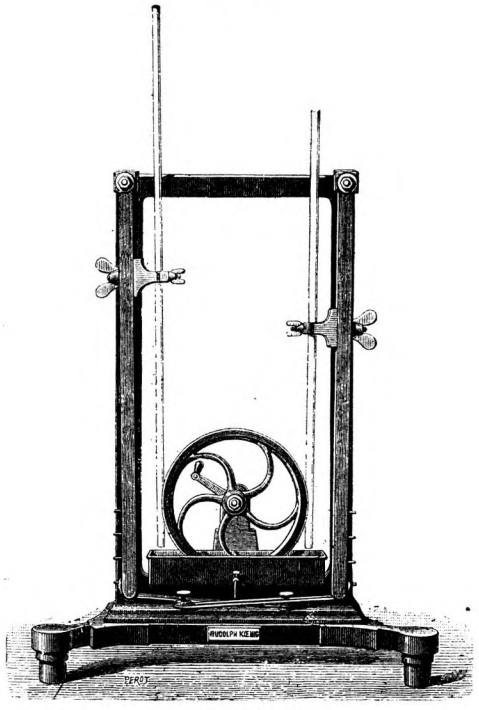

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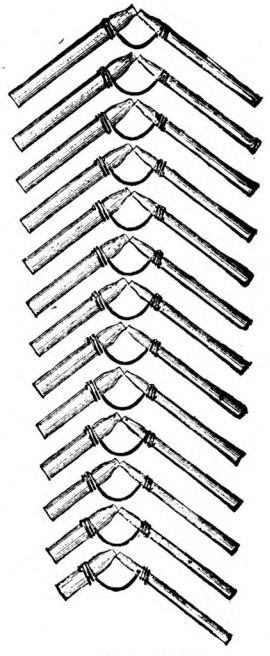
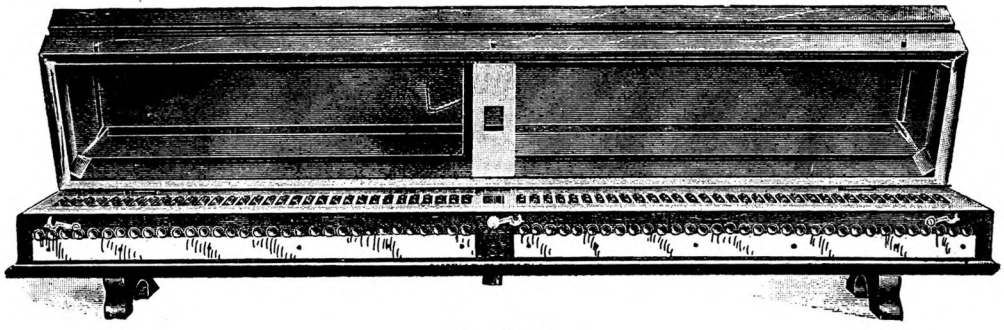


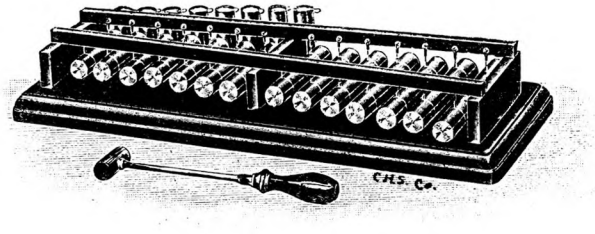
No. 14249.

Number		Price
14247.	**Difference-Tone Apparatus,** Koenig's. Substantially built, the support being of iron in order to provide a firm foundation for the glass tubes and the cloth-covered wheel. The support is supplied with adjustable clamps for bringing the outside of the glass tubes in proper contact with the wheel. Underneath the wheel is a watertank in which the bottom of the wheel is immersed. (224:108)	**$150.00**
14249.	**Tubes,** Quincke's. A set of 13 tubes, with a range from g^3—g^4, giving an octave of tones and semitones. Used to demonstrate difference-tones, interference of sound, the difference in pitch between open and closed pipes, the effect of overblowing, beats, and for performing experiments in clang-tint. Cork stoppers are supplied for turning the tubes into closed tubes. (103:X7; 224:107; 225:X7-8; 226:66-75)	**8.40**
14251.	**Tonometer,** Appun's. A series of 33 reeds, mounted in a case, and blown by a bellows. The reeds vary by steps of 4 s.v. between the limits of c_2 (128 d.v.) and c^1 (256 d.v.). Each reed can be sounded or silenced by means of a stop. The stops are located on the front of the apparatus. (139:X20; 224:99; 228:91)	**178.50**
14253.	**Tonometer,** Appun's. Similar to No. 14251, but with 65 reeds varying by steps of 2 s.v. between the limits of c_2 (128 d.v.) and c^1 (256 d.v.)	**346.75**
14255.	**Tonometer,** Appun's. Similar to No. 14251, but with 65 reeds varying by steps of 4 s.v. between the limits of c^1 (256 d.v.) and c^2 (512 d.v.)	**346.75**
14257.	**Tonometer,** Appun's. Similar to No. 14251, but with 129 reeds varying by steps of 2 s.v. between the limits of c^1 (256 d.v.) and c^2 (512 d.v.)	**693.50**



No. 14255.

Number		Price
14259.	**Tonometer,** Appun's. Similar to No. 14251, but with 129 reeds varying by steps of 4 s.v. between the limits of c^2 (512 d.v.) and c^3 (1024 d.v.)	**$693.50**
14261.	**Gasometer,** Whipple's. Complete with blowing table. Supplied with vents for taking tone variators, Galton's whistles, Quincke's tubes, etc. An excellent device for supplying constant pressure. (228:140-141)	**238.00**



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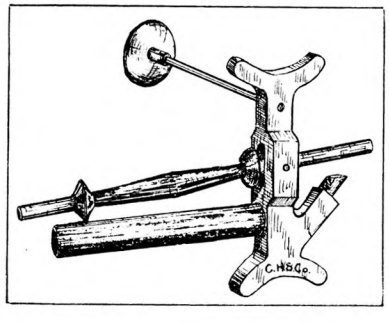

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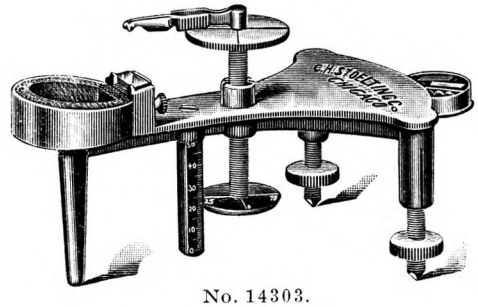


No. 14303.

14269. **Tuned Cylinders,** Koenig's. A series of 22 cylinders, suspended on a base ranging from c^5 (4096 d.v.)—c^8 (32768 d.v.). A steel hammer accompanies the apparatus. (228:31-46). **114.00**

14301. **Acoumeter,** Politzer's. An inexpensive instrument for producing a constant sound. It is held between the thumb and second finger, and the metal hammer is dropped from a fixed height by means of the forefinger. Each instrument is supplied with a small disk attached to a cylinder rod, which is used for bone-conduction and other diagnostic tests. (27:76; 139:X112; 228:56-59; 267:T18) **6.25**

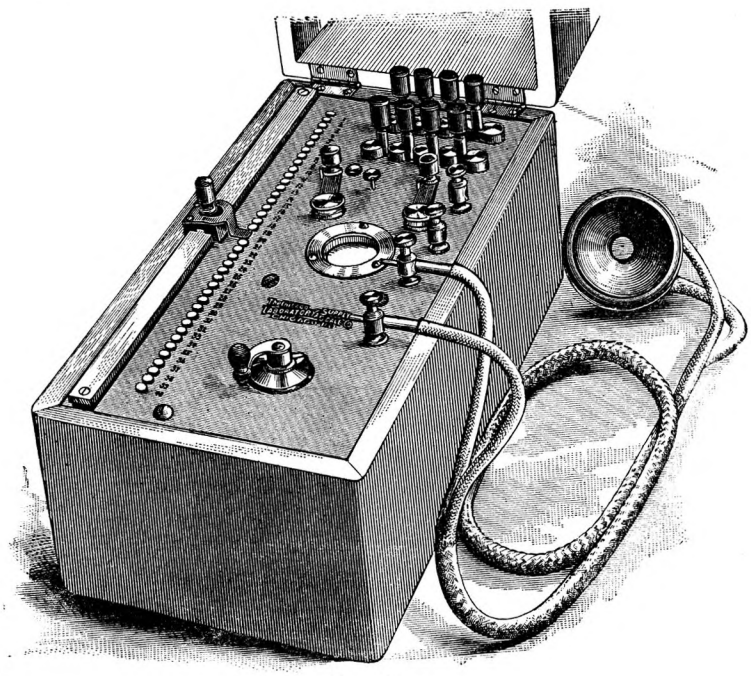
14303. **Acoumeter,** Lehmann's; modified by Titchener. The height of the forcep that drops the shot is adjustable from 0 to 50 mm., and as the head of the millimeter screw is divided into quarters, the millimeter scale below the platform may be read in quarter-millimeter divisions. The platform is provided with a padded trough at one end, and a swinging tray at the other for holding the shot, etc. Glass, copper, and cardboard strips are provided for attachment to the inclined surface above the padded trough. (111:X32; 224:213; 227:X8; 228:56-57; 267:T18) **37.50**

14305. **Audiometer,** Seashore's. Designed primarily to meet the requirements of the psychologist. As a means of testing the auditory acuity of school children, and meeting the requirements of the Psychological Laboratory and the office requirements of the aurist,

Number Price

it stands without an equal. It has stood the test of time and is comparatively inexpensive. With the advent of this audiometer, unscientific reports in terms of "my watch" or "my voice" became obsolete. Such records are not comparable.

The essential and unique feature of this apparatus consists in the method of varying and measuring the relative psychological intensity of the sound. This is accomplished by applying the principle that a certain given relation between the primary and the secondary coil induces currents that vary directly with the number of turns of wire in the secondary.



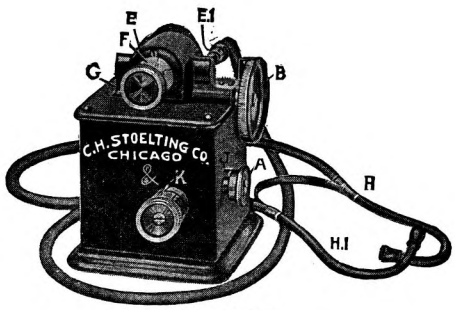
No. 14305.

The complete apparatus consists of an induction coil, battery, galvanometer, resistance coil, switches, and a telephone receiver, all but the receiver being built into one compact, portable case. The scale is divided into forty steps, and the change from one step to another is made by the simple act of moving up or down the sliding contact shown on the left of the instrument. Use of the instrument is simple and rapid.

For certain tests by aurists, and experiments in the Psychological Laboratory, it is occasionally desirable to have a tone instead of a click for a stimulus. For this purpose, provision has been made for attaching an electrically maintained tuning fork. The tuning fork interrupts the primary circuit of the audiometer and thus produces the tone of the fork in the receiver. The tone may be varied and measured in the same way as the regular click stimulus. (U.o.I.S.i.P. 2, 158, 1899; 199:47-101; 228:59-61; 267:T18) **$195.00**

14307. **Audiometer,** McCallie's. The action of this instrument is based upon the fact that constant sounds of a low intensity can be confined in a box, and that when an opening is made in the box, the intensity of the issuing sound increases with the increase in the size of the opening. The sound is produced by a metal hammer falling upon a small bell. As it falls from a definite height, the sound produced is always of the same intensity. The V-shaped aperture emitting the sound is controlled by a disk, graduated into 100 equal parts. When the indicator points to 0, the aperture is entirely open; whereas when it points to 100, it is very nearly closed. Detailed instructions for use accompany each instrument. (267:T18)..... **85.00**

14321. **Sound Cage** or Perimeter, Titchener's; improved model. A substantial and carefully constructed instrument of precision, for studying localization of sound. The heavy tripod stool supports a casting with an adjustable seat, a fixed arm, and a carefully counterpoised rotating arm. The fixed arm carries a semicircle graduated every five degrees, and a hollow standard supplied with a vertically adjustable extension carrying an adjustable head-grip. The hollow standard is also supplied with an adjustable back-rest. The rotating arm revolves horizontally on ball bearings, and carries an indicator which registers on the graduated semicircle of the fixed arm. The hollow support carried by this arm is also provided with a vertically adjustable extension, but to this one is attached a protractor and swiveled curved tube, terminating in a telephone receiver of the watchcase type. This rotating arm, with the aid of the swiveled section carrying the receiver, makes it possible to place the receiver at any point in a



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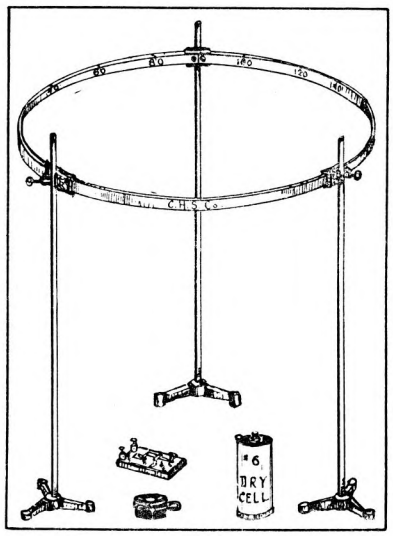
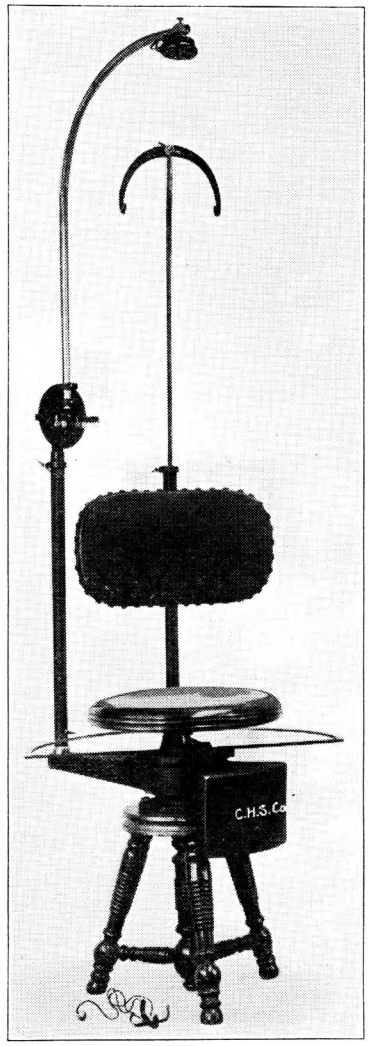
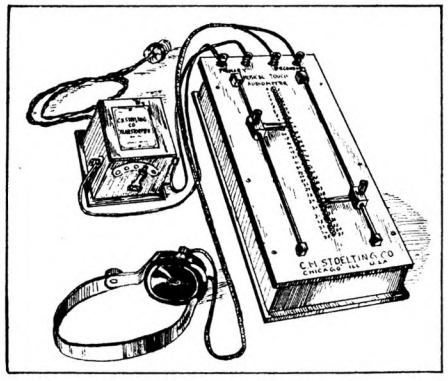


No. 14333.



No. 14321.

Number		Price
	hemisphere whose radii center at the mid-point of the imaginary line joining the subject's ears. Electrical connections from the receiver run down the inside of the tube and terminate in two binding posts at the rear of the protractor. This protractor is graduated in degrees, right and left from the vertical to 90° each way. Attached to the back of the protractor, in addition to the binding posts, is a support designed to hold a meter stick for accurate alignment of the subject's ears.	
	This apparatus is in use in a large number of educational institutions in the United States and foreign countries. (27:130-133; 99:283-284; 111:X73; 225:X32).....	**$272.00**
14325.	**Records Blanks** for No. 14321 sound cage. Per 50.....	**.80**
14333.	**Sound Cage** or Perimeter, Langfeld and Allport. Consisting of a heavy metallic circle of large diameter, constructed in three sections and supported at the proper height by three tripod supports. The metal circle is divided on the inside into steps of 20°, beginning with zero and proceeding to 180° on both right and left sides. The circle is adjusted to the level of the subject's ears, and the experimenter then holds the telephone receiver at the various degrees of the circle on both the right and left side in irregular order. Complete with telephone receiver, battery, and key (119:X12-34, 12-35)	**45.00**
14349.	**Telegraph Snapper.** (226:359; 267:T18-20).....	**.20**
14351.	**Rod.** Light wood, 50 cm. long. (225:X32).....	**.20**
14353.	**Support** with adjustable clamp. For holding No. 25117 meter stick. (165:X40).....	**4.50**
14355.	**Audiometer, Musical Touch,** Seashore and Wickham. A modification of the Seashore audiometer, devised to establish a standard test for musical touch. Interpretation and	



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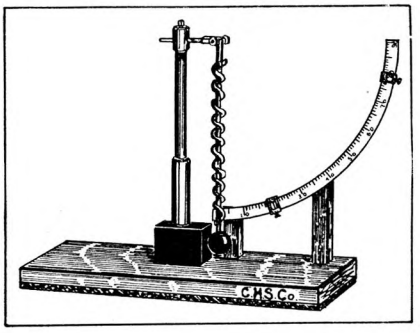
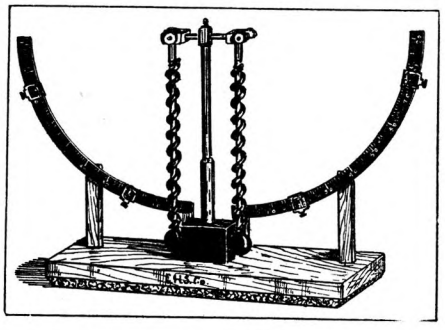
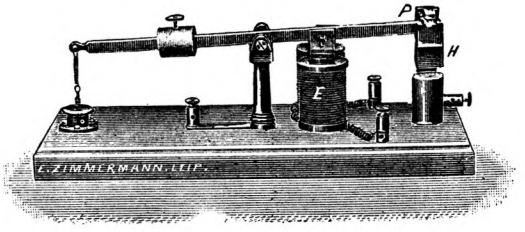


No. 14403.

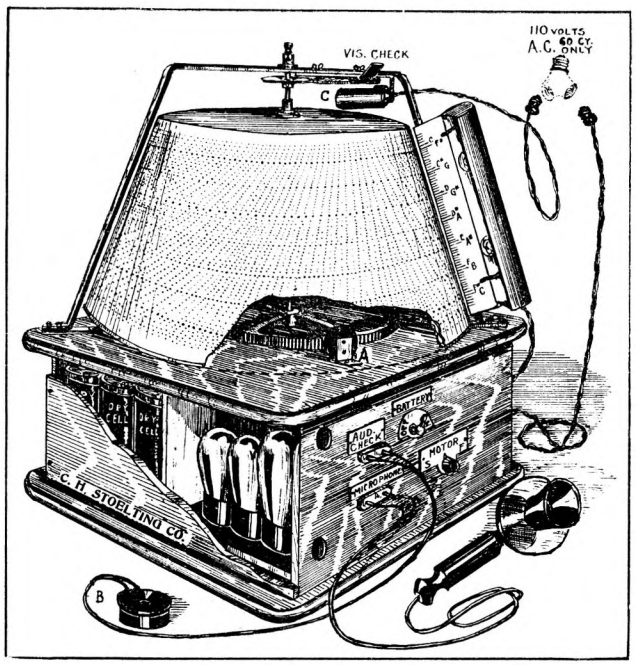


No. 14405.

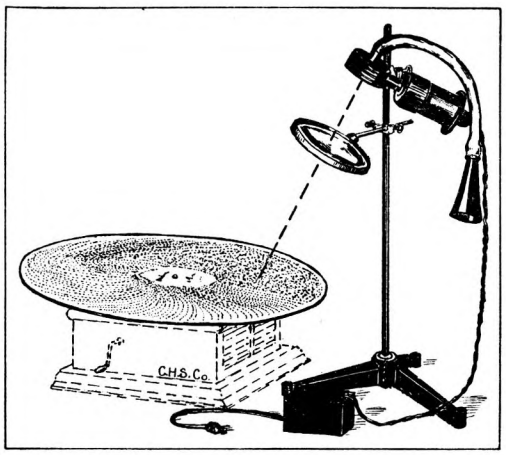


No. 14409.

Number		Price
	expression depend a great deal upon difference in intensity of sound, and so the degree of voluntary control of this intensity may be regarded as a measure of musical touch. The apparatus produces in a series of 35 psychological steps sounds varying in intensity from inaudibility to disagreeably loud for the normal ear. The sound producing mechanism is in duplicate, with a sliding contact for each so that the observer may duplicate the intensity produced by the setting of the experimenter's contact. The audiometer is supplied with a transformer for the 110V. A.C. lighting circuit and a telephone receiver for the subject. The electrically maintained tuning fork is not required for this model. (U.o.I.S.i.P. 140, 1922:207, 260-267)	**$75.00**
14403.	**Sound Pendulum,** Volkmann's. The pendulum rod, suspended from a steel pillar, terminates in a hard rubber ball which when the pendulum falls, strikes upon a block of ebony. The graduated arc attached to the base of the instrument shows the angle through which the pendulum falls. The arc is supplied with three adjustable releases. This pendulum produces a sharp clear-cut sound without resonance. (227:X17-18; 228:194-198)	**60.00**
14405.	**Sound Pendulum,** Double, Fechner's. The construction of this pendulum is similar to No. 14403, with the exception that it is provided with two pendulums and two arcs. This type is usually used for purposes of comparison. It enables the experimenter to produce a sound of equal or different intensity immediately after the fall of the first pendulum. (15:X41; 103:X10; 187:373-377)	**89.00**
14409.	**Sound Hammer,** Wundt's. An instrument frequently used with the Hipp chronoscope as a "make" stimulator in auditory reaction work. The apparatus consists of a heavy metallic hammer, which is drawn down on a metal anvil by means of an electromagnet. A sliding weight on the hammer arm permits adjusting the sound over a wide range of intensity. When the electromagnetic circuit is closed, the head of the hammer descends on the anvil and makes a sharp metallic sound the instant the circuit is closed. (103:X15; 227:154; 228:56-57)	**83.50**
14413.	**Sound Stimulator,** Hipp's. A base with a contact platform and an upright, carrying an adjustable spring forcep for releasing a ball. The instrument may be used as a "make" of "break" stimulator. The intensity of the stimulus may be varied by raising or lowering the spring forcep which releases the ball. (227:153-154)	**126.50**
14414.	**Sound Stimulator,** Hipp's; improved form. Somewhat similar in construction to the No. 14413, but supplied with an electromagnetic release for the ball. The release is so constructed that it can also be operated by hand. (228:344)	**135.25**



No. 14605.



No. 14607.

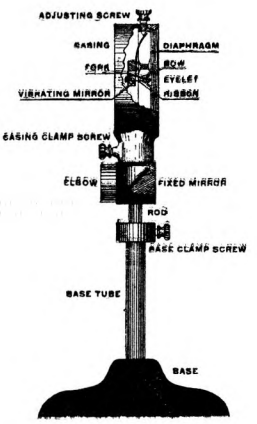
Number Price

14605. **Tonoscope,** Seashore's. The first reliable apparatus for visualizing and measuring directly the pitch of a tone as sung, spoken, or produced on a musical instrument was constructed by Dr. C. E. Seashore, of the State University of Iowa, for the study of the psychology of music. The principle, as is well known, is that of stroboscopic vision—the principle of moving pictures. The instrument converts the auditory vibrations of the air caused by the voice or musical instrument directly and instantaneously into visual configurations on a rotating dotted conical screen, so that the vibration frequency denoting the pitch of a tone can be seen and read in plain figures on a scale along side of the screen.

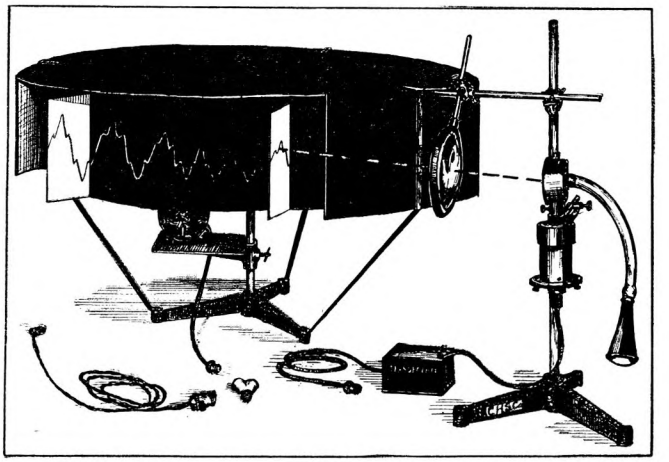
The present model was originally designed as a simplification for use on a table phonograph with the motor as a rotator. However, it was gradually modified and improved to meet the requirements of those who wanted something cheaper than the original, but who at the same time refused to be satisfied with a performance short of that given by the large instrument. Under the spur of this demand, a synchronous or constant-speed motor with visual and auditory checks was finally evolved for rotating the screen, and a sensitive Neon electrical illuminating arrangement with amplifier for rendering the vibrations visible. The screen with support can also be furnished separately for use on the table type of graphophone with acetylene gas illumination. (See No. 14605B.)

The tonoscope here described and shown in the illustration consists of a base in which is enclosed the synchronous electric motor for the 110V. A. C., the control for the electrical illuminating arrangement, and a bracket attached to the top for supporting the dotted conical screen and speed checks. When the dotted screen is set in motion, the observer sees what appears to be a horizontal series of lines, but as soon as one sings or speaks into the receiver, or produces a sound in a musical instrument, one of the lines dissolves itself into a series of apparently stationary dots. These dots, when motionless or nearly so, while adjacent rows continue to appear as lines, or in some instances even seem to rotate in the opposite direction, are the equivalent of the vibration rate of the sound produced in the receiver.

This tonoscope, like the original, has a range of one octave. The scale is divided into two vertical parallel sections, one beginning at the top with c and ending at the bottom with f#; the other beginning with c at the bottom and ending at the top with f#. The former reading downward includes c, c#, d, d#, e, f, and f#. The latter reading upward includes c, b, a#, a, g#, g, and f#. Each interval is divided into ten divisions with a corresponding row of dots on the screen. The separation of each row of dots and scale graduations is about 3 mm. (⅛ in.) and hence an interval difference of 1/10 is readily discernable. The division of the scale into two parts makes it possible to produce the desired "framing-effect" so necessary for easy reading where small units like 1/10 of an interval are under observation. This "framing-effect," the apparently motionless state of the line of dots corresponding to the tone produced in the receiver, is enhanced when the adjacent lines differ greatly in the vibration rates which they visualize. This arrangement also makes possible a marked reduction in the size of the conical screen.



No. 14612.



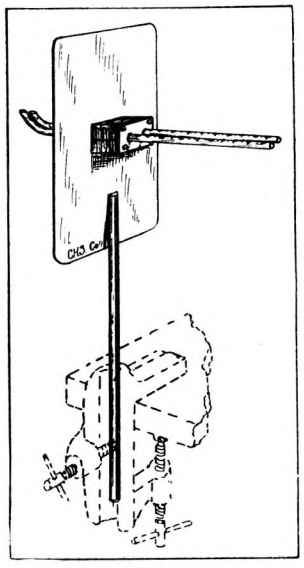
No. 14618.

Number		Price
	Complete as shown in the illustration, for connecting to the 110V. A. C. lighting socket, with the addition of a phonograph turn table and needle holder attachable to the top of the tonoscope in order to provide ready means for using the Seashore musical records. (U.o.I.S.I.P. June 15, 1928:16-17)	$300.00
14605B.	**Tonoscope Attachment,** Seashore's. For use on a table graphophone. This comprises the bracket with spindle, dotted conical screen and scale shown on top of the base of No. 14605. The visual and auditory checking devices "C" and "A," and the Neon lamp illumination, are not included. The bracket carrying the screen can be readily attached to the top of a table graphophone by means of four screws. For a sensitive lighting arrangement, we would recommend the No. 17165 manometric flame apparatus in connection with the No. 17167 acetylene tank, No. 17168 double screw-tap and the No. 17169 rubber tubing; and as a receiver, the No. 17154 celluloid mouthpiece and No. 17155 pneumatic cushion with No. 17153 rubber tubing. For details of these items, refer to pages 45 and 46. Bracket with spindle, screen, and scale as illustrated and described	85.00
14607.	**Stroboscopic Disk,** Gray's. Devised for the precise objective study of vocal tones as used in speech. The apparatus as shown in the illustration on page 38 consists essentially of a stroboscopic disk or screen, with 65 concentric circles of dots rotated by a synchronous or constant-speed motor, and a Dorsey phonelescope for producing the oscillating beam of light required to produce the proper stroboscopic effect for visualizing the difference in pitch. Similar in principle to the Seashore tonoscopes and the Scripture strobilion. The stationary row of dots indicates the pitch of the tone spoken, sung, or played into the receiver of the phonelescope. The range of the scale is c_1 (128 d.v.)—c^1 (256 d.v.). The apparatus is designed for use on the 110V. A. C. and includes disk, motor, and the "point" light source with supports. (Q.J.o.S.E. June, 1927:236-243)	225.00
14612.	**Phonelescope,** Dorsey's. Designed by Dr. Hubert Grove Dorsey for showing the phenomenon of wave motion, and used in the Psychological Laboratory in connection with apparatus of the stroboscopic type for visualizing the sound of the voice or musical instruments. With this apparatus the vibrations are transmitted by means of a bow and ribbon, as in a bow-drill, to a small mirror attached to a spindle set in jewelled bearings similar to those used for the balance wheel of a good watch. A very ingenious method has been devised for quickly adjusting the vibrating mirror about the three principal axes without changing the position of the source of light. The elbow contains 45 deg. mirror in a fixed position for throwing the light upward to the vibrating mirror. The mounting may be turned on a vertical axis on the elbow, and the fork carrying the bearings is so mounted that the vibrating mirror may be turned about the two horizontal axes by means of the screw on the top of the apparatus. In its simplest terms the instrument is an optical lever—the arm being one-half the diameter of the spindle and the long arm the distance from the vibrating mirror to the screen. Since the reflected angle is twice that of the mirror, the magnification of the motion of the diaphragm, with the screen 1 M. distant, is 200 divided by about .025, or about 8,000. If the screen is 2 M. distant, the magnification is 16,000, etc. The arc lamp of a projection lantern or similar "point" source is the most convenient source of light. Sunlight is, of course, excellent if available. Concentrated-filament lamps are suitable for slow work, but do not answer very well for wave demonstrations	50.00
14618.	**Phono-Projectoscope,** Metfessel and Tiffin's. Composed of a horizontally rotating drum, carrying a series of white screens projecting from the drum at an angle of approximately 30°, with radius at the point of attachment; a driving motor suitable for either the 110V. A.C. or D.C.; a heavy support for both drum and motor; and a support carrying a modified No. 14613 phonelescope and condensing lens. The phonelescope is fitted with a flexible receiving tube and an adjustable incandescent lamp in series with a	

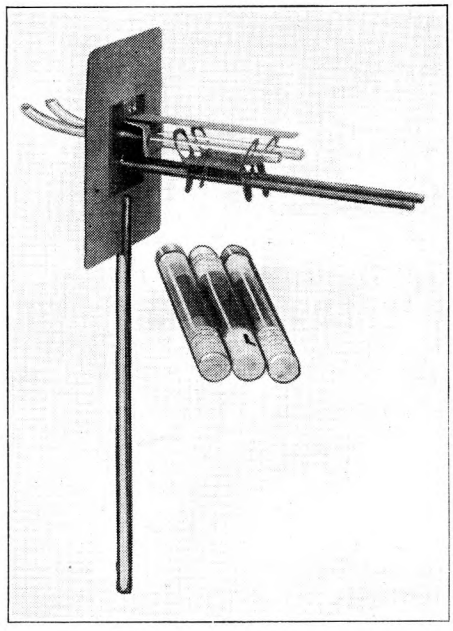
Number Price

transformer for the 110V. A.C. The condensing lens is adjustable so that the vibrations transmitted by the phonelescope can be easily and accurately focused on the rotating screens. This apparatus has two advantages over the Koenig method: first, the axis of the wave is not changed by an incorrectly placed mirror; secondly, there is no loss of light from secondary reflections. The apparatus is easy to operate and projects sound waves from voice or other source so clearly that they are easily seen by an entire class in broad daylight. (U.o.I.S.i.P. June 15, 1928:17; A.J.o.P. Jan. 1929:118a, 122) **$150.00**

OLFACTION



No. 15005.



Nos. 15006, 15103—5.

15005. **Olfactometer,** Double, Zwaardemaker's. Made of aluminum, with metal rod so that it can be clamped to the edge of the table by means of a table clamp. The older types were provided with a handle so that the instrument could be held by the subject. This is rather inconvenient and objectionable for a number of readily apparent reasons. The nasal tubes are of heavy glass, smoothly finished and project sufficiently far to the rear to cover the entire inside surface of the olfactometer tubes. Both of the tubes are graduated in millimeters. (187:49-51, 371-373; 224:121-128; 225:X19; 255:98-103).... **9.40**

15006. **Olfactometer,** Double, Zwaardemaker's; improved form. Somewhat similar to the No. 15005 in appearance, but provided with a metal scale to eliminate the graduated glass nasal tubes, and two olfactometer tube carriers which operate on rods firmly attached to the screen. The nasal tubes are similar to those used in the No. 15005, but ungraduated, so cost less to replace..... **33.00**

25620. **Table Clamp.** Recommended for supporting olfactometers Nos. 15005 and 15006..... **4.00**

15009. **Olfactometer Tubes,** Nasal, Graduated. For No. 15005 olfactometer. Each..... **1.00**

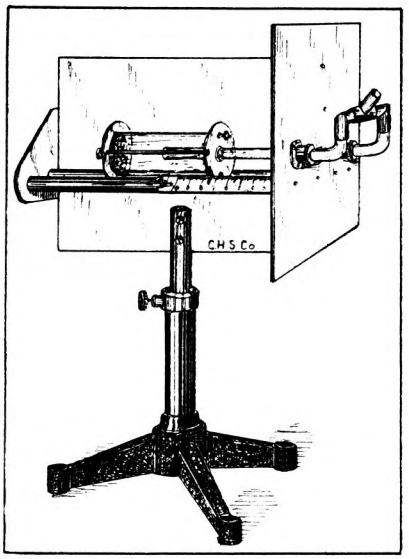
15010. **Olfactometer Tubes,** Nasal, Plain. For No. 15006 olfactometer. Each..... **.80**

15013. **Olfactometer,** Zwaardemaker's. Devised for using liquids. This olfactometer is made of metal, with the exception of the glass reservoirs and the nasal tubes. It is mounted on a heavy iron base and is adjustable for height. The cylindrical glass reservoirs are fitted at the two ends with cork-lined metal plates, firmly held together by means of rods and thumb-screws. Both of the reservoirs are provided with screw-plugs. The scales on the outside bed-rods, along the reservoir slide, are graduated in millimeters from 0—10 cm. Each reservoir is supplied with an indicator that can be clamped to the end plates. An adjustable "T" tube with a glass nasal tube is provided for combining the scents of the two reservoirs. (99:243-244; 224:121; 226:142)..... **97.75**

15103. **Olfactometer Cylinder,** Cedar-wood. This cylinder, like the entire series, is very carefully made so that it fits tightly the standard nasal tubes of the Nos. 15005 and 15006 solid substance olfactometers. Each substance is enclosed in a glass cylinder the ends of which are carefully covered with tin-foil. In order to prevent contamination, each olfactometer substance is packed with absorbent cotton in a screw-cap glass vial. (225:X19; 226:131-140) **3.00**

15104. **Olfactometer Cylinder,** Gum Benzoin **4.25**

15105. **Olfactometer Cylinder,** Paraffin **2.00**



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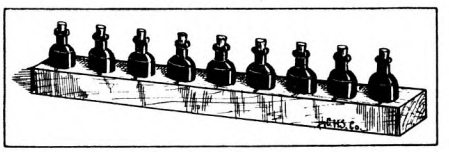


No. 15151.

Number		Price
15106.	**Olfactometer Cylinder,** Beeswax	**$2.50**
15107.	**Olfactometer Cylinder,** Tolu Balsam	**4.00**
15108.	**Olfactometer Cylinder.** Asafoetida	**5.00**
15109.	**Olfactometer Cylinder,** Russia Leather	**2.50**
15110.	**Olfactometer Cylinder,** Rosewood	**3.60**
15111.	**Olfactometer Cylinder,** Black India Rubber	**1.25**
15112.	**Olfactometer Cylinder,** Red India Rubber	**1.75**
15113.	**Olfactometer Cylinder,** Glycerin Soap	**2.75**
15114.	**Olfactometer Cylinder,** Cocoa Butter	**2.75**
15131.	**Chocolate,** Unsweetened. Per cake (225:X16)	**.40**
15133.	**Tincture of Peppermint,** ½ oz. bottle. (225:X16)	**.30**
15135.	**Oil of Cloves** (Caryophyllorum), 1 oz. bottle. (225:X17)	**.75**
15137.	**Tincture of Iodine,** 2 oz. bottle. (225:X18)	**.75**
15139.	**Spirits of Camphor,** 2 oz. bottle. (225:X18)	**.80**
15140.	**Olfactory Stimuli,** Foster's. One vial each bergamot oil and Limburger cheese. (51:X4)	**1.25**
15151.	**Olfactory Stimuli,** Franz's. Consisting of a block carrying small, blackened, glass-stoppered vials of the following substances: sulphuric ether, oil of cloves, oil of peppermint, oil of rose, old fish, carbon disulphide, strong cheese, and asafoetida. (55:24-25; 57:18)	**11.25**
15153.	**Olfactory Stimuli.** One each small w.m.b. of iodine and spirits of camphor. (119:X3-14)	**1.00**
15154.	**Olfactory Stimuli,** Langfeld and Allport. **Set of 6:** 1 each small w.m.b. of nitro-benzole, oil of camphor, eau de Cologne, oil of terebinth, oil of lavender, and oil of bergamot. (119:xv-16)	**3.30**
15155.	**Olfactory Stimuli,** Langfeld and Allport. One small w.m.b. containing oil of caryophyllorum. (119:X3-16)	**.35**
15157.	**Olfactory Stimuli.** Set of 9: ½ oz. bottle of heliotrope, 1 oz. bottle each of crabapple blossoms, white rose blossoms, asafoetida, and stale cheese; 2 oz. bottle of tincture of iodine, and 4 oz. bottle each of ammonium sulphide, carbon bisulphide, and spirits of camphor. (226:121-122)	**7.25**
15158.	**Olfactory Stimuli.** Set of 10: ⅛ oz. bottle of naphthaline, ¼ oz. bottle each of propionic acid, a. sol. cumarine, and a. sol. vaniline; ½ oz. bottle of oil of mace, and 1 oz. bottle each of nitrobenzol, benzoyl chloride, heliotropine, oil of camphor and mutton tallow. (226:122-123)	**6.25**
15159.	**Olfactory Stimuli.** Set of 25, including odors from all but the ninth of Zwaardemaker's classes: one 15 grain bottle of caproic acid, ⅛ oz. bottle of tincture of musk, ¼ oz. bottle each of geranium, e. o. and bitter almond, e. o.; ½ oz. bottle each of rosemary, e. o.; cinnamon, e. o.; anise, e. o.; peppermint, e. o.; ylang ylang, and orange blossoms; 1 oz. bottle each confectioner's pineapple oil, cloves, e. o.; thyme, e. o.; bergamot, e. o.; benzoin, oil of amber, tincture of bromine, creosote, benzine, laudanum, and olive oil with bedbugs; 4 oz. bottle each of beeswax, sulphuric ether, and carbon bisulphide, and 1 bottle of violet R.G. (226:127-142)	**17.50**
15207.	**Teaspoons,** Heavy Tin. (225:X17.) Per set of 6	**.65**
15217.	**Paraffin.** (225:X17.) Per lb. cake	**.35**
15221.	**Sponge,** Fine. (225:X17)	**.35**
15223.	**Paints, Oil.** Any color, red, black, yellow, green, or blue. (225:X17.) Per tube	**.35**
15227.	**Chalk,** White (2). (225:X17.) Each	**.05**

Number		Price
15231.	**Tin,** Heavy, 14x14 cm., perforated; openings about 1 mm. in diameter and 1 mm. apart. (225:X17)	**$0.50**
15232.	**Tin.** XX Sheet, 14 cm. (225:X17)	**.15**
15233.	**Syringe,** Hypodermic, Graduated. In case. (225:X17)	**2.50**
15235.	**Pans,** Tin, Small. (225:X22.) Per set of 12	**1.00**
15237.	**Syringe,** Hard Rubber. (225:X23)	**1.00**
15239.	**Vaseline,** White, 2 oz. jar. (225:X24)	**.50**

GUSTATION

16041.	**Taste Stimuli,** Franz's. A block containing blackened pipette-stoppered bottles with watery solutions of sugar, 5% and 40%; of salt, 5% and half-saturated; of quinine hydrochlorate, .002% and 1%; and of tartaric acid, 0.5% and 10%, and a bottle of water. (55:25; 57:18-19)	**7.00**
16050.	**Taste Stimuli,** Titchener's. Set of 16 bottles comprising 4 oz. each of syrup of orange, 15%; lime juice, 10%; tar water (made from 5% wine of tar), syrup of sarsaparilla, 15%; solution of powdered alum, 2%; essence of wintergreen, 5%; lemon syrup, 15%; cherry syrup, 15%; essence of sassafras, 5%; alcohol (95%), 33%; peach "fruit flavor," 5%; essence of bitter almonds, 2%; essence of anise, 5%; solution of Epsom salts, 2% crys.; pineapple syrup, 15%; and essence of peppermint, 2%. (226:105-106).	**10.50**
16051.	**Taste Stimuli,** Titchener's. Set of 4 bottles comprising 4 oz. each of pure castor oil, cod liver oil, quinine hydrochlorate, 1%, and syrup of orange. (226:162-167)	**2.50**
16052.	**Taste Stimuli,** Foster's. Set of 8 bottles containing 4 oz. solutions of coffee, tea, bullion salt, vinegar, acetic acid, sugar, and molasses. (51:X10)	**4.00**
16203.	**Cotton,** Absorbent, ¼ lb. carton. (225:X14)	**.45**
16207.	**Carafe,** and tumbler. (225:X14)	**1.50**
16211.	**Bucket,** Galvanized Iron, 10 qt. (225:X14)	**1.00**
25431.	**Lens,** Biconvex, on stand. Vertically adjustable. (225:X14)	**11.75**
25735.	**Bottles,** n.m.g., 2 oz. (225:X15.) Set of 10	**2.50**
25751.	**Pipette,** 25 cc., graduated in .1 cc. (225:X16)	**1.00**
25739.	**Bottles,** w.m.g., 2 oz. (225:X14.) Set of 10	**2.75**

PHONETICS

Speech Measurements, Blanton and Stinchfield. These speech tests constitute the first attempt to provide a scientific and practical series of graduated tests for measuring speech in a convenient and rapid manner.

Detection of speech defects and their nature opens the way for intelligent corrective treatment, which may be classified as mental, physical, and educative. Speech defects may be due to oral inaccuracy, physical abnormalities, deficiencies, or mental disturbances, as the anatomical basis of language involves of course the whole body but specifically the neuro-muscular system in the head, neck, and chest segments. Defects are usually characterized by indistinct enunciation, "lalling," lisping, defective respiration, spasmodic action of the starting mechanism, useless muscle movements, physical anomalies, lack of emotional control, poor muscle co-ordination, etc.

Psychologists will find these tests of valuable assistance in formulating opinion on border-line cases. Where the condition is such that articulation tests involving reading cannot be given, the picture charts for pre-school age and the early grades can be used to elicit the proper response, i.e., names of familiar objects embodying the desired test sounds.

The tests are grouped in two parts; Part I, the subjective estimate, is based on judgment concerning the behavioristic reaction, emotional type, unserviceable muscle movements, tics, postural tensions, physical anomalies, vocal quality, pitch, volume, and respiration. For Part II the objective measurements are based on a team of seven tests, viz.: Articulation Test A and Articulation Test B (which include all the sounds in English, in simple formation, and also in groups of consonant combinations); Oral Reading Rate, Silent Reading Test, Spontaneous Speech Rate, Percentage of Relevant Words used in Spontaneous Speech, and Vocabulary.

These tests have been found serviceable in diagnosing letter substitution; in oral activities of a mild or severe type; in nasal obstruction; in tongue-tie, lingual, labial, and dental conditions accompanied by poor speech; in indistinct speech accompanying deafness; in foreign accent; in stuttering; in faults of rhythm; in psychopathic cases of a marked type, and in milder psychic disturbances affecting the speech functions, as in hysteria, traumatic neuroses, feelings of inferiority, and depression. (212:39, 161, 293-318; 213:73-98.)

PRE-SCHOOL AND KINDERGARTEN

***17023.**	**Rating Sheet** for Articulation Test No. 1-A. (This rating sheet is also required for Grades 1, 2, and 3.) Per 25	**.80**
***17002.**	**Articulation Test A No. 1.** A series of 11 charts, illustrating in the simplest manner possible the requisite number of objects necessary to elicit the response containing the desired sound. (These charts are also required for Grades 1, 2, and 3.) Per set	**3.75**
***17022.**	**Score Sheet** for Articulation Test A. (This score sheet is also required for Grades 1, 2, 3, 4, 5, 6, 7, 8, and Adult.) Per 25	**1.25**

Number		Price
17094.	**Rating Sheet** for Speech Measurement Test No. 1-A. (This rating sheet is also required for Grades 1, 2, and 3.) Per 25	$0.80
17053.	**Picture** (I) for spontaneous response	.35
17051.	**Picture** (II) for spontaneous response	.35
17054.	**Picture** (III) for spontaneous response. (This picture is also required for Grades 1, 2, and 3)	.35
17081.	**Vocabulary Test**	.15
	GRADE 1	
17031.	**Reading Test** (I), Oral	.15
17041.	**Reading Test** (I), Silent	.10
17056.	**Picture** (II) for spontaneous response. (This picture is also required for Grade 2)	.35
17057.	**Picture** (III) for spontaneous response. (This picture is also required for Grade 3)	.35
17085.	**Vocabulary Test.** (This test is also required for Grade 2)	.15
	GRADE 2	
17032.	**Reading Test** (II), Oral	.15
17042.	**Reading Test** (II), Silent	.10
	GRADE 3	
17033.	**Reading Test** (III), Oral	.15
17043.	**Reading Test** (III), Silent	.10
17055.	**Picture** (II) for spontaneous response	.35
17089.	**Vocabulary Test.** (This test is also required for Grades 4, 5, 6, 7, and 8)	.30
	GRADE 4	
17095.	**Rating Sheet** for speech measurements Nos. 2-5. (This rating sheet may also be used for Grades 5, 6, 7, 8, and Adult if one prefers to avoid statistical work.) Per 25	1.25
*17026.	**Rating Sheet** for Articulation Test Nos. 2-5. (This rating sheet is also required for Grades 5, 6, 7, 8, and Adult.) Per 25	.80
*17004.	**Articulation Test A and B No. 2**	.30
*17025.	**Score Sheet** for Articulation Test B. (This score sheet is also required for Grades 5, 6, 7, 8, and Adult.) Per 25	1.50
17034.	**Reading Test** (IV), Oral	.15
17044.	**Reading Test** (IV), Silent	.10
17052.	**Picture** (I) for spontaneous response	.35
17058.	**Picture** (II) for spontaneous response	.35
	GRADE 5	
*17006.	**Articulation Test A and B No. 3.** (This test is also required for Grade 6)	.30
17035.	**Reading Test** (V), Oral	.15
17045.	**Reading Test** (V), Silent	.10
17059.	**Picture** (I) for spontaneous response N. B. Add picture No. 17060 of Grade 6 if one picture is not satisfactory.	.35
	GRADE 6	
17036.	**Reading Test** (VI), Oral	.15
17046.	**Reading Test** (VI), Silent	.10
17060.	**Picture** (I) for spontaneous response N. B. Add picture No. 17059 of Grade 5 if one picture is not satisfactory.	.35
	GRADE 7	
*17008.	**Articulation Test A and B No. 4.** (This test is also required for Grade 8)	.30
17037.	**Reading Test** (VII), Oral	.15
17047.	**Reading Test** (VII), Silent	.10
17063.	**Picture** (I) for spontaneous response. (This picture is also required for Grade 8)	.90
17062.	**Picture** (II) for spontaneous response. (This picture is also required for Grade 8 and Adult)	.90
	GRADE 8	
17038.	**Reading Test** (VIII), Oral	.15
17048.	**Reading Test** (VIII), Silent	.10
	ADULT	
17098.	**Speech Questionnaire** for adults and college students. Per 25	2.25
17091.	**Rating Sheet** for speech measurements No. 5. (To be used when Articulation Test B is omitted.) Per 25	.80
17096.	**Rating Sheet** for complete speech measurements No. 5. Per 25	.80
17097.	**Rating Sheet** for speech measurements No. 5 when Oral and Silent Reading Tests are omitted. Per 25	.80
*17010.	**Articulation Test A and B No. 5**	.30
27108.	**Reading Test** (A), Oral	.15
17049.	**Reading Test** (IX), Silent	.10
17061.	**Picture** (I) for spontaneous response	.35
39004.	**Vocabulary Test** (A). Per 100 N. B. The No. 57203 wet spirometer is also required for this grade.	1.50

Number		Price
46087.	**Manual,** Blanton and Stinchfield; second edition. N. B. Articulation Tests and rating sheets are marked * and may be used alone. For a measuring tape see No. 25122 ($2.00) and for a stop-watch see No. 20207 ($18.00).	**$0.80**

Speech Measurements, Stinchfield's. For the handicapped, covering the pre-school child, the mentally deficient, the deaf, the blind; and illiterate children and adults.

It is evident that virtually all the subjects included in these classes require a test better adapted to their particular infirmities. In her work with speech tests, Dr. Sara M. Stinchfield discovered that the best plan would be to collect a number of fairly large, but comparatively inexpensive, objects that would elicit the desired sound. By a careful process of elimination, 47 objects were gradually selected which call forth the 48 responses containing the desired sound, and the arrangement is such as to bring out the different sounds in the proper phonetic grouping.

In addition to the test objects for Articulation Test A, there have been arranged in Braille, for the literate blind, the Nos. 17004-6-8-10 Articulation Tests A Nos. 2-5 of the Blanton and Stinchfield speech measurements. There are also provided score sheets for rating Articulation Tests A. The Oral Reading Tests, Silent Reading Tests, and two Vocabulary Tests of the Blanton and Stinchfield speech measurements have also been prepared in Braille for use of the blind. (213:88-96; P.S.a.J.o.G.P.Mar.1929: 140-170.)

PRE-SCHOOL AND KINDERGARTEN

17002-S.	**Test Objects.** Set of 47; for Articulation Test A. Selected to elicit the 48 desired sounds. (These test objects are also required for Grades 1, 2, and 3.) Per set	**7.50**
17022-S.	**Score Sheet** for Articulation Test No. 17002-S. (This score sheet is also required for Grades 1, 2, and 3.) Per 25	**1.25**

N. B. The No. 25122 measuring tape and No. 20207 stop-watch are required for all grades.

GRADE 1

17031-S.	**Reading Test,** Oral. Printed in Braille	**.30**
17041-S.	**Reading Test,** Silent. Printed in Braille	**.30**
17081-S.	**Vocabulary Test.** Printed in Braille. (This test is also required for Grade 2)	**.30**

GRADE 2

17032-S.	**Reading Test,** Oral. Printed in Braille	**.30**
17042-S.	**Reading Test,** Silent. Printed in Braille	**.60**

GRADE 3

17033-S.	**Reading Test,** Oral. Printed in Braille	**.30**
17043-S.	**Reading Test,** Silent. Printed in Braille	**.60**
17089-S.	**Vocabulary Test.** Printed in Braille. (This test is also required for Grades 4, 5, 6, 7, 8, and Adult)	**.60**

GRADE 4

17095.	**Rating Sheet** for complete speech measurements Nos. 2-5. (This rating sheet may also be used for Grades 5, 6, 7, 8, and Adult if one prefers to avoid statistical work.) Per 25.	**1.25**
17004-S.	**Articulation Test A.** Printed in Braille	**.60**
17022-S.	**Score Sheet for Articulation Test A.** (This score sheet is also required for Grades 5, 6, 7, 8, and Adult.) Per 25	**2.00**
17034-S.	**Reading Test,** Oral. Printed in Braille	**.30**
17044-S.	**Reading Test,** Silent. Printed in Braille	**.60**

GRADE 5

17006-S.	**Articulation Test A.** Printed in Braille. (This test is also required for Grade 6)	**.60**
17035-S.	**Reading Test,** Oral. Printed in Braille	**.30**
17045-S.	**Reading Test,** Silent. Printed in Braille	**.60**

GRADE 6

17036-S.	**Reading Test,** Oral. Printed in Braille	**.30**
17046-S.	**Reading Test,** Silent. Printed in Braille	**.60**

GRADE 7

17008-S.	**Articulation Test A.** Printed in Braille. (This test is also required for Grade 8)	**.60**
17037-S.	**Reading Test,** Oral. Printed in Braille	**.30**
17047-S.	**Reading Test,** Silent. Printed in Braille	**.60**

GRADE 8

17038-S.	**Reading Test,** Oral. Printed in Braille	**.30**
17048-S.	**Reading Test,** Silent. Printed in Braille	**.60**

ADULT

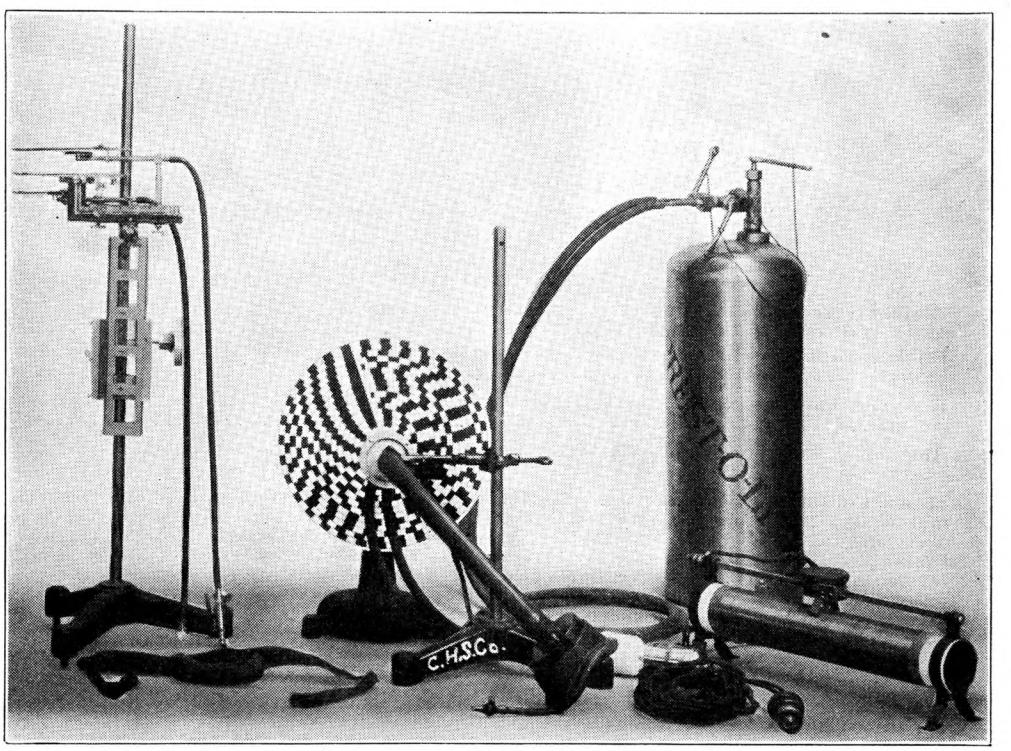
17098.	**Speech Questionnaire** for adults and college students. Per 25	**2.25**
17010-S.	**Articulation Test A.** Printed in Braille	**.60**
27108-S.	**Reading Test,** Oral. Printed in Braille	**.60**
17049-S.	**Reading Test,** Silent. Printed in Braille	**.60**

N. B. No. 57203 wet spirometer is also required for this grade.

46609.	**Manual** Stinchfield's. For Stinchfield speech measurements for the handicapped	**.20**

Number		Price
17002-W.	**Articulation Test,** West's. For small children. (265:C3)	$1.00
17101.	**Mouth Funnel,** Metal, 3¼ in. wide by 1⅞ in. high; about 4½ in. long, tapering down to $\frac{7}{16}$ in. The narrow end of the funnel is supplied with a ⅜ in. exhaust tube	20.00
17110.	**Articulation Test Key,** West's. (265:C3)	.20
17111.	**Articulation Test,** West's. Exercises. (265:C3)	.30
17112.	**Record Forms,** West's. For pitch test. (265:C3). Per 25	.50
17113.	**File Card,** West's. (265:C4). Per 25	.60
17114.	**Case History Booklet,** Holcombe's. (265:C4). Per 25	5.40
17115.	**Pedigree Charts,** Holcombe's. (265:C4). Per 50	.50

N. B. For a complete list of the equipment recommended by Dr. Robert West, of the Speech Department of the University of Wisconsin, see page 220.



Nos. 54013, 17150, 17152, 17156, 17159, 17153, 17157, 17160, 17158, 17161, 22009, 12611, 17175, 17165, 25659, 17154, 17155, 54013, 17169, 12614, 25536, 17168, 17167, 12622.

17150. **Rack and Pinion Attachment.** For use on a support like our No. 54013 consisting of a tripod base with leveling screw and a 60 cm. rod, 12 mm. in diameter. Very desirable and in fact indispensable for adjustment of sensitive tambours like those used by Scripture in speech work **30.00**

17152. **Tambour,** Scripture's. For recording speech. This is the largest of a series of 3 tambours for obtaining simultaneously the oral, nasal, and laryngeal records in speech work. These tambours are extremely sensitive, and while the series should be used together for the best results, each of the three components may be used separately. For this reason we list each separately for those who do not require the three simultaneous records **40.00**

17153. **Rubber Tubing.** Used on No. 17152 tambour **1.50**

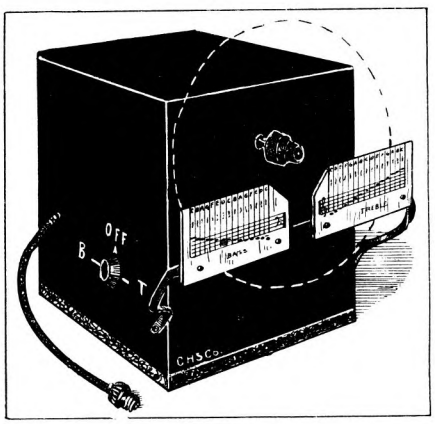
17154. **Mouthpiece,** Celluloid, Scripture's. For use in connection with No. 17165 manometric flame apparatus. **7.50**

17155. **Pneumatic Cushion,** Scripture's. For attaching to No. 17154 mouthpiece in order to insure good contact with mouth **7.50**

17156. **Tambour,** Scripture's. For recording nasal activity. This is the medium of the series of 3 referred to under No. 17152 ..... **25.00**

17157. **Rubber Tubing.** For connecting No. 17156 nasal tambour to No. 17158 ampoule or olive. **.50**

17158. **Ampoule or Olive, Nasal,** Scripture's. Made of glass ..... **.35**



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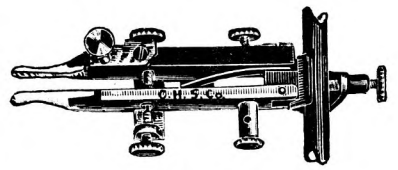

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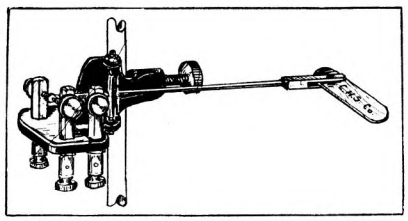

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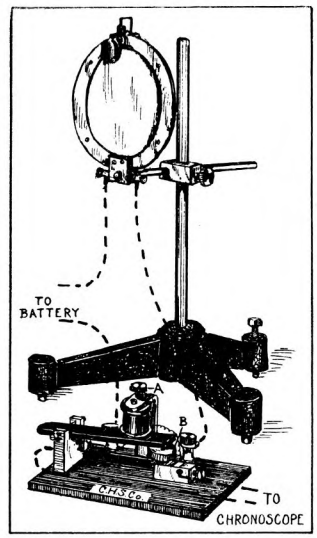


Nos. 17216, 17216A.

Number		Price
17159.	**Tambour,** Scripture's. For recording laryngeal activity. This is the smallest of the series of 3 referred to under No. 17152	$ 22.50
17160.	**Rubber Tubing.** For connecting No. 17159 laryngeal tambour to No. 17161 laryngeal receiver	.50
17161.	**Receiver, Laryngeal,** Scripture's. Pneumatic cushion with neckband for application to larynx	8.00
17162.	**Ampoules, Rubber,** Scripture's. For studying lip and tongue movements. Set of 6, assorted	10.00
17164.	**Motor, Constant-Speed.** For use with No. 17175 and 17178 stroboscopic pitch disks. This motor, together with a pitch disk, No. 17165 manometric flame apparatus, No. 17167 acetylene tank, No. 17154 mouthpiece, No. 17155 pneumatic cushion, No. 17153 rubber tubing, No. 25659 clamp, and No. 54013 support with leveling screw, constitutes what is termed by Scripture the "Strobilion" (No. 69036), for visualizing the sound of the voice or instruments. This motor is designed for operation on the 110V. 60 cycle A.C. and gives two speeds. The high speed is used for reading above middle c^1 (256 d.v.) and the low speed for readings below middle c^1. The base of the motor supports a scale giving the vibration rates and musical notation for the Nos. 17175 and 17178 stroboscopic pitch disks	150.00
17165.	**Manometric Flame Apparatus,** Scripture's. This is a modification of the original Koenig apparatus but is far more sensitive and supplied with a pilot light. Designed for use with an acetylene flame. The ordinary manometric flame operated with illuminating gas is not sensitive enough for this work	17.00
17167.	**Acetylene Tank,** 10 cu. ft. capacity, with double screw tap. (May also be obtained from local "Prestolite" dealer)	22.50
17175.	**Disks, Stroboscopic Pitch,** Scripture's; with a range of 2 octaves which, with the No. 17165 two-speed motor, gives a range of 4 octaves, c_3 (64 d.v.)—c^3 (1024 d.v.)	2.00
17178.	**Disks, Stroboscopic Pitch,** Colored, Scripture's. Each note of the octaves of this disk is painted a different color. Particularly interesting for demonstrations. The range is the same as No. 17175	10.00
17179.	**Mirror, Rotating.** For demonstrating the vibrations of the voice or musical instrument to an audience. It is used on the No. 12611 electric color mixer in connection with the Nos. 17165 and 17167 manometric flame apparatus and acetylene tank	10.00
17180.	**Microscope, Measuring.** For studying the characteristics of tonographs. Details upon application	180.00
46565.	**Monograph,** Scripture's. "Application of the Graphic Method to the Study of Speech and Song." Printed in German. This monograph shows the application of the recording apparatus for the graphic study of speech and song	3.00

N. B. For a complete list of apparatus recommended by Prof. Dr. E. W. Scripture for the "Application of the Graphic Method to the Study of Speech and Song" see page 220.

17205.	**Key, Lip,** Cattell's. Arranged to open or close a circuit by movement of the lips. The key is made of metal with replacable ivory lip-pieces. (227:165-166; 228:350)	42.00
17209.	**Key, Speech,** Jastrow's. This key is arranged for clamping to a vertical support. The biting surface is of wood and is readily replaceable. (227:166; 228:350)	27.75

Number — Price

17211. **Key, Tooth or Biting,** Meumann's. Two isolated ivory plates with platinum contacts, for holding between the teeth. A locking arrangement prevents the key from opening after it has been closed by reacting. (228:350) **$18.35**

17213. **Key, Voice,** Römer's. This voice key is constructed with a metallic membrane which, when actuated by sound waves, operates a very sensitive platinum contact. The slightest movement of the membrane serves to break the contact. This contact is in circuit with an electromagnet and is so arranged that it will either open or close the chronoscope circuit. A pull-cord serves to reset the contact. The voice key is also supplied with a bell which may, if desirable, be used as a signal **105.00**

17214. **Key, Voice,** Cattell's. This key consists of a funnel-shaped mouthpiece, the large end of which is covered with a sensitive membrane. The vibrations emanating from the voice or other source of sound open a platinum contact. Complete with electromagnetic release, on base. (103:X16; 227:158; 228:350) **95.00**

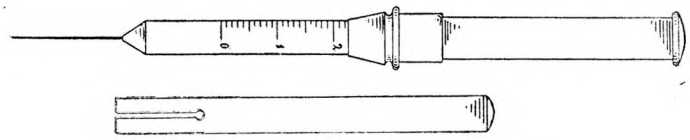
17216. **Key, Voice,** Dunlap's. A very senstitive voice key with an aluminum membrane and sensitive platinum contact. Mounted on triple base. Devised for use with the Nos. 20236 and 20237 Dunlap chronoscopes. The vibrations of the membrane cause the current through the anterior magnet of the chronoscope to be momentarily interrupted, thus allowing the armature disk to be attracted to the posterior magnet. The armature shaft carrying the indicator thereupon commences to rotate and continues until the reactor, by speaking against the diaphragm of another voice key, interrupts the current through the posterior magnet, thus allowing the anterior magnet to attract the armature disk and stop its rotation. The keys require no resetting; they are ready for immediate use after each reaction. See No. 23301 psychodometer on pages 112-113. (P. R. 1913, XX:250-253; Ps'b May 1918:435-454) **45.00**

17216A. **Relay, Voice Key.** Devised for use with the No. 17216 Dunlap voice key with the No. 20155 Bergström chronoscope or the No. 20255 Klopsteg chronoscope. The relay must be set after each reaction. See Nos. 23303 and 23305 psychodometers on pages 113-115. **22.25**

CUTANEOUS SENSE

18003. **Aesthesiometer, Camel's-Hair Brush,** Franz's. For qualitative tests of touch. About 18 mm. long, with about 125 hairs. (55:27; 57:21) ..... **.30**

18005. **Horse Hairs** for making aesthesiometers. (224:146). Per 100 ..... **1.50**



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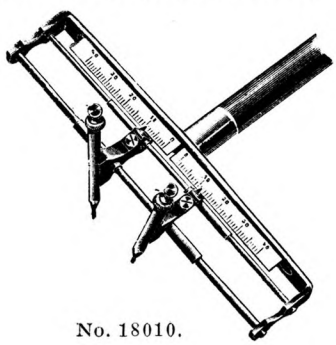

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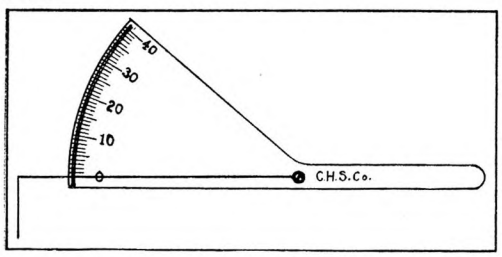

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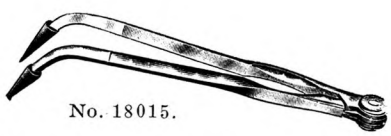


No. 18015.

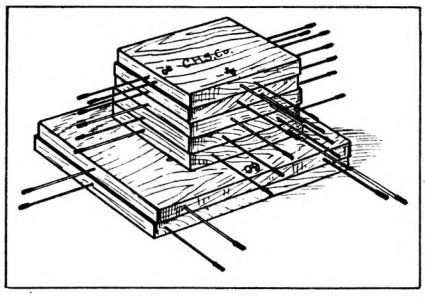
18009. **Aesthesiometer.** Von Frey's. This aesthesiometer carries a horse-hair which can be varied in length. The tube is graduated so that a given setting can be repeated. (27:84; 227:X5; 228:48-50) **6.00**

18010. **Aesthesiometer,** Ebbinghaus'; with 2 adjustable ivory tips. The pressure of the tips is regulated by means of springs. Both tips are provided with indicators which register from a central zero on graduated millimeter scales. (99:281-283) **54.75**

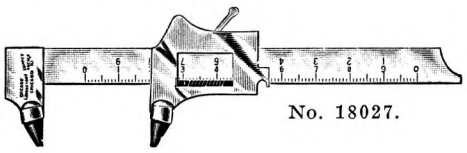
18011. **Aesthesiometer,** Block's. A handle with a sector graduated in degrees, carrying a fine piano wire bent at right angles to the handle. (55:27-28; 57:21-22) **6.00**

18015. **Aesthesiometer,** Compass Form, with replaceable fiber tips. (119:X12-41; 165:X41; 187:364) **3.50**

18019. **Aesthesiometer,** Compass Form, with replaceable fiber tips. Similar to No. 18015 but provided with a graduated scale in units of 2 mm. (15:X20; 225:X34; 227:X16) **11.00**



No. 18023.



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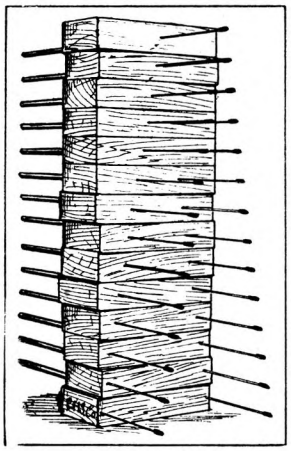

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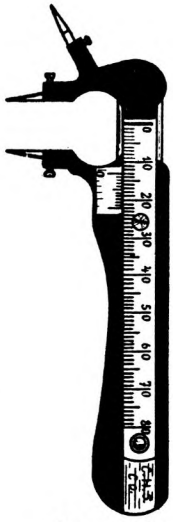
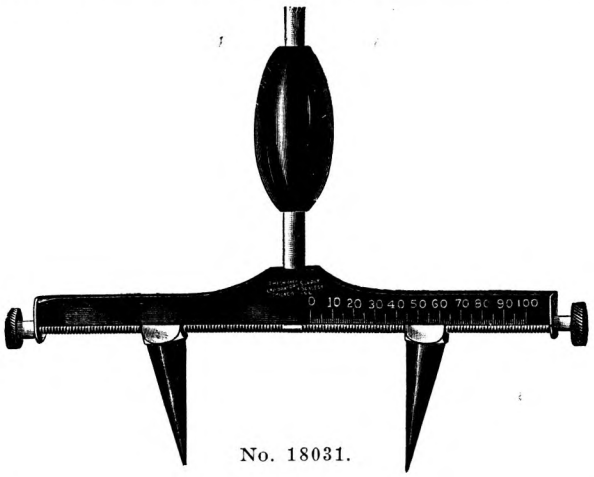


No. 18029.

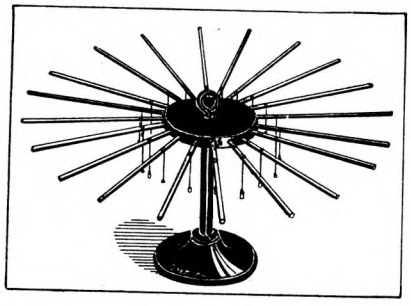
Number		Price
18021.	**Tips,** Fiber. For Nos. 18015 and 18019 aesthesiometers. Each	**$0.25**
18023.	**Aesthesiometer, Simple Double-Point,** Franz's. Set of 7, consisting of wooden blocks with a single needle and 2 pairs of needles inserted at different intervals. The intervals range from 2-80 mm. (55:30-31; 57:24; 111:X20)	**8.25**
18025.	**Aesthesiometers,** Binet and Buzenet; modified by Hill. This set of 14 needle aesthesiometers provides 13 intervals ranging from 0—70 mm. by 5 mm. steps and 1 single point. (267:T23)	**11.25**
18027.	**Aesthesiometer.** Sliding caliper type, with 2 points	**9.00**
18029.	**Aesthesiometer,** Spearman's. Sliding caliper type with 3 points. The points are readily replaceable. This aesthesiometer has a range from 0—80 cm. in millimeter divisions, and is supplied with a vernier for reading .1 mm	**15.00**



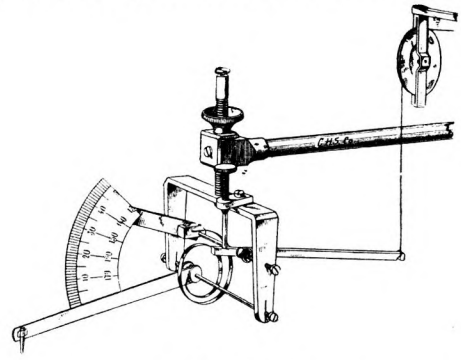
No. 18031.

18031.	**Aesthesiometer,** Jastrow's; improved by Angell. Graduated to read in millimeters from 0—10 cm. The hard rubber points are actuated by means of a double-acting screw, operating in an aluminum casing. The entire aesthesiometer weight may be applied by sliding the rubber grip down to the screw casing. (165:X41; 267:T23)	**37.50**
18034.	**Pillow,** 12 in. sq., for arm. (267:T23)	**2.50**
18045.	**Aesthesiometer,** Langfield and Allport. In 3 sections. Made of cardboard. (119:X12-42)	**.60**
18061.	**Sandpaper,** per sheet	**.15**
18063.	**Menthol Pencil**	**.35**

Number		Price
18065.	**Toothpicks,** per 100	**$0.10**
18066.	**Hair, Horse.** Set in cork. (51:X9; 51A:X5)	**.15**
18067.	**Bristles, Boar's.** (111:X15-9; 119:X5-18). Per 100	**.15**
18068.	**Skewers, Wood.** (51:X7; 51A:X14; 119:X5-18). Per 100	**.50**
18070.	**Sealing Wax,** White. (119:X5-18). Per stick	**.15**
18071.	**Ink Pad.** (51:X9; 51A:X5; 111:X15; 119:X5-18)	**.50**
18073.	**Stamp, Rubber,** Langfield and Allport. With 49 dots in 7 rows 1/8 in. apart. (119:X5-18)	**.65**
18103.	**Corks,** No. 12. Set of 2, differently weighted. (225:53-54)	**1.60**
18104.	**Corks,** 2 cm. long. (111:X15). Set of 10	**.15**
18106.	**Weights,** Jastrow's. Set of 9 cylindrical rubber weights, 100, 103, 112, 115, 118, 121, 124, 127, and 130 grams. (255:136-137)	**50.00**



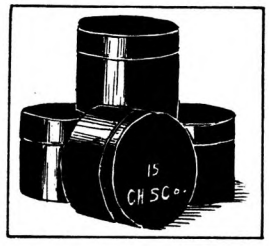
No. 18107.



No. 18108

18107. **Weights, Touch,** Scripture's. An improved and practical form of this delicate apparatus. The apparatus consists of a circular stand, carrying a series of 20 removable rods, each of which carries a carefully adjusted weight. The weights range from 2 to 20 mg. in 2 mg. steps and from 20 to 70 mg. in 5 mg. steps. Each weight is attached to a long bristle terminating in a disk. The bristle moves without any appreciable friction in the hole drilled at the end of the rod serving as a handle. This scheme makes possible exact and rapid application of the weights. (195:103-104; 227:X4; 228:47-48) **15.00**

18108. **Gauge, Limen,** Von Frey's. The essential parts of this apparatus consist of two levers, which turn about parallel axes. The levers are coupled by a clock spring. The lower lever at the left carries at its extremity the stimulus point. It lies upon a small disk of cardboard, which in turn lies upon the skin. Attached to the upper axle is a scale reading in degrees from 0—50. The horizontal arm serves for clamping the apparatus in a standard. The clamp also serves as a coarse adjustment, while the fine adjustment is made by the set-screw at the top of the vertical shaft. The intensity of the stimulation is regulated by the set-screw below the horizontal arm. Six springs of different tensions and disks of three sizes are supplied with each gauge. This apparatus permits varying the location, intensity, and area of the stimulus. (103:X10; 227:X6; 228:52-55) **60.00**



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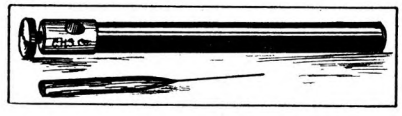

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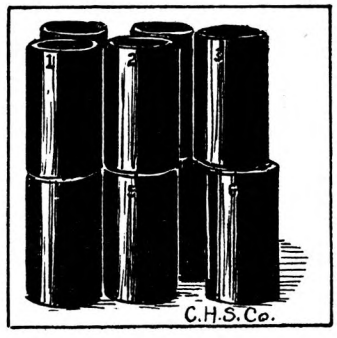
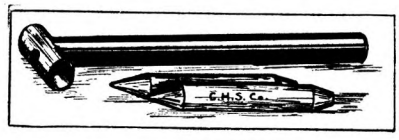


No. 18111.

18109. **Weights, Franz's.** For passive pressure. Three standard weights: 100, 500, and 1000 grams; and 3 sets of comparison weights, the weights in each set being of one size. Set 1: 100, 104, 108, 112, 116, and 120 grams; Set 2: 500, 520, 540, 560, 580, and 600 grams; Set 3: 1000, 1040, 1080, 1120, 1160, and 1200 grams. (55;38-39; 57:31-32) **30.00**

Number		Price
18110.	**Weights, Touch,** Langfield and Allport. Two equal weights of 50 grams, a lighter weight of 15 grams, and a heavier weight of 100 grams. (119:X5-21)	$3.00
18111.	**Weights, Cylindrical,** Titchener's. Set of 10 cylindrical weights carefully loaded and weighted. These weights vary by 2 gram steps from 10 to 30 grams. (227:X17; 228:189)	7.00
18113.	**Weights, Test.** Set of 2 of different diameter but the same weight. (224:7, 156, 171)	3.00
18133.	**Points, Pressure and Pain,** with handle, Titchener's. Two wooden points and a stout horsehair are supplied with each handle. One of the wooden points is drilled for inserting the hair. (225:X12-13)	1.70
18162.	**Stamp, Rubber,** Walton's. A 4x8 cm. stamp with 128 five-millimeter squares. Numbered every centimeter in both directions.	3.35
18163.	**Stamp, Rubber,** 2 cm. sq. With millimeter rulings. (111:X15; 225:X10)	.65
18164.	**Bucket.** Capacity, 3 gal. (111:X17)	1.20
18165.	**Dishes,** Shallow. Set of 3, 1 qt. capacity. (225:53)	.60
18166.	**Dish,** Small. About 7.5 cm. deep. (111:X17)	.45
18167.	**Sponge,** Fine. On wood handle. (225:X13)	.50
18169.	**Cloth,** 1 yd. For drying skin. (225:X13)	.75
18170.	**Towels, Paper.** (51:X9; 51A:X5). Per 100	.50
18171.	**Stays,** Whalebone. (225:X35). Per pair	.25
18173.	**Pins.** Per paper	.15
18175.	**Balance, Photographers'.** Capacity, 16 grams. Graduated in grams. Gives also troy or apothecary's weight. (111:X15; 119:X11-33)	5.00
18176.	**Beads,** Lead. Set of 9, ranging from 2 to 10 grams. (111:X24)	6.00
18177.	**Washers,** Black, No. 3. (119:X11-33). Per 100	.20
18178.	**Cardboard Squares,** 1 cm. Set of 24. (111:X14)	1.20
18179.	**Skin, Chamois,** 2 cm. sq. (111:X14)	.10
18180.	**Knife,** Paring. (111:X15)	.25
18203.	**Temperature Cylinder,** Blix's. (224:149)	3.35



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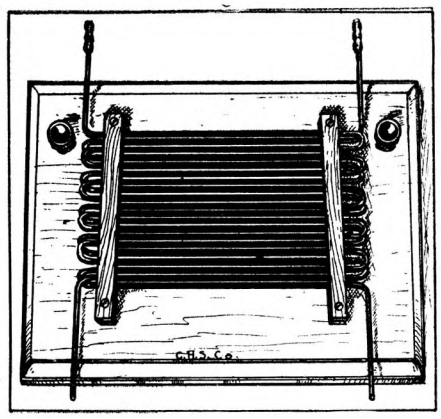

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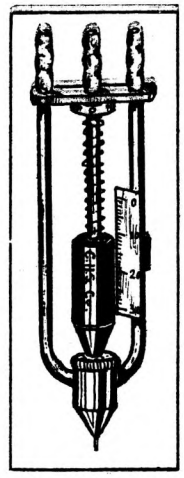


No. 18222.

18205.	**Temperature Cylinders.** Consisting of a wooden handle with a slit metal sleeve, and 2 interchangeable pointed temperature cylinders. (15:X6-7; 225:X10)	2.00
18211.	**Temperature Cylinders.** Set of 4 metal rods with slightly rounded points on each end. (119:X6-22)	.45
18213.	**Temperature Cylinder,** Foster's. Set in cork. (51:X9; 51A:X5)	.35

Number | Price

18216. **Temperature Grill,** Dallenbach's. Devised for the study of heat sensations. Two systems of rectangular copper coils, each with an inlet and outlet tube, mounted flat between cleats so that the straight parallel sections of each alternate and have an air space around them, while the bent ends of each system are carefully insulated between asbestos-covered cleats. In order to measure the subject's electrical resistance, one terminal of each coil is supplied with a binding post. Placing the arm on the coils between the cleats completes the circuit. (A.J.o.P. July 1927, July 1928, July 1929, and Jan. 1930.) ..... **$ 17.75**

18221. **Temperature Stimulator,** Kiesow's. A hollow metal cone brought down to a point of the required size. The cone is supplied with a removable handle and a cork supporting a thermometer graduated in degrees to 50° C.; and an inlet and outlet tube for regulating the temperature. The stimulator is supplied with 6 ft. of rubber tubing. (55:33-34; 57:27; 227:161) **16.70**

18222. **Temperature Stimulator,** Dallenbach's. Designed for punctiform stimulation, but equally well adapted for moving linear stimulation. The pressure of the stimulus point upon the skin is controlled, as in the improved Jastrow aesthesiometer, by a spring inserted between the non-conducting gutta-percha handle and the cross-piece at the top joining the inlet tube to the two outlet tubes. The stimulus point, a copper cylinder of 1 mm. diameter and 8 mm. in length, pierces the point of the cone-shaped temperature chamber, and projects 3 mm. beyond the chamber. The stimulation by radiation is thus reduced to a minimum. Extending it 5 mm. into the temperature chamber, the conductivity is increased to the maximum. The inlet tube, located between the outlet tubes, passes through the handle and is graduated at its lower end in millimeters. The bottom of the gutta-percha handle is tapered so as to facilitate the reading of the graduations. The weight of the stimulator is carried by the spring referred to above, and spring and handle are nicely adjusted so that the stimulus point can be easily controlled while being gradually applied to the skin. The pressure can be increased by placing slotted circular weights around the central tube—the inlet tube—on top of the cross-piece connecting the three tubes. (A.J.o.P. Jan. 1923:92-94)..... **26.25**

18223. **Stamp,** Rubber, Foster's, 2 cm. sq.; 100 squares, 2x2 mm., with two central heavy cross lines to facilitate orientation. (51:X9; 51A:X5) **1.00**

18231. **Paper, Tracing,** Architect's, 21x25 cm. Per doz. sheets (225:X10)..... **.15**

18233. **Ink, India;** Higgin's Waterproof. (111:X42B; 225:X33)..... **.45**

18235. **Aniline Dyes.** Set of 5 different colors: red, green, blue, violet, and brown. (225:X10) **1.00**

18237. **Ink,** Indelible, Payson's. One bottle. (225:X10)..... **.55**

18239. **Dish,** Earthenware, Large. (225:X10) ..... **.90**

18241. **Dish,** Earthenware, Small; 1 in. deep. (225:X10)..... **.40**

18243. **Wire Gauze,** Brass; 6x6 in. (111:X73; 225:X11) ..... **.30**

18245. **Vessel** for heating water. (225:X11)..... **.65**

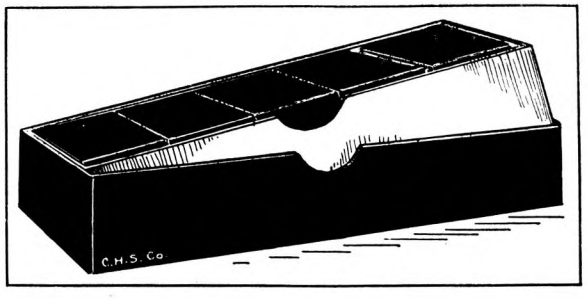
18247. **Nails,** 3 in. (111:X21). Per lb. (approximately 60)..... **.25**

18248. **Spikes,** Carpenter's. (224:150). Per 100..... **1.00**

18249. **Pencil,** Lead. (119:X6-22; 224:150) ..... **.10**

18251. **Needles,** Coarse. (119:X7-28). Per 25..... **.15**

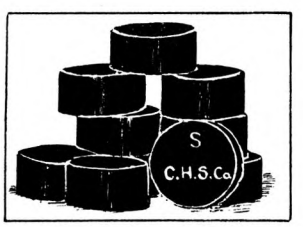
KINAESTHETIC, STATIC, AND VISCERAL SENSES



No. 19003.

19003. **Weighted Cubes.** Set of 5: 3, 6, 9, 12, and 15 grams; inconspicuously marked on one surface with the numbers reversed. These cubes are made of wood, carefully finished, and painted black so that one cannot be distinguished from the other. They are made with the accuracy of analytical weights. The lightest cube has to be carefully followed out in order to bring it down to the required weight, while some of the others require loading to bring them up to the required weight. (173; 221:T5, 1-9; 283:104, 130; 285:T4) **4.25**

Number		Price
19004.	**Weighted Cubes.** Similar to the No. 19003, but consisting of 6 cubes: 3, 6, 9, 12, 15, and 18 grams. Recommended by Dr. Henry H. Goddard in the original revision of the Binet and Simon Measuring Scale for Intelligence. (69)	**$5.00**
19005.	**Weighted Cubes.** Similar to No. 19003, but consisting of 5 cubes, 9, 12, 15, 18, and 21 grams. This is the set originally used by Dr. Howard A. Knox in the United States Public Health Service at Ellis Island, N. Y. (113)	**3.75**
19010.	**Weight,** 4 lbs. With handle. (225:87)	**1.20**
19011.	**Weight,** Titchener's. A hollow wooden cylinder with closely-fitting wood cap, containing a bag of shot which, together with the wooden cylinder, weighs 100 grams; another bag of shot weighing alone 400 grams. (105:X10; 225:X20)	**3.00**
19012.	**Size and Weight Test,** Drever and Collins. Consists of a series of wooden cubes, brass weights, and weighted cylinders. (42:C2)	**12.00**



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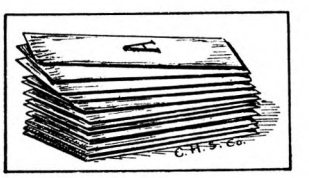

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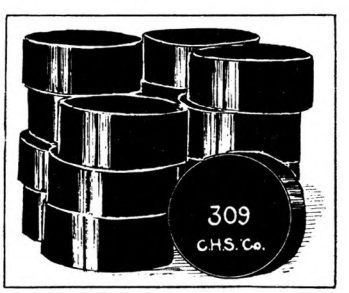

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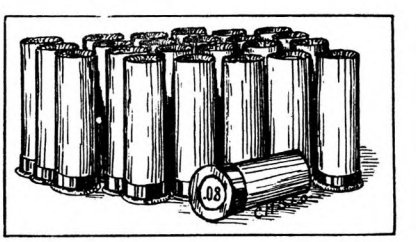


No. 19019.

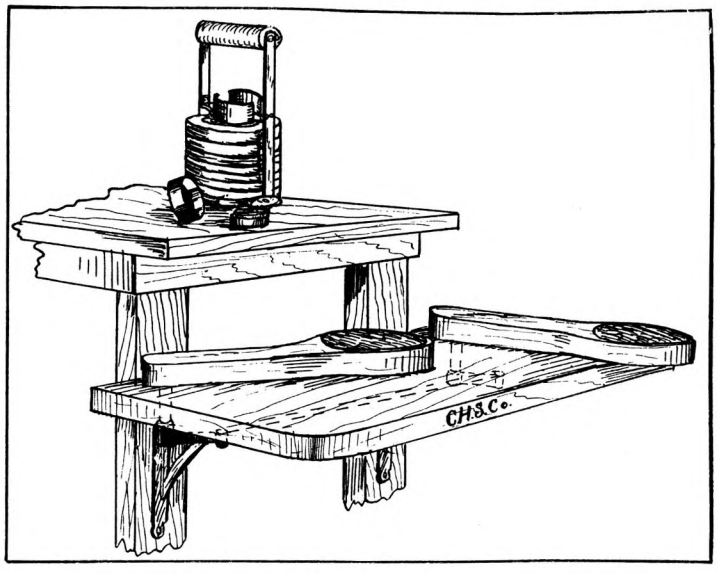
19013.	**Weights, Discrimination,** Fernald's. Ten short cylindrical weights, similar in size, color, and appearance, except that each is lettered with one letter of the word "Epicanthus." The casing is made of Bakelite and each is accurately adjusted and weighted with shot and melted paraffin to weigh 50, 54, 58, 62, 66, 70, 74, 78, 82, and 86 grams respectively. (47:534-536)	**12.80**
19014.	**Scoring Slips.** Set of 10 cardboard slips, numbered and lettered to facilitate scoring of the No. 19013 discrimination weights and the No. 36035 ethical discrimination test. (47:534-536, 545-548)	**.25**
19015.	**Weighted Envelopes,** Titchener's. Set of 108; consisting of an extra standard of 5 grams, an extra standard of 100 grams; 26 envelopes, 5—10 grams, differing by .2 gram increments; 30 envelopes, 10.5—25 grams with .5 gram differences; 25 envelopes, 26—50 grams, with 1 gram differences; and 25 envelopes; 52—100, with 2 gram differences. (227:X11; 228:83-85)	**55.00**
19016.	**Weighted Envelopes,** Foster's. Set of 6; market S, Sa, Sb, Sc, M, and N; and set of 7 marked S1, S2, A, B, C, D, and E. (51:X2)	**6.50**
19017.	**Weights, Discrimination,** Franz's. Two weights, 106 and 110 grams; similar to No. 18109. It is often desirable to use these weights in conjunction with the No. 18109 passive pressure weights. (55:38-39; 57:34-35)	**2.50**
19018.	**Weights, Discrimination,** Fernberger and Paschal. A series of 16 short cylindrical weights; four 100 grams, four 103 grams, two 200 grams, two 206 grams, two 300 grams, and two 309 grams. These weights are made of Bakelite, very carefully weighted, and the lower surfaces marked with the weight. Bakelite is very much superior to rubber, fiber, or similar material for this purpose, and permits a neat, dull finish which makes it impossible to readily identify the weights. (A.J.o.P. 31,1920:147-151)	**28.50**
19019.	**Weights, Discrimination,** Gilbert and Whipple; cartridge type. Comprising a standard of 80 grams and 23 comparison weights yielding the series 80.5, 81, 81.5, 82, 82.5, 83, 83.5, 84, 84.5, 85, 86, 87, 88, 89, 90, 92, 94, 96, 98, 100, 105, 110, and 120 grams. The weights are identical and marked at the bottom with the numbers reversed. (267:T20).	**20.00**

Number | Price

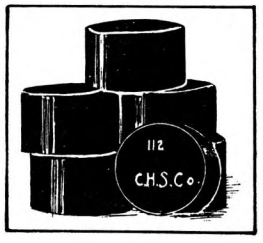
19020. **Weights, Discrimination,** Meyer's. Made of wood, 3¼ in. high, ⅞ in. in diameter, painted black. This set consists of 2 series, A: 7 weights weighing 114, 108, 106, 97, 90, 87, and 85 grams respectively; and B: 7 weights weighing 111, 106, 104, 97, 92, 89, and 87 grams respectively. All of the weights of the A set are marked "A", and those of the B set, "B". Outside of these letters there is no distinguishing mark. (129:D3).. **$15.65**

19021. **Weights,** Fechner's. Consisting of 8 weight-holders with 8 sets of weights like the combination shown in the illustration. The principal weights comprise 1 each 1000, 900, 800, 700, 600, 500, and 400 grams. The minor weights used in the round metallic box at the top of the holder consists of 1 each 200, 100, and 50 grams, and three 20 gram weights. The holder itself weighs 200 grams. (29:X7; 227:X23; 228:265-266)..... **254.00**

19023. **Carrier Bracket.** A device for eliminating the space error. Arranged for attaching to a laboratory table. The platform supports two wooden weight carriers, turning about vertical axes and so connected by a rod underneath the platform that either can be swung into the place vacated by the other. The carriers are faced with felt for noiseless reception of the weight holders. (29:X7; 227:X23; 228:265-266)..... **30.00**



Nos. 19021, 19023.



No. 19028.

19024. **Weights, Discrimination,** Kline's cartridge type. Three sets of 9 weights each, uniform in size and shape. The weights of each set form a consecutive series, differing by 1 gram increment. The main weights, two for each set, of the three sets, form a geometrical progression. (111:X27) **25.50**

19026. **Weights,** Kline's. Set of 3: 650 and 850 grams, and 2 kg. Used for the study of motor attunement. (111:X28) **5.35**

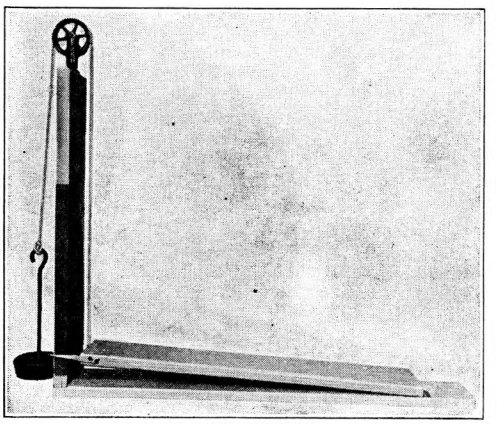
19028. **Weights, Discrimination,** Poffenberger's. Set of 6. A standard of 100 grams and 5 comparison weights of 102, 104, 106, 108, and 112 grams. Made of Bakelite like Nos. 19013, 19018, and 33107. (165:X39) **9.00**

19030. **Weights,** Kline's. For studying the effect of rate, of space, and of order on sense of resistance. One 1 kg. weight and three weights of the same size and shape, two weighing 90 grams each and one 92 grams. (111:X25)..... **5.60**

19031. **Stick,** Wood, 18 in. long. For kinaesthetic perception of size. (119:X12-39)..... **.15**

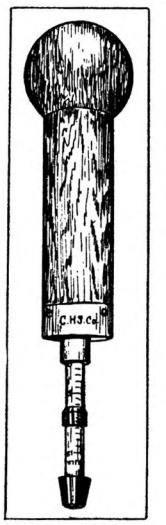
19032. **Figures,** Langfeld and Allport. Consisting of a cardboard disk, diamond, and star, about ¾ in. in diameter. (119:X12-40)..... **.25**

19035. **Arm Movement Apparatus,** Münsterberg's. This piece of apparatus consists essentially of a heavy stand, supporting a system of three tracks which can be adjusted for height, and which, by means of a graduated arc, may be set obliquely or even vertically. A car, carrying a hollow cylinder for the reception of the forefinger and with an indicator directly below, indicates the position on a scale parallel to the tracks. Cords attached to each end of the car running over pulleys at the end of the track bed terminate in weight-holders. Two sliding blocks are provided which can be set at any point along the middle track for marking the beginning and end of the movements. (139:X44; 227:X21; 228:259-260) **250.00**



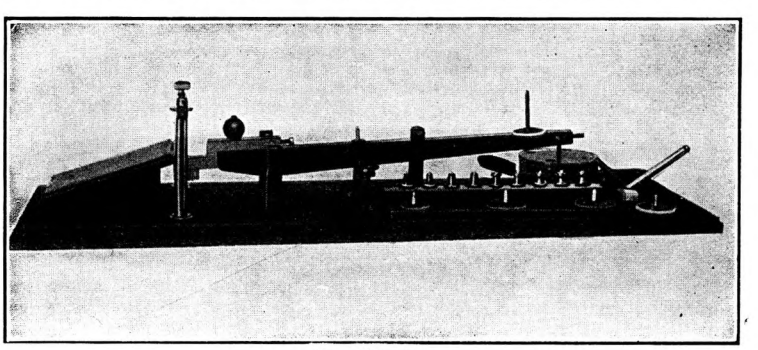
No. 19037.

No. 19041.



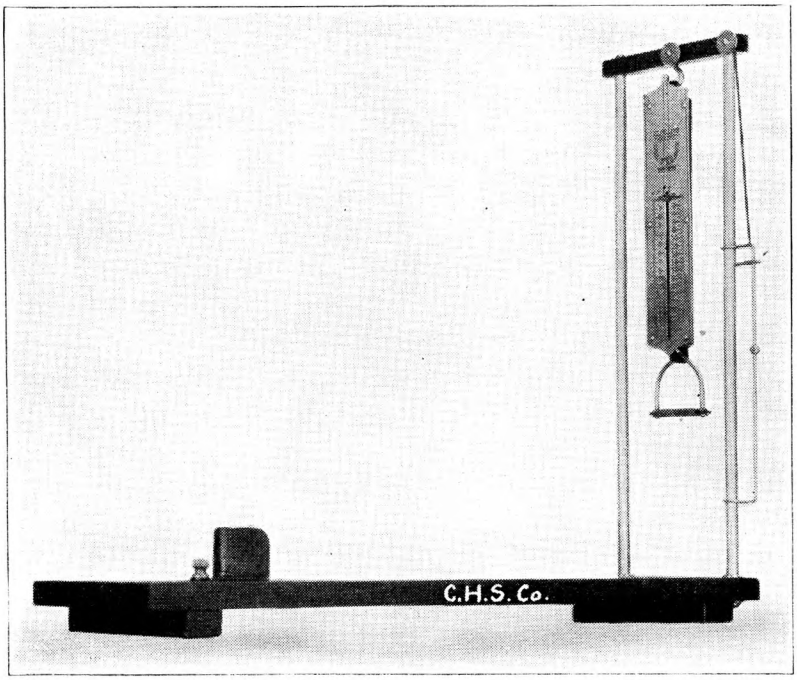
No. 19045.

Number		Price
19037.	**Arm Board.** Used for the study of joint sensations. A base with a hinged board and an upright supporting a pulley. The upper end of the board is provided with an indicator and is attached to a cord running over the pulley, with a weight-hanger on the other end. The apparatus is furnished with the requisite number of weights. (111:X29-31; 139:X41; 187:31)	**$40.00**
19039.	**Algometer,** McDonald's. With a range of 0—50 grams in 1 gram divisions. Provided with a dull point for pain and a cork tip for pressure	**16.50**
19040.	**Algometer,** McDonald's. With a range of 0—500 grams in 5 gram divisions. Provided with a dull point for pain and a cork tip for pressure	**22.25**
19041.	**Algometer,** McDonald's. With a range from 0—8 kgs. in 1/5 kg. divisions. Used on surfaces where a larger stimulating surface is required, such as the scalp, forehead, temples, or shins. (55:37; 57:30)	**40.00**
19043.	**Algometer,** McDonald's. With a range of 0—8 kgs. in 1/10 kg. divisions	**45.00**
19045.	**Algometer,** Cattell's. With a range of 0—15 kgs. in 1 kg. divisions. Designed for producing pain from pressure. The stimulating surface is a rubber tip. The amount of pressure exerted is indicated by a sliding collar which moves downward with the handle and remains stationary at the point at which pressure is stopped. (55:46-37; 57:29-30; 271:94-95)	**20.00**



No. 19051.

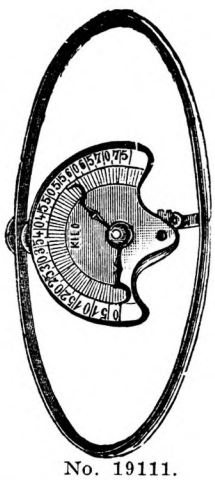
19051.	**Pressure and Pain Balance,** Whipple's. Devised for both pressure and pain. The subject's hand is placed on the rest shown at the left of the balance, and the forefinger extended so that the fingertip takes a position between the two small wooden pressure tips. One of the tips is stationary and the other is attached to the end of a balanced beam. The experimenter places a standard weight on the other arm of the balance, and adds or removes increment weights as required. Pressure is applied at will by means of the release lever shown at the right. Pairs of stimuli are given, until, with proper methodical procedure, the just noticeable difference is determind. (267:T21)	**146.50**
19075.	**Pad** for use with No. 19028 or similar weights. (165:X39)	**1.00**



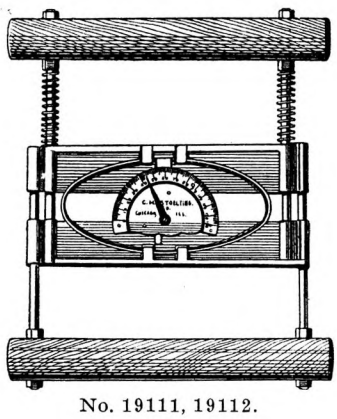
No. 19105.

Number | Price

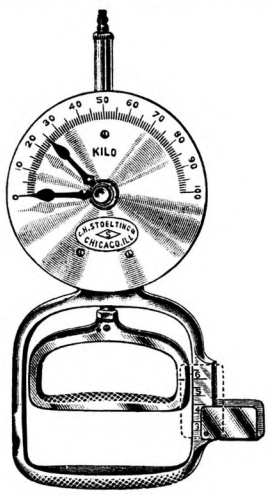
19105. **Dynamometer, Finger,** Titchener's. An arm board with adjustable elbow-stop, supporting an upright frame carrying a balance with a stirrup, pulleys, stylus-carrier, and guide. The cord attached to the indicator of the balance passes over the pulleys and connects with the vertical stylus-carrier. The stylus itself is adjustable vertically on the carrier. The balance has a range of 0—50 kgs. in 1/10 kg. divisions, and 0—30 lbs. in quarter-pound divisions. (225:X23; 226:163) **$44.50**



No. 19111.



No. 19111, 19112.



No. 19119.

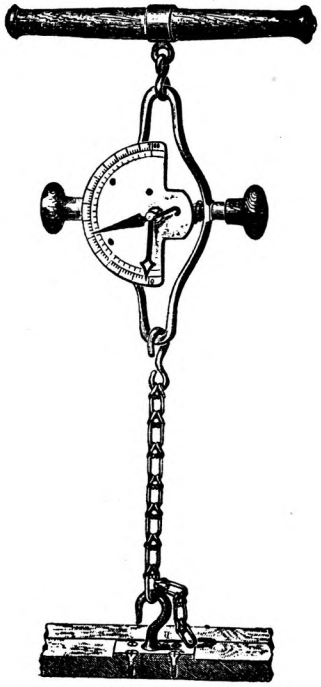
19111. **Dynamometer,** Collins'. An oval steel frame, which when squeezed indicates the amount of pressure by means of a system of gears and a graduated scale with indicators attached to the inside of the frame. The instrument is fairly satisfactory where a high degree of accuracy is not required, and where it is immaterial whether or not the subject is offered the grip best suited to his particular hand. (103:X13; 226:167-169; 271:95-97).. **14.50**

19112. **Push and Pull Attachment.** Devised to increase the utility of the No. 19111 Collins hand dynamometer. The dynamometer is inserted between the two halves of the dynamometer-holder as shown in the illustration..... **25.00**

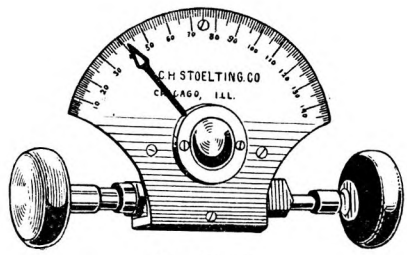
Number Price

19117. **Dynamometer, Hand,** Smedley's. This is the dynamometer used in virtually all of the Child Study Departments of the Boards of Education and in fact wherever a test is made of the strength of grip. The instrument possesses a greater degree of accuracy than any type now in use; furthermore, the adjustability of the stirrup or handle eliminates the disadvantage under which many subjects formerly labored. The outside stirrup is graduated and provided with a clutch or clip to prevent the inner stirrup from twisting during use. The outside stirrup also possesses graduations which enable the examiner to get a record of the grip adjustment. The subject's strength of hand is shown directly in kilograms on the face of the disk. (9:17; 98:100-101; 245:498-499; 247:63-65, 83-90; 261:61-65; 267:T6) **$51.50**

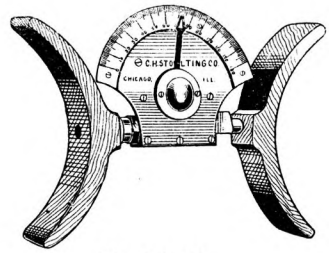
19119. **Dynamometer and Dynamograph, Hand,** Smedley's. This instrument is similar to the above but provided with a piston attachment for operating the tambour required for producing kymograph records. (46th C. C. R. S. 2, 1899-1900:21; 15:X86; 77:206-216; 267:T9) **62.00**



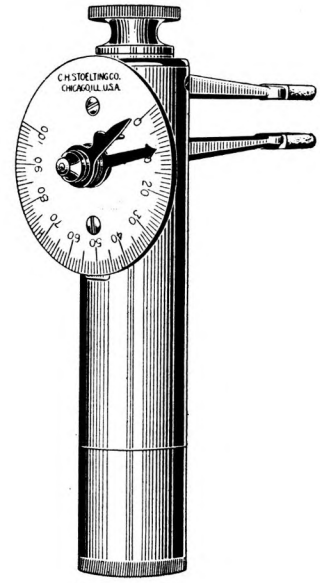
No. 19141.



No. 19145.



No. 19146.



No. 19151.

19141. **Dynamometer, Back and Leg.** An elliptical spring dynamometer, fitted with a hook and floor plate and an adjustable connecting chain and handlebar. The handles at the side increase the utility of the dynamometer so that it can also be used for testing the strength of the shoulder muscles and the adductors of the thigh. (77:206-213; 267:T7-8) **125.00**

19142. **Dynamometer Base** or Foot-Rest for No. 19141 ..... **12.25**

19145. **Dynamometer.** Used for testing the shoulder muscles. The dynamometer is held in the hands at the height of the chest and compressed with both hands **166.70**

19146. **Dynamometer.** Used for testing the adductors of the thigh. Compressed between the legs above the knees **166.70**

19151. **Gnathodynamometer,** Johnson's. For testing biting strength of jaws. With a range of 0—100 lbs. in 1 lb. divisions **75.00**

19202. **Dexterity Test, Manual, No. 1,** Link's. A series of squares of various size, which fit loosely into the Bakelite from which they were cut. This form board originally consisted of two sections but was later combined. It is used to detect the presence or absence of ability required for assembling. (121:56, 72; 245:510-511) **16.00**

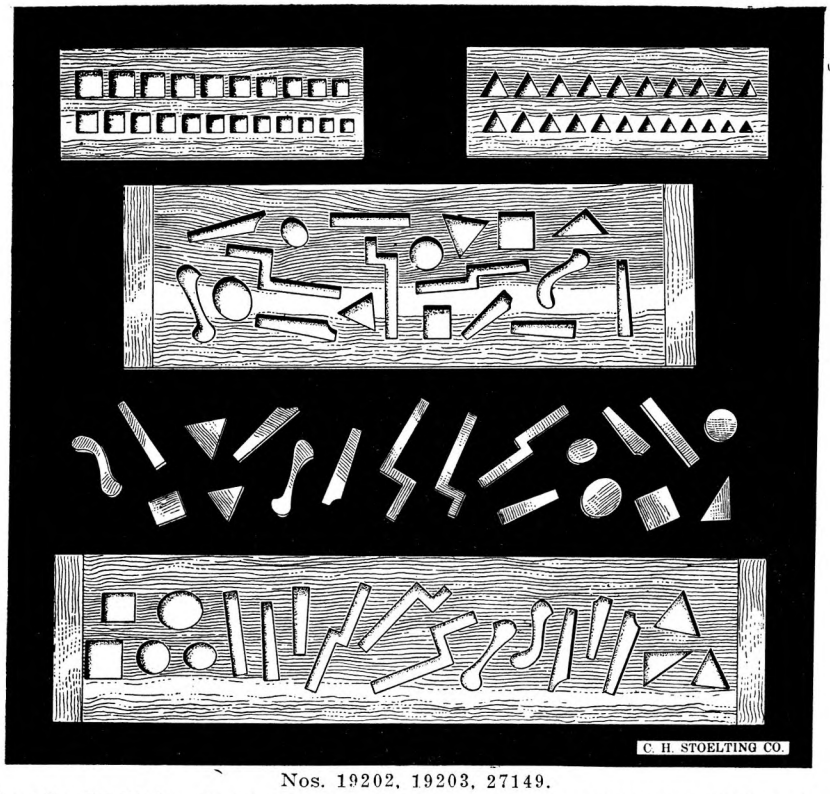
19203. **Dexterity Test, Manual, No. II,** Link's. On the order of the No. I but with a series of triangular insets of various sizes. It has been found valuable in at once detecting people who are left-handed. (121:55-57, 59, 72, 156, 165, 395, 428-429; 245:510-511) **16.00**

19205. **Rounds Placing Test,** Spielman's. N. I. of I. P. Devised for testing motor control in accurately placing small wooden disks. The device consists of a large base board and 10 wood disks with a short sharp pin on one surface to hold them in place at the top of the board in a circular position, and to provide means for making an automatic record of the subject's skill in placing them in the correct position on the record blank. The lower part of the board is recessed to take a piece of felt and is provided with clips for holding the record sheet in place over the felt. The test requires the subject to place the disks

Number | Price

in time with the beats of a metronome as accurately as possibly on the ten printed circles of the record sheet clipped at the bottom of the board. See illustration on page 58.... **$15.00**

19205A. **Record Sheets** for No. 19205 Rounds Placing Test. Per 100..... **15.00**



Nos. 19202, 19203, 27149.

Peg Boards, Wallin's. It was found in the examination of young children in Baby Clinics, and of the low grades of imbeciles in Psychological Clinics, that practically all of the then existing form boards were unavailable for grading motor or psycho-motor capacity because they were beyond the capacity of very immature or low degrees of mentality. This series of 4 boards will prove of great service in Baby Clinics and in clinics for the examination of idiots and imbeciles, or of cases with pronounced motor defects. The series might well be considered an extension downward of the Pintner and Paterson performance tests. The boards are supplid with pegs large enough to be easily grasped and handled by hands which are incapable of delicate co-ordination. The first board (A) contains 6 round pegs; the second board (B), 6 square pegs; the third board (C), 3 round and 3 square pegs; and the most difficult board (D), 2 round, 2 square, and 2 triangular pegs. See illustration on page 58. (11:74-80; 245:511; 250)

19207. **Peg Board A,** Wallin's **2.25**

19207-S. **Peg Board A,** Wallin's. Supplied in a colored cardboard box as one of the units of the Stutsman performance tests for pre-school children. (219:19) **2.50**

19208. **Peg Board, B,** Wallin's **3.25**

19208-S. **Peg Board B, Wallin's.** Supplied in a colored cardboard box as one of the units of the Stutsman performance tests for pre-school children. (219:19)..... **3.50**

19209. **Peg Board C,** Wallin's **3.00**

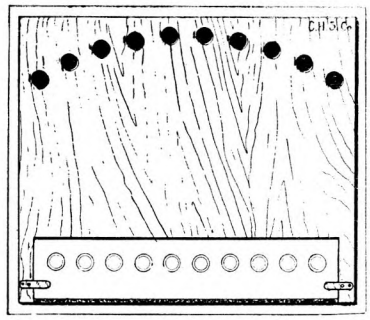
19210. **Peg Board D,** Wallin's **3.75**

19211. **Peg Boards,** Wallin's. Set of 4: A, B, C, and D. (Without boxes)..... **12.25**

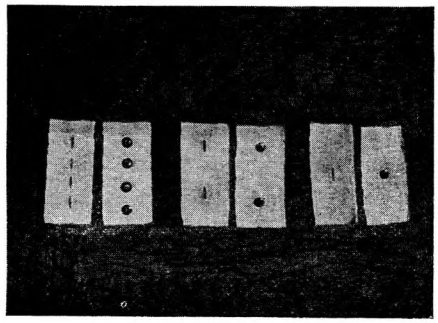
19212. **Tray,** Baldwin and Stecher's. For holding the pegs used in the No. 19211 Wallin peg boards. (11:75) ..... **.35**

19215. **Needle-Threading Test,** Vineland. A set of 5 steel rods of various diameters. One end of each rod is flattened and has a hole drilled in the flattened end proportional to the size of the rod. A wooden block with holes is furnished to serve as a holder..... **4.00**

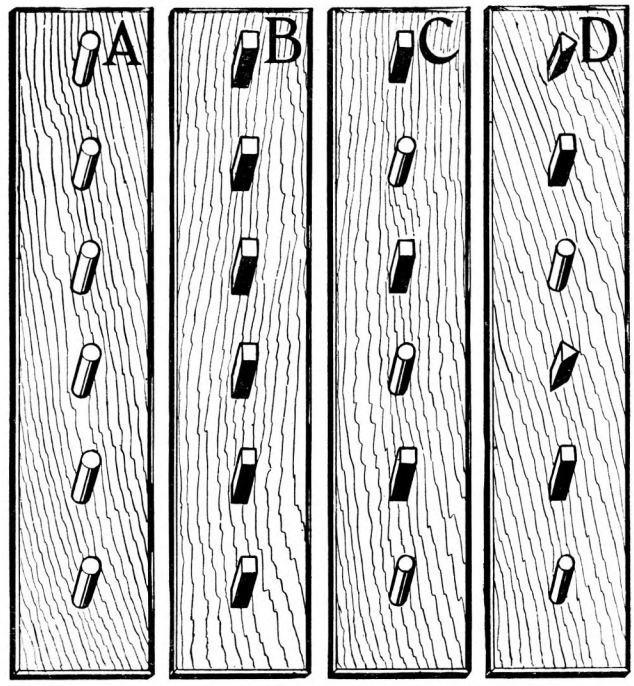
19216. **Tower Test,** N. Y. S. B. o.C. A combination motor and intelligence test, consisting of a nest of 7 square boxes covered with brightly colored pictures. Each box, except the smallest, is open on one side. (23:T67; 147:T12) **1.70**



No. 19205.

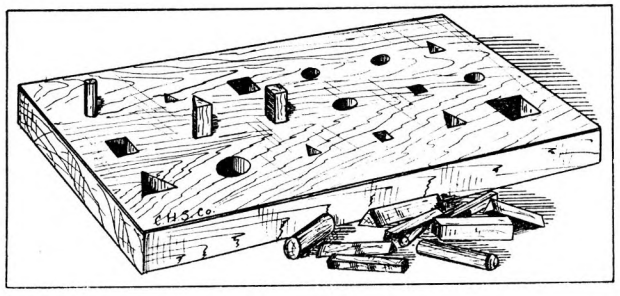


No. 19217.

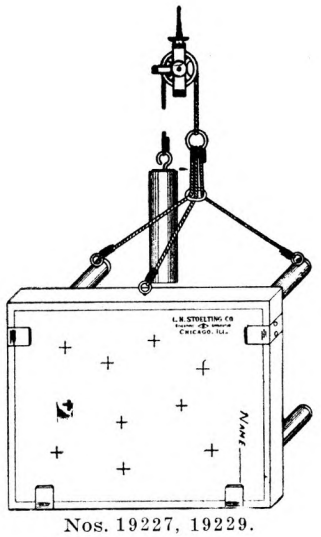


Nos. 19207, 19208, 19209, 19210.

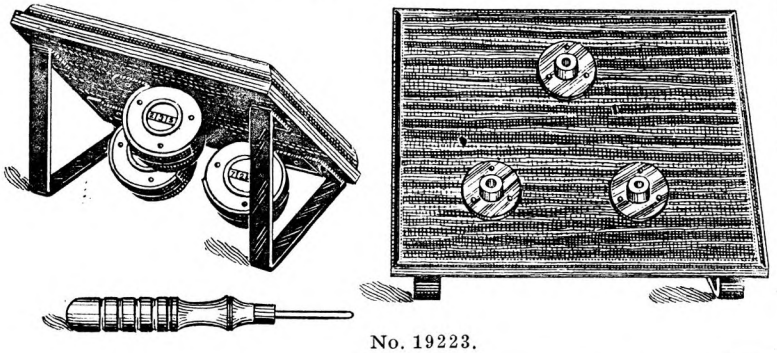
Number		Price
19217.	**Buttoning Test,** DeCroly and Stutsman. One of the DeCroly Educative Games, consisting of paired 3x6 in. strips of flannelette. One pair consists of a strip in the center of which a button is sewed, and another strip in which a buttonhole is worked to fit the button. The second pair consists of a two-button strip and a two-buttonhole strip; the third pair of a four-button strip and a four-buttonhole strip. The problem in each case is to insert the button into the buttonhole. (219:26-28)	**$1.75**
19219.	**Form Board, Kinaesthetic,** Dawson's. Devised for children more or less normal, whose development is beyond that of the defective class for which the No. 27156 Goddard form board and its modifications are used. It tests sensitiveness of touch and muscle, and judgments based upon such experiences; but primarily it tests the child's muscle sensitiveness. The board is 33x42x3.3 cm., and the 18 insets are closely fitted and extend 2.7 cm. above the surface. A heavy cloth bottom prevents the insets dropping out when the board is raised and also facilitates in their removal. The insets comprise cylinders, prisms, and rectangles, all of different dimensions	**23.00**
19222.	**Three-Hole Test,** Mueller's. Arranged to record both success and failure in the attempt of the subject to insert the stylus. The apparatus requires the use of two electric counters like our No. 22407, one for recording the successful insertions and the other for recording the contact of the stylus with the edges or top of the plate. (98:105-106).	**12.50**
19223.	**Tapping Apparatus, Three-Hole,** Scott's. This is a dexterity test. In giving the test the subject is shown how to tap and permitted to practice one-half minute with each hand. After this practice it is made clear to the subject that a high speed is to be maintained, and with this end in view he is given one minute additional with each hand. The score is recorded separately for each hand. In practice it was found that it was not necessary to record the readings on each of the three counters to secure the average. The medium score seems to be sufficient, so that only the medium for each hand is recorded and combined for a total score. By this method the counters which read the highest and the lowest are disregarded. If for the right hand the subject made 36 on one dial, 37 on the center, and 38 on the third, the record would be 37. For all research work, and where the Employment Department is not rushed, it is advisable to use the average rather than the median score. (P.J. June 1928:19-28; 191:286-288)	**35.00**
19225.	**Sling-Shot.** For studying acquisition of motor skill. (111:82A)	**.75**
19226.	**Target** for use with No. 19225 sling-shot. (111:82A)	**10.00**
19227.	**Target Blanks,** Whipple's. A blank containing 10 irregularly arranged crosses. For use on the No. 19229 base board with a pencil or No. 19231 felt pad and No. 19233 metal stylus. (77:222; 267:T11)	**1.50**



No. 19219.



Nos. 19227, 19229.



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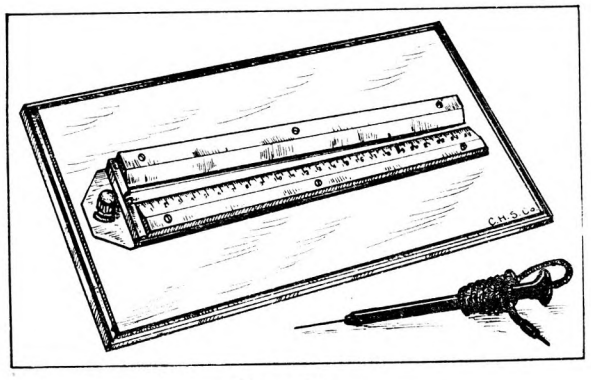

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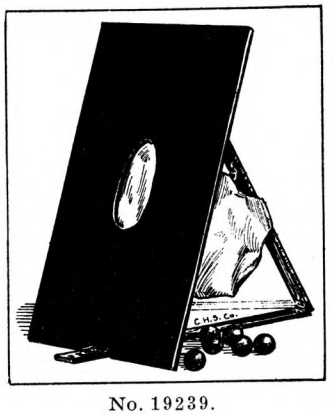
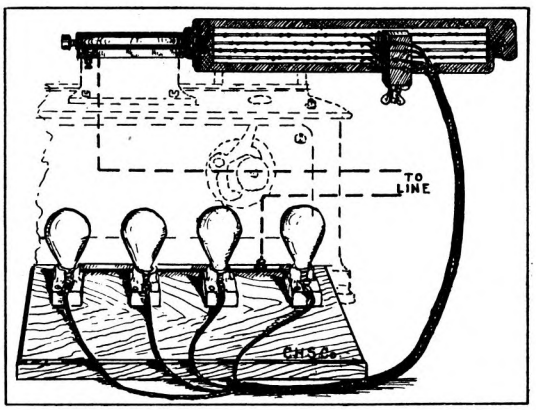


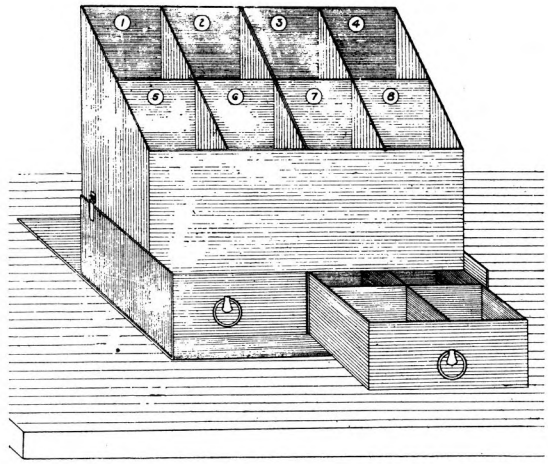
No. 19239.

Number		Price
19229.	**Base Board,** Whipple's. For use with the No. 19227 aiming test. The base board is arranged to be secured on the wall, and by means of the pulley and counterpoise can be adjusted to various heights. (77:222; 267:T11)	**$14.00**
19231.	**Pad,** Felt, ¼ in. thick, for covering base board. To be used on the base board when the No. 19233 metal stylus is used in place of a pencil	**.70**
19233.	**Stylus,** Metal. Used as a substitute for the pencil	**.60**
19234.	**Tracing Path,** Wellman's. A paper blank with two converging lines printed in the center. The lines are 25 cm. long, 5 mm. apart at the top, and 1 mm. apart at the bottom. The paper is fastened by means of thumb-tacks to a large sheet of beaver-board laid on a table. (11:103-105.) Per 100	**1.70**
25851.	**Beaver-Boards,** 25x40 in. Used with the No. 19234 tracing path. Per pair	**1.20**
19235.	**Motor Co-ordination or Tapping Test,** Healy and Fernald. A rectangular blank divided into 150 half-inch squares. Intended to give some estimate of motor co-ordinative power for accuracy and rapidity. (23:T95; 85:T16; 145:T5.) Per 100	**1.50**
19237.	**Stick and String Test,** Stutsman's. A square stick attached to several feet of cord	**.25**

Number		Price
19239.	**Target Board,** Franz's. A board with a circular hole, 6 in. in diameter, supported at an angle on a folding support. A bag is attached to the rear of the board to catch the balls thrown through the opening. See illustration on page 59. (55:53-54; 57:47)....	$15.00
19241.	**Tracing Board,** Whipple's. A modification of the Bryan board. On the top of this board mounted on a glass plate, are two converging strips of metal, connected at the point of closest separation and covered almost to the inner edge with wooden strips, one of which is graduated in millimeters. A binding post is placed at the connection of the two metal strips. The board is usually used with a sounder, single-stroke bell, or electric counter in the circuit between the binding post and the accompanying stylus. Touching the inside edges of the metallic strip with the stylus closes the circuit. See illustration on page 59. (77:222-223; 111:X12; 228:370-371; 267:T12).....	16.00
19242.	**Tracing Board,** Wellman's. This is another modification of the Bryan board. It is somewhat analogous to the Whipple board No. 19241, but with an elongated V-shaped brass strip of metal between two rectangular plates, flanked by metal strips. The brass and metal are imbedded in the board, flush with top. A binding post is attached to the V-shaped central brass strip. A sounder is usually used with this board, and so long as the stylus is kept on the brass strip the operation of the sounder is continuous. The moment the stylus slips off the brass onto the glass the circuit is broken. One glass plate has graduations from 0—25 cm. in 5 mm. divisions. (262).....	50.00
19243.	**Precision Target,** Seashore's. A drill gauge backed by white cardboard and mounted on a wood base. One end of the gauge is connected to a binding post on the base so that the target can be put in circuit with a battery and a sounder, single-stroke electric bell, or a similar electrical signaling device. The apparatus is supplied with a needle-point stylus attached to a flexible conductor. (200:182-184).....	15.00
25543.	**Bell,** Single-Stroke, Electric. For use with No. 19243 precision target or similar apparatus where the constant ringing of a vibrating electric bell becomes objectionable....	1.90
19245.	**Pursuit Apparatus,** Seashore and Koerth. Designed to measure capacity for the acquisition of skill in co-ordination of eye and hand. It can be used on any phonograph using disk records, provided regulation is possible to 1 revolution per second. It consists of a wooden disk carrying a polished target, and on the edge ten equidistant brass plates mounted flush so that the edge presents a smooth surface of alternating wood and metal. The plates are connected to each other and to the target by concealed wires, and with the intervening wood form the commutator that governs the No. 22408 counter (see page 107) and the No. 23207 observer's key which must be used with it. The flexible contact consists of a light tapering strip of spring brass, held in a post by a thumb-screw and mounted so that it can be screwed or clamped to the top of the phonograph and brought in contact with the edge of the wooden disk. The pointer or stylus used by the subject is hinged to a handle so that it can be held in the hand with no pressure other than the constant weight of the wire when brought to bear on the target mounted on the surface of the disk. As there are ten breaks in the disk commutator, the counter will record in tenths of a second the time the observer is able to hold the pointer on the revolving target. (P.M. 140:288-292).....	54.00
19246.	**Visual Motor Action Stimulus.** To be used in connection with a No. 10 Remington typewriter and the No. 19248 commutator. It consists of four small electric lamps, mounted on a base and so wired that they may selectively connected with the contact wires of the No. 19248. As the carriage of the typewriter moves, these lamps come successively in contact and furnish the required visual stimuli. (200:180-182).....	15.00
19247.	**Auditory Motor Action Stimulus,** Hansen's. Similar in operation to the No. 19246 visual motor action stimulus, but in this apparatus there are four telephone receivers suspended on supports and mounted on a base so that there is one at each of the cardinal points, 90° to the right, 45° to the right front, 45° to the left front and 90° to the left with reference to the head of the observer. The receivers, like the lamps, are so wired that they may be selectively connected with the contact wires of the No. 19248 commutator. (200:182).....	15.00
19248.	**Commutator,** Hansen's. For operating the No. 19246 visual and the No. 19247 auditory serial motor action stimuli. This contrivance consists of two parts: (1) a brass plate with 75 insulated contacts arranged in four rows, secured to an iron clamp so that it can be attached to the back stem of the No. 10 Remington typewriter; (2) a fiber block bearing four brushes terminating in flexible connecting cords, and mounted on a clamp so that it can be adjusted and attached to the carriage of the typewriter. The wires of the brush are arranged for connecting to the terminals of Nos. 19246 and 19247. Can be operated by 6V. or 8V. D. C. and a rheostat. (200:182).....	70.00
19249.	**Speed and Accuracy Test,** Whitley's. A blank, the upper half of which contains 100 squares and the lower half 100 equidistant dots. The subject is to place dots in the squares, and attempt to strike the dots as rapidly as possible. (271:84-85.) Per 100...	1.50
19250.	**Maze, Curved,** Whitley's. This is a small blank designed for individual use with lead pencil. (271:86-87.) Per 100.....	.80
19251.	**Maze, Straight,** Whitley's. A small blank with 5 rows of similar figures. For individual use with lead pencil. (271:87-89.) Per 100.....	.80



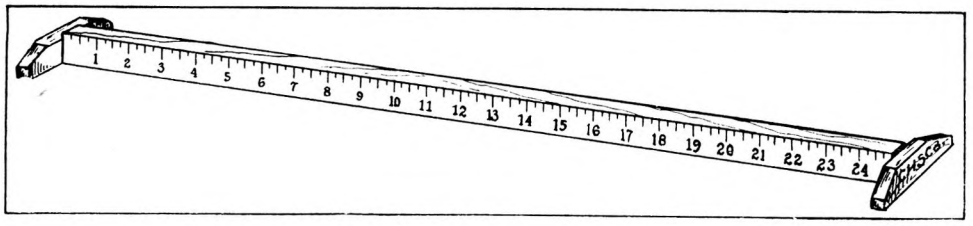
Nos. 19246, 19248.



No. 19257.

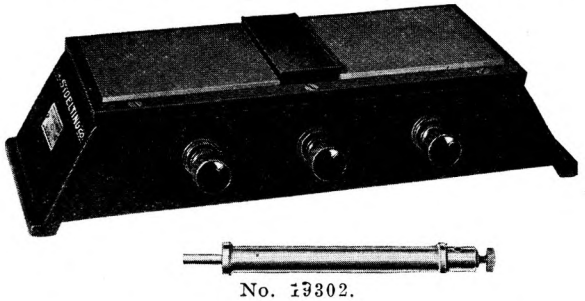
Number		Price
19252.	**Maze, Combination,** Whitley's. A combination of straight and curved paths. For individual use with lead pencil. (271:87, 89.) Per 100	**$ 0.80**
19253.	**Maze,** Black, Whitley's. White zigzag path on a black background. For individual use with lead pencil. (271:87, 89.) Per 100	**.80**
19254.	**Maze, Spiral,** Whitley's. For individual use with lead pencil. (271:87, 89.) Per 100	**.80**
19255.	**Maze, Hampton Court.** Printed in red, on cardboard. (7:X7; 32:330-331; 65:239-241; 156:206.) Per 100	**1.50**
19257.	**Sorting Test, Card,** Jastrow's. This apparatus was devised for use with the study of the time of simple mental processes. It is especially adapted to general tests, such as would be desirable in connection with demonstrational work for the Psychological Laboratory and Clinic for the study of the growth of these processes in children, and for miscellaneous mental tests. The apparatus consisted primarily of eight boxes, arranged in two groups of four each. Later on the sorting box illustrated above was used, and now the same box is being supplied in two parts, so that it can be used for the Jastrow apparatus and the No. 19263 Woolley and Fischer modification. Each compartment is equipped with a small holder in which the index card is placed, so that the particular object which is to be placed in each compartment is readily visible. Below each of the four compartments or bins is a drawer with four parts for keeping separate the cards thrown into each bin. The cards used are of a special type, made up with the greatest care to conform strictly to the requirements laid down by Dr. Jastrow. The A set, the simplest, consists of the following 300 cards: 5 each red, orange, yellow, green, blue, violet, gray, white, A, B, C, D, E, F, G, H, 1, 2, 3, 4, 5, 6, 7, 8; 6 each red, green, blue, yellow, A, B, C, D, 1, 2, 3, 4; 12 each red, blue, A, B, 1, 2; a set of index cards, and the following extras: 2 each orange, violet, gray, white, E, F, G, H, 5, 6, 7, 8; and 1 each red, green, blue, yellow, A, B, C, D, 1, 2, 3, 4. (P.R. May 1898:279-285)	**45.00**
19259.	**Sorting Test, Card,** Jastrow's. Similar to No. 19257, with 2 boxes the equivalent of the single box in the illustration under No. 19257. This set (B) contains, in addition to the boxes, the following cards: 5 each red, orange, yellow, green, blue, violet, gray, white, A, B, C, D, E, F, G, H, 1, 2, 3, 4, 5, 6, 7, 8, circle, hexagon, horizontal rectangle, perpendicular rectangle, square, triangle, diamond, oval, house, kite, table, drum, shoe, bird, grapes, scissors; 6 each red, green, blue, violet, A, B, C, D, 1, 2, 3, 4, circle, square, triangle, hexagon, shoe, bird, house, kite; 12 each red, blue, A, B, 1, 2, circle, square, shoe, bird; 2 sets of index cards; 160 recessed cards, and 5 sets of material	**75.00**
19261.	**Sorting Test, Card,** Jastrow's. Similar to No. 19257. This set (C) contains, in addition to the boxes, the following cards: 5 each red, orange, yellow, green, blue, violet, gray, white, A, B, C, D, E, F, G, H, 1, 2, 3, 4, 5, 6, 7, 8, circle, square, triangle, diamond, oval, horizontal rectangle, perpendicular rectangle, hexagon, house, kite, table, drum, shoe, bird, grapes, scissors; 10 each red, green, blue, violet, A, B, C, D, 1, 2, 3, 4, circle, square, triangle, hexagon, shoe, bird, house, kite; 20 each red, blue, A, B, 1, 2, circle, square, shoe, bird; 2 sets of index cards; 300 recessed cards, and 10 sets of material	**105.00**
19263.	**Sorting Test, Card;** Woolley and Fischer's modification of the Jastrow test. Consisting of a box, with drawer and four compartments or bins, each marked with a colored disk; and a pack of 48 cards, 12 each with a blue, green, yellow, and red center. (261:81, 87; 279:52-64, 231, etc.; 281:S9)	**13.00**
19265.	**Sorting Cards.** Set of 48, for use with No. 19263	**2.00**
19267.	**Sorting Cards,** Geometric. Set of 48	**3.75**
19269.	**Sorting Test, Card,** Simple, Link's. A sample set of 6 cards, 3 with and 3 without an "O" on them; a test set of 50 cards, upon the first of each one of which appear 7 to 12	

Number		Price
	letters promiscuously distributed; 20 containing the letter "O"; also a sorting board with the letter "O" in the upper left-hand corner. (121:27-28, 82, 394, 398-399).....	$ 6.25
19270.	**Sorting Test, Card,** Complex, Link's. A sample set of 8 cards for preliminary trial, 50 cards with 7 black pasted promscuously on each one, and each card marked on the back for identification. With these cards is included a sorting board, with each of the four corners properly marked. (121:79, 82, 166, 394, 409-410).....	6.25
19271.	**Sorting Test, Card,** Minnesota. One of the Minnesota series of tests for mechanical aptitude. It consists of two wooden sorting trays and a supply of playing cards, one half with blue backs and the other half with red backs. (P.J. Apr. 1928:473-478).....	7.25
19272.	**Sorting Test, Card,** Baldwin and Stecher. A tray with 10 compartments, and 50 cards with 10 different kinds of geometrical figures. (11:64-73).....	3.00
19273.	**Punch, Slotted,** Baldwin and Stecher. For punching broken circles in the No. 19274 paper used in the Perforation Test. (11:95-98).....	1.00
19274.	**Paper, Bond,** 8½x11 in. Used in the Perforation Test. (11:95-98). Per 100.....	.50
19275.	**Wood Frames,** Baldwin and Stecher. For holding taut the paper used in the Perforation Test. (11:95-98). Each.....	1.00

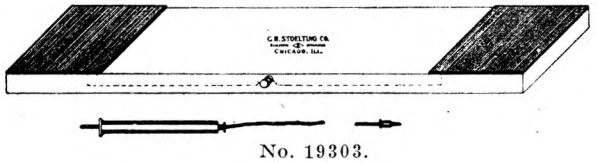


No. 19276.

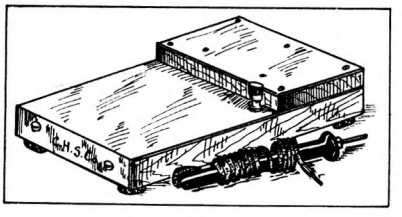
19276.	**Walking Board,** Johnson's. Two heavy supports carrying a laminated board 2.5 mm. long by 6 cm. wide, graduated on one side from 1—25 in 10 cm. divisions. (11:98-100)..	17.50
19277A.	**Dressing Frame,** Baldwin and Stecher; 9x12 in., with rounded corners. Covered with calico and supplied with 6 buttons and a corresponding number of buttonholes. (11:101).	3.50
19277B.	**Dressing Frame,** Baldwin and Stecher; 9x12 in., with rounded corners. Covered with denim and supplied with 16 shoe buttons and a corresponding number of worked buttonholes, to be fastened with a button-hook. (11:101-102).....	4.50
19277C.	**Dressing Frame,** Baldwin and Stecher; 9x12 in., with rounded corners. Covered with denim and pierced with 12 pairs of metal eyelets, to be laced with a shoe-lace. (11:102).	3.50
19277D.	**Dressing Frame,** Baldwin and Stecher; 9x12 in., with rounded corners. Covered with denim and pierced with 6 pairs of metal eyelets, to be laced with a shoe-lace. (11:102).	3.50
19277E.	**Dressing Frame,** Baldwin and Stecher; 9x12 in., with rounded corners. Covered with calico on which are sewed 9 pairs of metal snaps of the type used in place on hooks and eyes. (11:102-103).....	3.50
19277F.	**Dressing Frame,** Baldwin and Stecher; 9x12 in., with rounded corners. Covered with calico and supplied with 7 pairs of hooks and eyes. (11:103).....	3.50
19277G.	**Dressing Frame,** Baldwin and Stecher; 9x12 in., with rounded corners. Covered with denim and supplied with 6 sets of tapes for tying bow-knots. (11:103).....	3.50



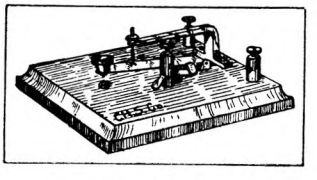
No. 19302.



No. 19303.

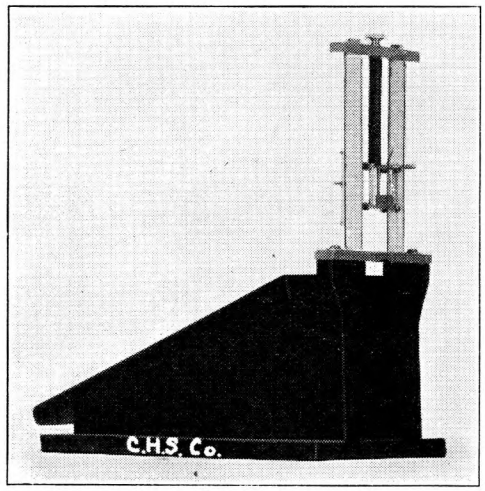


No. 19307.

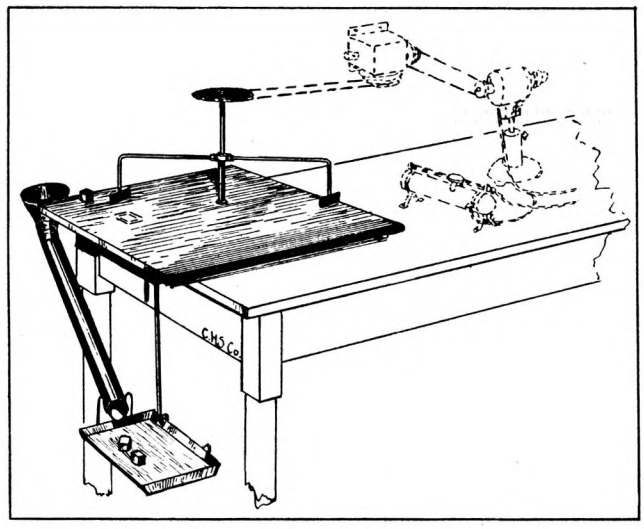


No. 19331.

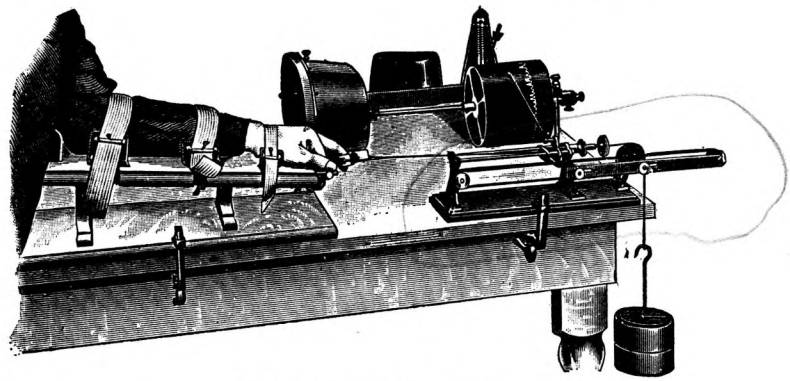
Number		Price
19302.	**Tapping Apparatus,** Dunlap's. Designed to insure accurate records by requiring the reactor to strike alternately on the two plates. With the double plate the necessary stroke gives a more reliable contact, and the slight oxidation of the plate is of less importance. By the use of a definitely co-ordinated movement, tremor tapping is eliminated, also the effect of pseudopractice due to changes in method of holding stylus, in force of blow, and in force of grip of the stylus; changes which come suddenly in many cases with the single plate. The plates in this apparatus are 3 in. sq. and separated by a rubber block which rises above the surface of the plates. The block prevents the reactor from drawing the stylus across the plates. The plates are mounted on a heavy rectangular cast-iron base, supplied with a 1 M.F. condenser for reducing the oxidation of the plates produced by sparking. Complete as illustrated, with stylus. Can be used with the No. 22407 electric counter or the No. 20254 Ewald chronoscope	$ 29.00
19303.	**Tapping Board,** Whipple's. Consisting of a 55x10 cm. board, with 10 cm. sq. brass plates at either end, connected to a central binding post; and a tapping stylus, with flexible connecting cord. Uusually used in connection with the No. 22407 electric counter. (59:X16; 77:224-227; 181:449-450; 245:494-495; 261:70-80; 267:T10; 279:48-52, 225)	10.00
19305.	**Stylus** for No. 19303, with flexible connecting cord	2.00
19306.	**Screen;** 20x24 in. beaver-board. (11:94)	1.00
19307.	**Tapping and Three-Hole Board,** Fernald's. A rectangular block of wood, covered with a brass plate furnished with a binding post, and covered at one end with another block of wood fastened with a metal plate in which are three holes in the form of a triangle, 1 cm. deep and 6.5 cm. apart. Usually used with the No. 22407 electric counter. Complete as illustrated with stylus and flexible connecting cord. (11:94-95; 47:537)	12.50
19309.	**Motility or Tapping Apparatus,** Ream's. Devised for testing motor ability. It consists of a No. 20111 metronome with mercury contacts, a No. 25511 telegraph key, a No. 22408 electrically-operated counter, the No. 23207 observer's key, two No. 25503 dry cells, one No. 25549 connector, and five No. 25552 flexible connectors. (P.M. 140:229-319)	118.60
19331.	**Key, Trilling,** Jastrow's. A delicately pivoted strap key, with adjustable spiral spring for regulating the amplitude and sensitiveness of the strap carrying the contact point	12.50
19351.	**Bulb,** Rubber. Suggested by Dr. Shepherd Ivory Franz for testing speed movement by letting the subject operate a tambour by means of squeezing a bulb held in the hand. (55:47; 57:41)	.50
19407.	**Ergometer,** Cattell's. For use in a vertical position. The stirrup is supplied with a stylus-holder for making kymograph records, and one of the vertical supports is supplied with a scale and indicator. The finger stirrup is supplied with a projection which moves the indicator along the scale and leaves it set at the maximum pull. The scale has a range of 0—9 kg. in half kilo divisions. See illustration on page 64. (226:170)	107.00
19413.	**Ergograph,** Mosso's; modified by Lombard. Consisting of the ergograph proper and an arm-rest with easily adjusted straps for keeping the forearm in the proper position. The ergograph is supplied with a finger stirrup and a set of weights, and the carriage carries on one side a stylus for making a kymograph record and on the other a pawl which moves a graduated endless tape passing over pulleys, and so permits reading in millimeters the extent of the finger movements. The weights for the ergograph include a 1000 gram hanger or support, three 1000 gram weights, one 500 gram weight, two 200 gram weights, and one 100 gram weight. See illustration on page 64. (32:58-59; 77:213-214; 103:X20; 137:80-88; 245:501-502; 267:T9; S.P.:726; S.P.P.,:230-231)	167.50
19422.	**Factory Machine,** Bogardus'. Originally devised to study the relation of fatigue to industrial accidents. It stimulates a typical unguarded factory machine. In order to operate the machine, a small 110V. motor, rheostat, and speed reducer are required (see Nos. 12611, 12622, and 20269 or 20267). The machine consists of a base supporting a vertical spindle carrying the driving pulley, and a cross-piece to which is attached at each end a rectangle of metal simulating a knife. At the operator's side of the base is a contact device made up of two broken concentric squares, wired so that when the operator attempts to place a brass-faced cube on the inner square, any failure to conform to the required degree of accuracy can be recorded on a kymograph by means of signal magnets or time markers. A funnel-top tube leading to a tray is attached to the left of the machine base and serves to collect the cubes as they are dropped by the operator. Twelve brass-faced cubes are supplied with each machine. (A.J.o.S. 17, 1911:362-374; P.R. Sept. 1914; J.o.Ex.P. Feb. 1921:25-28; 98:209-210; 261:255)	77.00
19423.	**Factory Test,** Bogardus'. Simulates a typical unguarded factory machine like the No. 19422 originally designed by E. S. Bogardus to test fatigue in relation to industrial accidents, and modified for use as a rate of learning test by J. Weidensall. A metal arm revolves at a chosen rate of speed and carries two imitation knives, one of which sweeps a small block into the operator's left hand as the right hand places a second block in position to be swept off by the second knife. This model does not have the electrical connections and is supplied with plain wooden cubes. (261:225)	30.00
19427.	**Ergograph,** Porter's. This is the simplest type of ergograph, and like the majority of ergographs, devised for recording on a kymograph. See illustration on page 65. (103: X20; P.P.:220-221)	10.00
19428.	**Clamp, Table.** For No. 19247 ergograph	1.00



No. 19407.

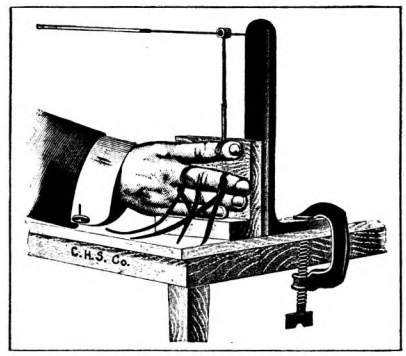


No. 19423.

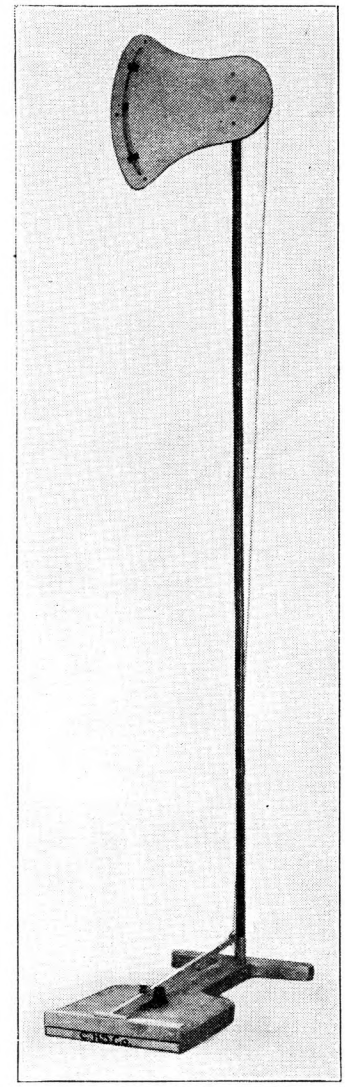


Nos. 19413, 22207, 20109.

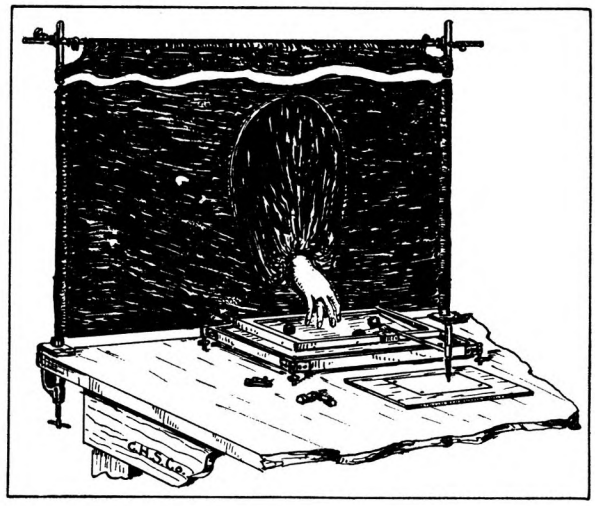
Number		Price
19433.	**Volometer,** Fernald's (G.G.). This achievement capacity or kinetic will test was devised to test that function of the mind called will, persistency, determination, pluck, or spunk, in terms of muscle fatigue in units of time. Fatigue is rapidly induced without harmful results by requiring the subject to stand with heels ¼ in. off the floor. The muscles fatigued are those whose strength and development correspond to the body weight; i.e., the muscles used to support and carry the weight of the body. Previous training plays only a nominal part in this test. The indicator at the top of the upright supports vibrates between two adjustable limiting stops and gives the subject visual evidence of the position of his heels. The subject stands on the base with both heels on the crosspiece of the lever to which is attached a very fine wire connecting with the indicator at the top of the upright. The moment the subject's heels touch, that is, when the crosspiece is on a level with the platform, an elecric circuit is closed which operates a buzzer hidden in the base of the apparatus. This apparatus is positive and delicate beyond all demands, visualizing even the involuntary tremors communicated by the heels of the fatigued subject. (47:537-541; 61:204; 245:579-580)	**$120.00**
19503.	**Automatograph,** Jastrow's. Consisting of a glass base mounted in a metal frame, with leveling screws, on which are supported three smooth metal balls, a glass platform with a metal ring extending below the glass in order to keep the steel balls from rolling beyond the platform. This platform also carries a holder with a stylus. The subject is prevented from seeing the movement of his hand or arm by means of a black screen with a sleeve which can, by means of a drawstring, be fitted tightly to the wrist or arm. Complete as shown, with supports, table clamps, and level. (215:205; 226:159, 162)	**60.00**
19509.	**Automatograph,** Titchener's. An arm board supplied with an elbow-stop at one end and a stylus with adjustable holder at the other. The automatograph is supported from above by means of the adjustable cords passing through screw-eyes at four points of the arm board. (15:X167; 139:X154; 225:X22; 226:158-159)	**9.00**
19511.	**Automatograph,** Foster's. A simple arm board with an adjustable four-point suspension, provided with an elbow-stop at one end and a rod with clamp for holding the stylus at the other end. (51:X4; 53:X4)	**5.00**



Nos. 19427, 19428.

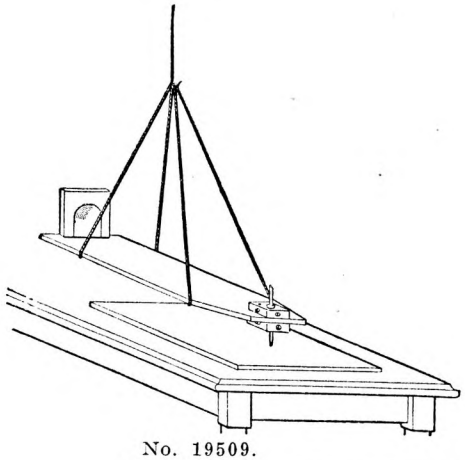


No. 19433.

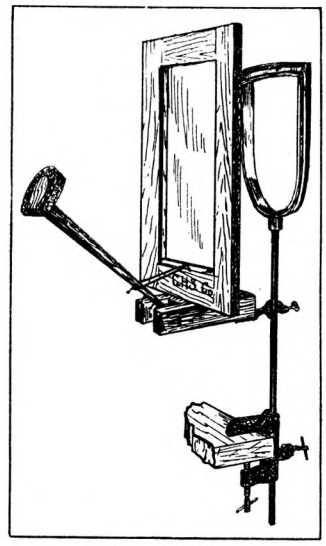


No. 19503.

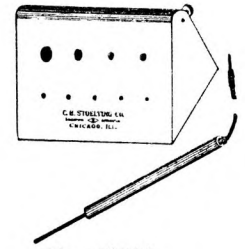
Number		Price
19513.	**Winking Glass,** Vineland. A double-thick glass, 8x10., in a wooden frame to which is attached a felt hammer which can be released so that it will fly up and strike the glass in front of the eyes of the subject. Complete with head-rest and table clamp.....	**$ 31.50**
19514.	**Winking Glass,** Vineland. Same as above but without head-rest and table clamp.....,	**22.00**
19515.	**Hammer, Reflex**	**2.75**
19516.	**Hammer, Reflex,** Foster's. For use with the knee jerk register. (51:X3; 51A:X2)....	**.40**
25657.	**Clamp, Standard,** 3 in. opening. (51:X3, 5; 51A:X2, 3).....	**.30**
19517.	**Knee Jerk Register,** Foster's. Composed of a No. 25117 brass-tipped meter stick, a 5x8 in. rectangle, and a 19 in. rod drilled for use as part of the No. 20134 simple vernier chronoscope in Experiment 5; a No. 22163 universal clamp, 2 No. 54107 right angle clamps, an extra rod, a cardboard scale, and a heavy rubber band. (51:X3; 51A:X2)....	**8.65**
19518.	**Shoe Attachment** for use with the No. 19517 knee jerk register (51:X3; 51A:X2).....	**.60**
25837.	**Rubber Bands** for use on No. 19517 knee jerk register. (51:X3; 51A:X2) Per gross....	**.60**
19520.	**Saliometer,** Lashley's. Designed for the study of the conditioned salivary reflex. The instrument is made of silver and consists of two concentric circular chambers, each connected separately to a long tube of small bore. The air-suction tube is provided with a platinum loop in order to prevent the mucosa from being drawn into the tube. The instrument is placed against the inner surface of the cheek so that the central cell cov-	



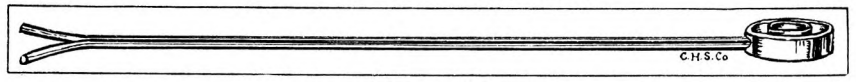
No. 19509.



No. 19513.

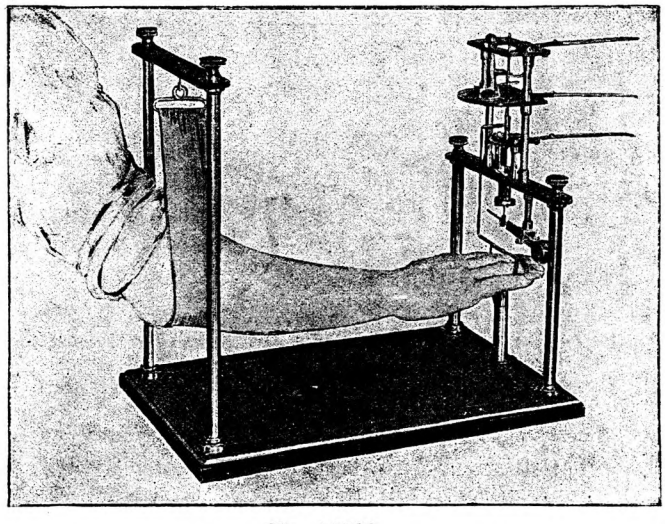


No. 19523.



No. 19520.

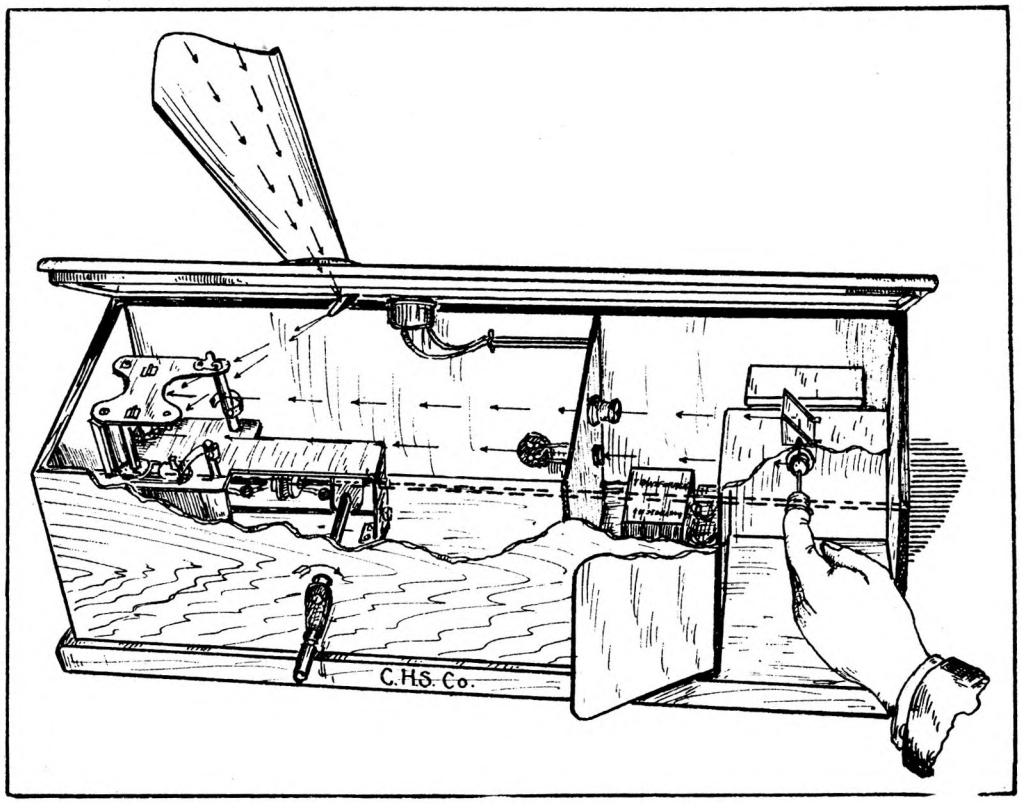
Number		Price
	ers the mouth of Stenson's duct, and the air is exhausted from the outer cell by means of a suction pump. The disk then clings indefinitely to the cheek. In a few moments the saliva fills the central chamber and begins to flow out through the tube into a suitable measuring device. When the jaws are closed the tube lies between the cheek and the upper molars, and passes out through the corner of the mouth. There is little interference with talking or eating and the instrument may be worn for hours. (27:156; 156: 109-110; 257:29-32; J.o.Ex.P. 1:462)	$ 13.00
19523.	**Steadiness Tester.** A metal casting with one face at an angle of 45° and pierced with nine holes of different diameters. A binding post is attached to one end of the casting so that it can be put in circuit with a battery and sounder, buzzer, bell, counter, or any other signalling or recording device. The apparatus is supplied with a stylus attached to a flexible connecting cord. The subject is required to insert this stylus into the holes without making contact. As soon as contact is established, the fact is indicated by the warning click of the signalling device or the movement of the indicator of the recording apparatus. (77:219-221; 245:505-506; 261:66-70; 267:T13; 279:41, 211)	9.00
19525.	**Stylus** for No. 19523 steadiness tester	2.00
19526.	**Steadiness Tester,** Patinsco	40.00



No. 19529.

Number | Price

19529. **Tridimensional Analyzer,** Sommer's. For obtaining a kymographic record of the involuntary tremors of the finger. By an ingenious arrangement of levers the movements of the finger are transferred to a series of three styli, which record the pressure, push, and lateral movements. A counterpoise for balancing the recording system provides means for fairly delicate adjustment. (32:453-454; 226:161-162; 267:T13)..... **$188.25**



No. 19531.

19531. **Ataxiagraph,** Beall and Hall. Devised for studying toxic, organic, and functional tremors; but also useful for the selection of individuals likely to develop into good marksmen, and the study of troublesome vibrations of rotating machinery under starting and running conditions. The apparatus can be mounted vertically so as to be used in the laboratory for making records such as described in Experiment 13 of Kline's "Psychology by Experiment." It is also well adapted for use in the Psychological Clinic for studying finger and other tremors and involuntary movements referred to on pages 502-508 of Wallin's "Clinical and Abnormal Psychology."

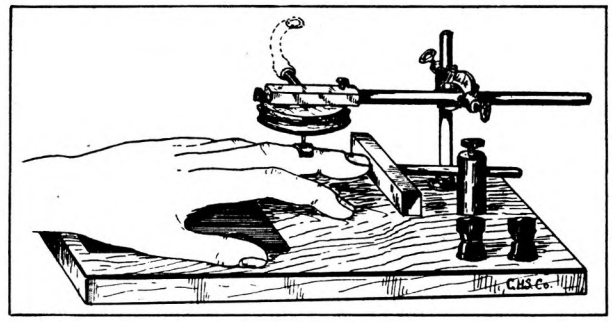
With the aid of this apparatus it is possible to study the toxic tremors due to tobacco, alcohol, and hyperthyroidism; the organic tremors due to brain lesions, general paresis, and paralysis agitans; the functional tremors due to fear, hysteria, neurasthenia, and various other psychoneuroses. Hand tremors usually consist of vibrations having amplitudes of 1/16 to 3/8 in. and frequencies varying between 5 and 15 cycles per second.

In order to secure a record of the subject's tremors, a device for carrying a highly polished hemispherical surface is attached to the finger and held in a parallel beam. The optical construction is such that the image focused by the lower lens follows the vertical component of the source of light, while the upper lens projects the horizontal component of the motion reflected from a 90° mirror. These motions are somewhat magnified and accurately recorded on the moving film. The apparatus can be used for either observation or recording, and the operator can watch the movements while a record is being made. It has a very wide application in both the clinic and laboratory and permits of the study of tremors and vibrations heretofore impossible. (G.E.R. May 1924:297-303). **200.00**

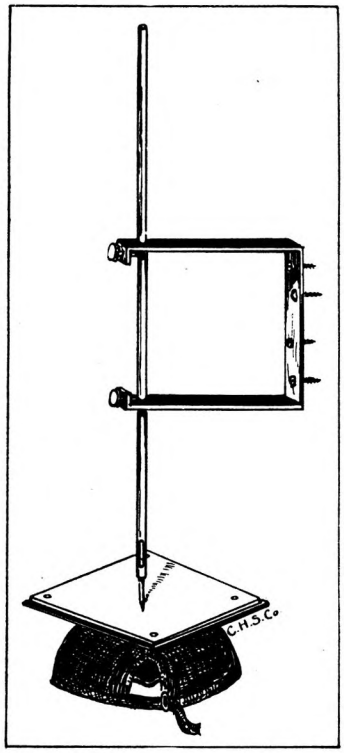
19533. **Ataxiagraph,** Kline's. Devised for studying the head—body movements in a standing position. A bracket arranged for fastening to a post or wall supports a holow tube, in which at the lower end slides as frictionless as possible, a short tube carrying a properly weighted stylus with a lifting pin. The lifting pin is used to raise the stylus slightly whenever it presses too hard on the smoked paper. The metal sleeve in which the stylus operates is adjustable for height. A mortar-board cap, reinforced with a light three-ply board top, is furnished for the subject's head. The smoked paper is attached to the board at the top of the cap by means of thumb-tacks. (111:X13; 215:203-204)..... **16.75**

19553. **Electrodes** with flexible connectors. (225:X20; 226:143-148)..... **4.50**

19561. **Atomizer** with 1/4 lb. of ether. (225:X20; 226:143-148)..... **2.50**



No. 19567.



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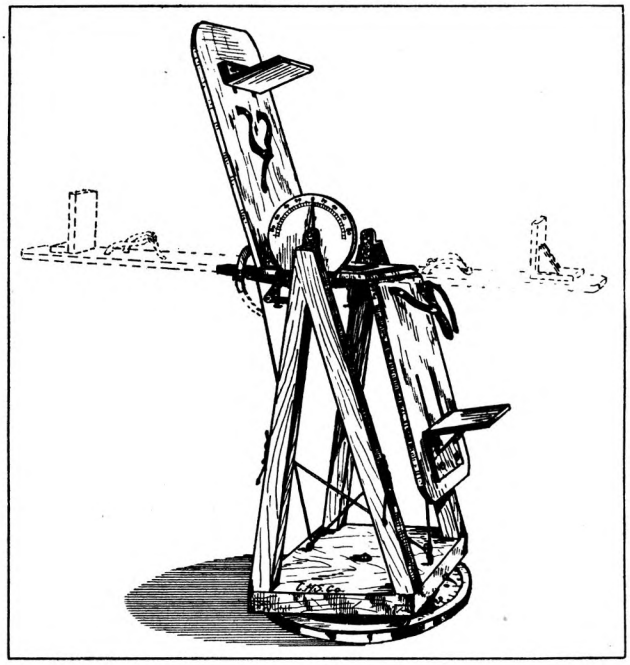
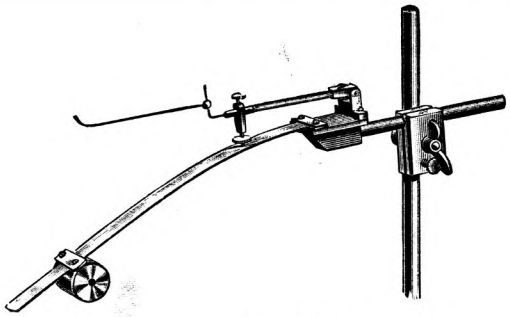


No. 19703.

Number		Price
19567.	**Conditioning Apparatus,** Watson's. Devised for invoking the conditional motor reflex. Used with the aid of an inductorium, electric bell, and the necessary accessories such as a kymograph, tambour, signal magnets, keys, and battery. The apparatus as illustrated consists of a wood base provided with binding posts, a palmar electrode and a receiving tambour to which is attached a saddle-shaped button to fit the top of the finger. Each movement of the finger evoked by the shock from the secondary of the inductorium is transmitted to the receiving tambour located above the finger electrode. (29:X17; 32:173-174; 257:32-38)	**$ 16.50**
19703.	**Rotation and Tilt Table,** Titchener's. A combination of Sanford's and Scripture's ideas for rotation and tilt tables. Devised for the convenient study of the sensations due to rotation and tilting of the body at different angles. This apparatus is substantially constructed and meets all the requirements of experimental work in the Psychological Laboratory. The body-support is made in three sections so that the subject can be put on it in a reclining or sitting position. The head and foot boards are adjustable, and straps for securing the subject are attached to both the upper and lower sections. (187:39-43, 368, 369; 194:362-369)	**325.00**

TIME AND RHYTHM

20003.	**Time Marker,** Basch's. The motive power of this simple device consists of a stiff, flat steel spring clamped on one end and fitted with a movable weight. The stylus is mounted above the spring so that the movement of the spring is communicated directly to the stylus support. The weight on the spring is adjusted to produce 2 vibrations of the spring per second, but with the aid of a screw-driver it may be set anywhere along the spring and adjusted to give vibrations ranging from 2 to 8 per second. The spring vibrates long enough for most experiments. See illustration on page 69. (B.E.E.P.:23-24)	**31.00**



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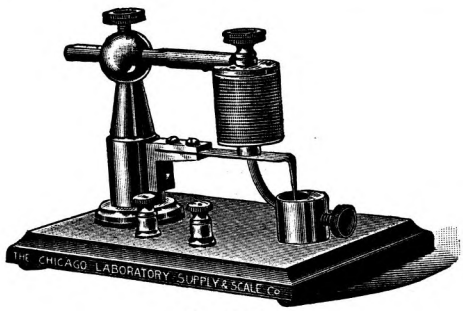
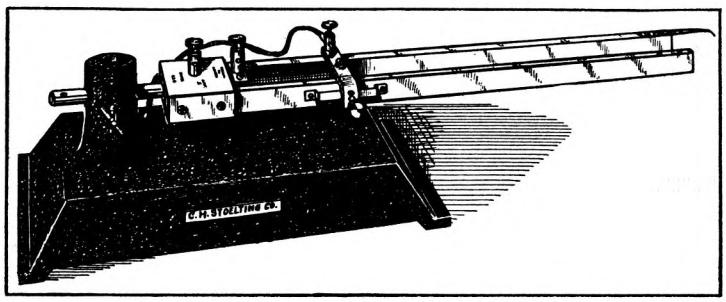
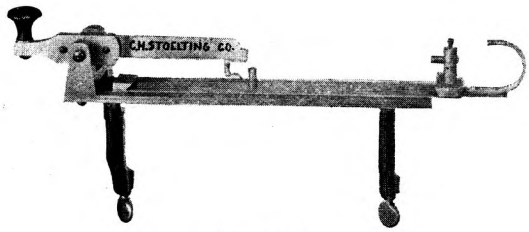


No. 20005.



Nos. 20012-14.

Number		Price
20005.	**Vibrating Reed,** Reichert's. The vibrations of the platinum-tipped adjustable reed are maintained by means of the insulated electromagnet mounted above and connected by one of its terminals with the mercury cup and by the other to one of the two battery posts at the side of the base. In all mercury contacts the surface of the mercury should be covered by a drop of alcohol or water to take up the fumes from the burning mercury. (103:X6)	**$138.75**
20008.	**Tuning Fork, Electrically Maintained,** 25 d.v. Designed for producing a time graph by either the direct or indirect method in the vertical or the horizontal position. While the fork may be used for direct recording, the best practice is to attach it to a support by means of a right angle clamp and use it for actuating a time marker or signal magnet. One of the prongs of the fork is fitted with a stylus and the other with a counterbalance	**75.00**
20009.	**Tuning Fork, Electrically Maintained,** 50 d.v. Similar in construction to the No. 20008.	**72.00**
20009A.	**Tuning Fork, Electrically Maintained,** 50 d.v. Similar in construction to the No. 20008, but furnished with a perforating device on the end of the prongs instead of the stylus and counterbalance. Can be used for time perforations on long paper kymographs, polygraphs, and similar apparatus operating unbacked paper	**85.25**
20010.	**Tuning Fork, Electrically Maintained,** 100 d.v. Similar in construction to the No. 20008.	**71.00**
20011.	**Tuning Fork, Electrically Maintained,** 250 d.v. Similar in construction to the No. 20008.	**75.00**
20012.	**Tuning Fork, Electrically Maintained,** 25 d.v. Similar in construction to the No. 20008, but provided with a special contact and mounted on a rectangular base, to the bottom of which is attached a condenser to eliminate undue sparking. Designed especially for operating the Nos. 20236 and 20237 Dunlap chronoscopes. (See pages 83-84)	**80.00**
20013.	**Tuning Fork, Electrically Maintained,** 50 d.v. Similar to No. 20012	**77.00**
20014.	**Tuning Fork, Electrically Maintained,** 100 d.v. Similar to No. 20012	**80.00**
20020.	**Neuramoebimeter,** Exner's; also referred to as Obersteiner's psychodometer. Originally described in Pflüger's Archives, Vol. VII, page 601. A comparatively simple piece of apparatus for measuring reaction time in hundredths of a second. Our model is supplied with two table clamps attached to the bottom of the base plate so that it can be firmly attached to the edge of the table. The metal plate carries a sliding carriage for the smoked glass, and at one end two uprights supporting a horizontal axis carrying a heavy reed or spring vibrating 100 times per second, and furnished at the free end with a stylus for tracing the vibrations on the smoked glass as the carriage carrying the same is pulled past. In front of the hook or handle on the carriage is a post with a horizontal projection which serves as a catch for holding the reed and also as a means for throwing it into vibration when	



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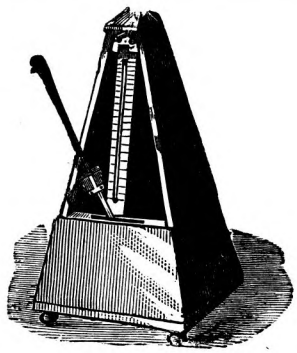

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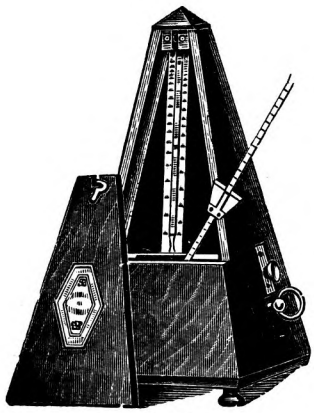
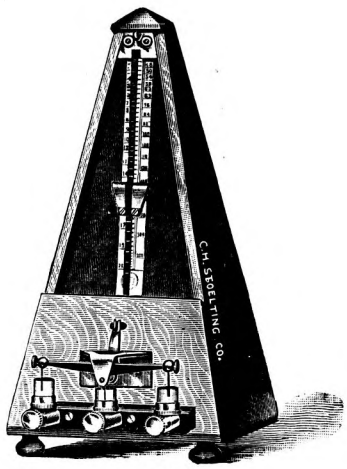
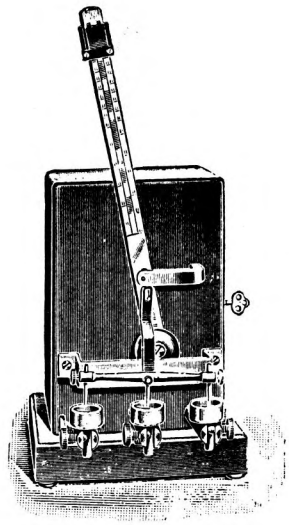


No. 20109.



No. 20111.



No. 20115.

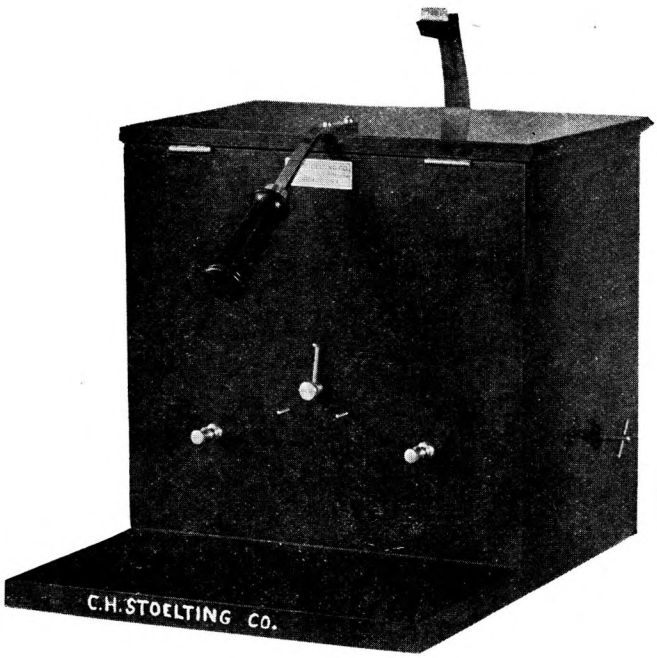
Number		Price
	the carriage is pulled away. Releasing the reed or spring produces a note, and the moment the subject hears the sound he presses the knob on the supported end of the reed and thus raises the stylus from the glass. When the reed is released the stylus starts to make a record on the smoked glass, and the number of waves recorded on the glass between this time and the raising of the stylus gives the reaction time in hundredths of a second. Reacting to auditory stimuli, the subject must be blindfolded or screened so that he cannot see the experimenter's motions. This instrument may also be used for visual experiments; i.e., it may be so arranged that moving the sliding carriage uncovers a painted disk, or makes electrical contact with an incandescent lamp. With a little ingenuity the instrument can also be used for electric stimuli. A key may be fixed to one side of the apparatus so that an electric current is made or broken the moment the reed begins to vibrate. The key is placed in the primary circuit and the electrodes of the secondary circuit applied to different parts of the body. The subject reacts by pressing the knob at the fixed end of the reed the instant he feels the stimulus. (129:D1; S.P.P.:326-327; 226:227).....	**$ 60.00**
20021.	**Glass Slides** for use with No. 20020 neuramoebimeter. Per 12.....	**1.50**
20022.	**Stylus** for No. 20020 neuramoebimeter.....	**.30**
20107.	**Metronome.** Simple type such as used for marking time in the study of music. The pendulum rod has 40 graduations and with proper adjustments of the sliding weight gives from 40—208 beats per minute. (225:X31; 226:338-339, 351).....	**7.00**
20109.	**Metronome, Bell.** In appearance and general construction the same as the No. 20107 metronome, but provided with a bell which, by means of an adjustable bar projecting at the right, may be set to strike every second, third, fourth, or sixth beat. (225:X4, 25; 226:205-206; 267:T30)	**9.25**

Number | Price

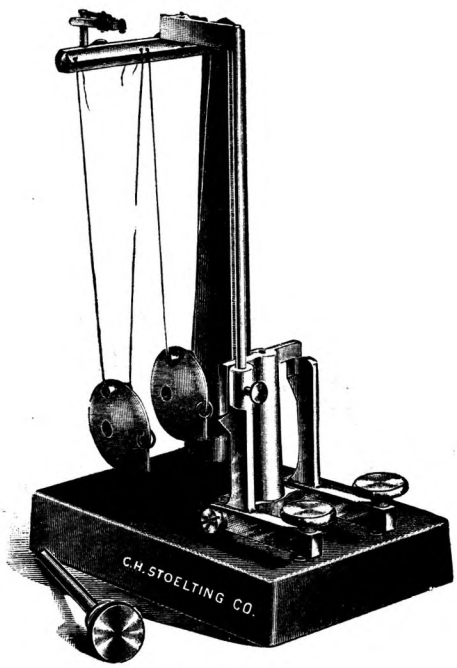
20111. **Metronome, Mercury Contact.** A No. 20107 metronome with a three-point contact for the pendulum and a rubber mercury well with three separate wells. Each of the wells is provided with a binding post and the two end wells with thumb-screws for regulating the height of the mercury. See illustration on page 70. (267:T9-11, 25; 268:T38). **$ 32.50**

20113. **Metronome,** Kronecker's. A No. 20109 bell metronome, with attachment devised to close an electrical circuit at each second, third, fourth, or sixth beat of the pendulum. This device consists of an attachment for the pendulum with a two-point contact and a bracket supporting two rubber mercury wells each provided with a binding post and a thumb-screw for adjusting the height of the mercury. These attachments are placed at the rear of the metronome..... **35.00**

20115. **Metronome,** Jacquet's. Especially constructed for psychological and physiological work. At the rate of 1 beat per second it will run from 30—32 hours. Proper adjustment of the sliding weight gives contact intervals from ¼—½ seconds or, if only one of the end contacts is used, a range from ½—3 seconds..... **65.00**



No. 20119.



No. 20135.

20119. **Metronome Box,** Titchener's. This improved model is made to conform to Prof. M. Bentley's specifications. Devised for controlling the audibility of the metronome beats and rendering virtually noiseless the operation of either the simple metronome or the contact-making Nos. 20111 and 20113 metronomes. The inside of the box is lined with ½ in. felt, and the cover is operated by means of a hand lever capable of being adjusted so as to limit the raising of the cover to definite height. In order to eliminate the necessity of opening the box to make electrical connections to the metronome, and for starting and stopping it, connections have been provided to lead to binding posts on the outside of the box. There is also provided a starting and stopping device which may be operated from the outside. (225:X31; 226:351-353)..... **55.00**

20121. **Felt,** Heavy, 8x8x¼ in. For deadening sound of metronomes. (225:X31)..... **.40**

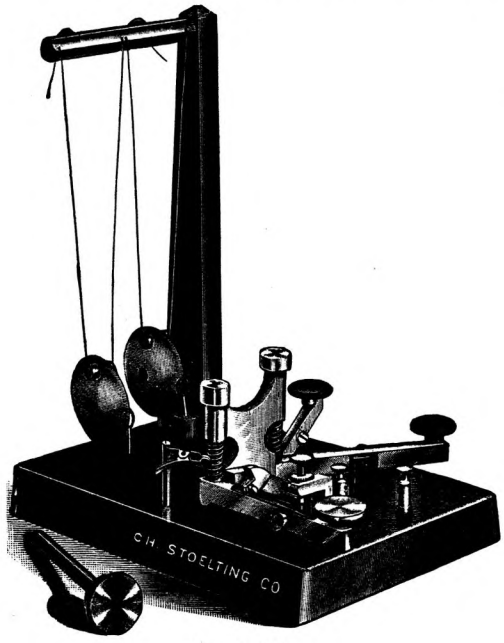
20123. **Metronome Attachment,** Stevens'. For covering a No. 20109 bell metronome into a complication pendulum. (A.J.o.P. 15, 1904:581; 224:296-299)..... **1.25**

20125. **"Metronome,"** Soundless. A metal ball suspended from a rod provided with a clamp for attaching to a vertical support. The end of the rod from which the ball is suspended is provided with a thumb-screw so that the length of the suspension can be adjusted to any desirable length. The suspension is usually regulated so that the ball gives intervals of half seconds. (227:X14, 17-18, 22-23, 27)..... **3.00**

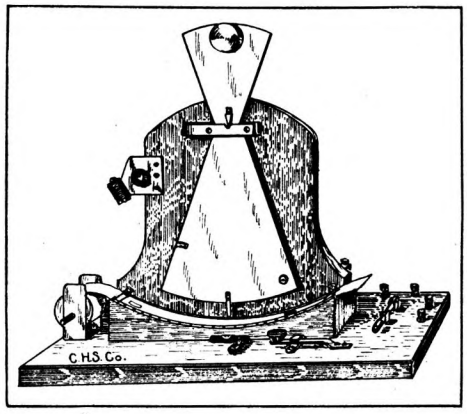
20134. **Chronoscope, Vernier,** Foster's. Improvised type, consisting of a No. 25657 Universal clamp, the rectangular base and rod of the No. 19517 knee jerk register, a wooden strip, 2 wood screws, simple keys, pendulum bobs, and cross-bar. (51:X5; 51A:X3.) Without clamp, base, and rod..... **5.00**

Number

20135. **Chronoscope, Vernier,** Model I, Sanford's. The essential part of the instrument is the pair of unequal pendulums. The longer of these is of such a length as to make one complete swing (i.e., to traverse its arc and return to the same point) in 0.80 seconds; the shorter makes a complete swing in 0.78 seconds, thus gaining 0.02 seconds at each of its swings; and fixing the unit of measurement of the instrument at 1/50 of a second. With these rates, if both pendulums start together, the shorter will gain a whole swing of the longer and they will be together again after forty of its swings: $0.80 \div 0.02 = 40$. If the shorter starts later than the longer, it will gain as before at the rate of 1/50 of a second per swing; and in order to know in fiftieths of a second the interval by which it started later, it will only be necessary to count its swing until it catches up; and in general to measure any short interval, it will only be necessary to start the longer pendulum at the beginning and the shorter at the end, and to count the swings of the shorter up to and including a coincidence. The number counted is the interval expressed in the units of gain, i.e., in fiftieths of a second.



No. 20137.



No. 20140.

The counting of the shorter corresponds to the common usage in counting a vernier, but in this instrument the counting of the longer pendulum is from its position somewhat easier, and as the number of swings is the same in either case, no error is introduced by so doing. In the remainder of the description it is assumed that the count is made upon the longer.

In measuring intervals of over 0.80 seconds, the long pendulum will complete one or more swings before the short pendulum starts. When this happens, a difference must be made in the counting. For each whole swing made by the long pendulum, **before the short one starts,** 40 units must be added to the value given by the count while both are in motion. Suppose, for example, that the long pendulum has made one swing before the short one starts, and that six more swings are made before the coincidence, the total time would be $40 + 6$ units of the instrument, or 0.92 seconds, in the perfectly adjusted instrument. If the long pendulum should make three whole swings before the shorter starts and then twenty more swings to the coincidence, the time would be $3 \times 40 + 20 = 140$ units of the instrument, or 2.8 seconds. With a little care the measurements of these longer times need offer no difficulty.

The bobs and their supporting post at the right are pierced with sizable holes. The upper one of the holes in the post is bored at such a point that when a close-fitting rod is slipped through it and through the hole in the bob of the short pendulum, the latter will have its proper distance from the edge of the bar from which the pendulums hang. The lower hole is similarly placed with reference to the bob of the long pendulum.

To hang the bobs at their proper distance, all that is necessary is to slip the rod through the appropriate hole in the post, slide on one of the bobs till it reaches its proper position, pass the thread twice through the small hole in the bob, draw the threads straight and withdraw the rod.

For reactions to visual stimuli, a stimulus card is placed in the small clip on the rod from which the pendulums hang and a suitable screen in the larger clip attached to the operator's key. The depression of the latter exposes the stimulus card and the

Number Price

subject reacts. The noise produced by the striking of the key against the base when the key is depressed too far is a disadvantage in visual experiments, and may be obviated by careful pressing or by putting a bit of thin rubber under the heel of the key. Reactions to touch, or more exactly to pressure, may be tried by having the subject place one forefinger under that of the operator on the operator's key. He will thus receive a pressure in it at the instant the operator's pendulum is released, and can release his own pendulum with the other hand.

Reactions involving discrimination and choice, in Donder's form (i.e., by reacting to only one of two or more stimuli and refraining from reaction to the rest), can easily be tried with the chronoscope arranged for visual stimuli. The number associations (adding, subtracting, multiplying, dividing, squaring, etc.) can also be tried with the same arrangement, if the problem is given in such a way that the subject cannot begin to solve it till he is shown a digit on the stimulus card. For example, the subject is told to add to 17 a number to be shown. As soon as the operator's key is depressed, he sees the digit required and begins his adding, pressing his key and announcing the result simultaneously when he has reached it.

With experiments in an auditory form, the range of application is still wider, any sort of association time being measurable when the operator makes the depression of his key coincide with the calling of the stimulus word, and the subject makes the depression of his coincide with his response. (A.J.o.P. 9:191-197; 41:31; 111:X7A-11; 225:X26; 226:212-227; 229-182) ..... **$ 32.50**

20137. **Chronoscope, Vernier,** Model II, Sanford's. While Model I has a tolerably wide field of usefulness, it does not lend itself to experiments requiring the discrimination of two stimuli, and the choice of a reaction appropriate to one or the other, nor does it allow the taking of simple reactions with stimuli of variable character, intensity, or place, nor in a very satisfactory way of those with visual and electrical stimulation. These are all made possible by the addition of a second key to the releasing apparatus of the shorter pendulum and of electrical contacts to the release key of the longer pendulum. The instrument in this form is known as Model II. The pendulums, supporting bar, and post are like those of Model I, and the base differs only in being about 1 in. wider. The new release mechanism made necessary by the doubling of the short-pendulum key (and used in this instrument for the long pendulum also) will be readily understood by referring to the illustration on page 72.

The link of the pendulum is held between a sloping boss and the conically-hollowed head of a plunger, the plunger being kept down by a spring. When the key is pressed, the plunger is raised and the link released. The mechanism is the same in the case of the short pendulum, except that the ends of both keys come under the foot of the plunger, so that if either is pressed, the plunger is raised and the pendulum released.
The electrical contact fitted to the operator's key is of very simple construction. One contact surface is placed on a spring on the upper side of the key and the other on the point of a screw above it. The lower contact is placed on a spring in order to insure good electrical connection without interfering with the grip of the plunger on the link of the pendulum. The electrical circuit leads through the spring, the body of the key, and the base to a binding post attached to the latter. The upper contact is of course connected with a binding post which is insulated from the base. By means of these binding posts the operator's key may be brought into the primary circuit of an induction coil, which on the depression of the key will be broken at the same instant that the long pendulum is released. By the use of the induction coil thus introduced are made possible the various forms of experiment mentioned above. When, for example. the secondary terminals of the coil are connected with a Geissler tube, the apparatus can be used for simple reactions to visual stimuli; when connected with suitable electrodes, for reactions to electrical stimulation of the skin; and when connected with a telephone, for auditory stimuli of a very convenient kind. If the induction coil is of the sliding pattern common in Physiological Laboratories, stimuli of varying intensity of any one of these sorts can be given by changing the distance of the secondary coil from the primary. Stimuli in various places can of course be obtained by putting in several Geissler tubes, pairs of electrodes, or telephones in parallel circuit, and using one or another without the previous knowledge of the subject.

The change in the releasing mechanism necessitated a change in the clips for holding the stimulus card and the screen. The former is placed on a short post on the base near the left end of the operator's key, and the latter is attached to a cam on the opposite side, which is turned by the depression of the key. These clips are shown without the card and screen in the general view.
With an instrument of this pattern all the more important experiments upon the time relations of mental phenomena are possible, except those requiring the exact measurement of the time elapsing between a spoken stimulus word and a spoken reply by the subject; and even here, with a little practice, the operator can learn to depress his key at the giving of the stimulus word (and the subject his key at the giving of his reply) with ample exactness for all purposes of demonstration and even of research. (A.J.o.P. 12:590-594; 41:31; 225:X26) **45.00**

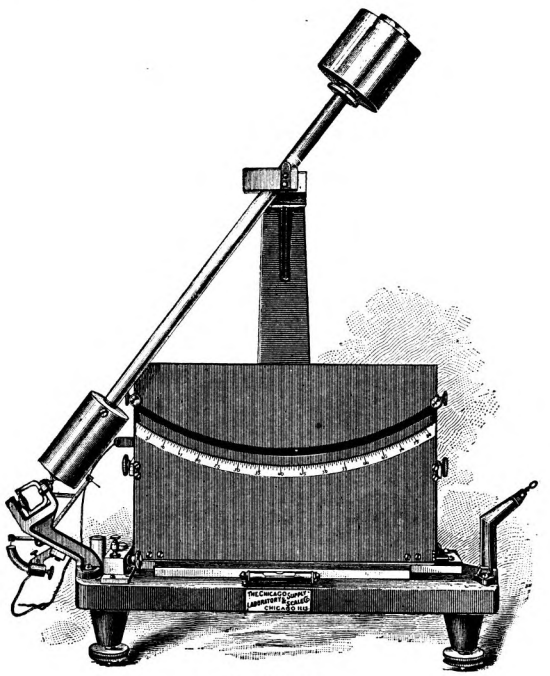
20138. **Chronoscope, Vernier;** Dimmick's and Ruckmick's modification of the Sanford chronoscope. In this model, adjustable metal rods with screw ends and lock nuts, suspended in a yoke with two hard points operating in depressions on the supporting bar, replace the thread suspensions attached to the hexagonal support; and magnetic releases replace the keys with clamp ends which hold the bobs by means of the attached ring with flattened end. In order to operate this vernier chronoscope, a break key like our No. 23227 is required for each pendulum. (A.J.o.P. Oct. 1927:647-648, July 1929:475-476; Oct. 1929:652) **25.00**

Number — Price

20140. **Chronoscope, Pendulum,** Hathaway's. A spark chronoscope of simplified operation and design. The only moving part is a segment pendulum mounted on a knife edge and swinging through an arc of 60°, with its edge presented to the direction of motion. The available reading of the pendulum without extra weights is .5 seconds. Relative absence of air resistance and low pivot resistance of the pendulum make possible a mathematically calculated scale. This scale reads in per cent of the period. Two important advantages are gained by this: (1) If for any reason there is a change in the period of the pendulum from that which is given in the factory, it is comparatively easy to determine the new period and insert it as the multiplier instead; (2) For special work, the period may be changed by adding weights (one pair being supplied which gives an available period of 1.5 seconds) and the calibration of the scale does not deed altering.

The spark records by passing through an ordinary 2⅜ in. adding machine tape. The length of the gap over which the spark passes cannot change and this eliminates the necessity for adjustment. The zero point is marked by a pencil against the ruled end of the slot in which the recording pointer travels. The paper is pulled forward somewhat after each record and readings are made at the end of the measurement period by use of the transparent scale of per cents.

The apparatus operates best on a 6V. storage battery, but will work very well on four dry cells. A silent direct electrical release is used. The pendulum release is of the magnetic type and equipped with a rheostat so that its current can be adjusted to make it practically instantaneous in operation. There are three sets of binding posts. One is for the battery, one for the response key (break type), and one for the stimulus. The accuracy of this apparatus for relative measures where the actual time is not necessary has been found to be $\pm 1\sigma$. For actual time intervals where the per cents are converted, the accuracy varies with the length of the reaction measured. The time for the ordinary simple reaction will be correct to within $\pm 5\sigma$..... **$150.00**



No. 20145.

20145. **Chronoscope, Spark,** Seashore's. For measuring short intervals of time, the combination of graphic spark and pendulum makes a very accurate and convenient piece of apparatus. The cut shows the pendulum in the starting position. The lower bob terminates in a knife edge which rests upon the projecting edge of a mechanical release key. The action of this key is soundless and gives the pendulum no impetus in either direction. On the other side of the apparatus is a spring key which catches the pendulum at the end of the swing. When the pendulum is released from this, it swings back with little assistance to the starting point and makes all necessary adjustments automatically. On the back of the lower bob is an index point which runs at the upper edge of the scale and serves as a spark point.

The record is made upon a smoked paper which is seen through the slit above the scale. This paper is stretched upon two rollers; it also rests upon an insulated metal plate which serves as an electrode and keeps the paper straight and smooth back of the scale. Back of this plate is a third roller, by means of which the tension of the

Number Price

paper may be adjusted. The paper-support is built on a carriage so that it may be removed and replaced without disturbing the rest of the apparatus. In preparing the paper, this carriage is removed and the paper is smoked as on an ordinary kymograph drum. As a complete record consists in a single spark which may be recorded at once, several hundred records may be made with one preparation of the paper. The paper is moved, as needed, by a thumb-screw at one end of the upper roller.

In reaction experiments the stimulus is given automatically by the apparatus when the pendulum indicator passes the zero point on the scale. A double rocking lever at this point makes one circuit and breaks another, either of which may be used in giving the stimulus. These contacts are adjustable platinum and mercury contacts, and their adjustment may be verified by direct sight. The closing or opening of the circuit is soundless, and the stopping of the lever in a soft rubber clutch makes no sound that can be heard a few feet away.

The reaction, or termination of the interval to be measured, is indicated by a spark on the sensitive paper at the edge of the scale. The spark is produced by interrupting the primary circuit of an ordinary induction coil. One secondary terminal is connected with the insulated plate on which the paper rests, and the other is connected with the body of the apparatus. The point of the pendulum indicator is the nearest metal to the plate; therefore the spark flies from this point, through the sensitive paper, to the plate.

The scale is graduated empirically by the most reliable graphic method into hundredths of a second, and each unit is divided into halves. The average space of one unit is 5 mm. on the arc of the scale. With this adjustment the scale covers 0.80 seconds and the records are read in half-hundredths with ease and accuracy. The variation in the movement of the pendulum is negligible because the pendulum is carefully constructed and balanced and moves without friction. The variation in the "make" contact is also negligible because the platinum terminal moves much faster than the pendulum indicator. The spark tends to take the shortest course between the point and the plate, but it may be deflected. The maximum distance between the spark point and the paper is 1 mm. The maximum deflection of the spark may be estimated to be about 45°. That amount of deflection is not liable to occur for the maximum distance, but if it did, the maximum variation would be ± 1 mm. on the scale, which is equal, on the average, to ± 0.002 seconds. The average distance between the spark point and the paper is about 0.5 mm. and the average angle of deflection of the spark is less than half of 45°; therefore the average variation in the spark is less than ± 1/1000 of a second.

This chronoscope is also adapted for the measurement of longer intervals, as in the study of association, by two minor changes which can be made in a minute. A small weight is fastened on the top of the upper bob. This makes the pendulum swing so slowly that it takes three seconds to cover the arc of the scale. A corresponding scale, graduated empirically in hundredths of a second, is clamped over the regular scale. The accuracy is nearly proportional to the speed of the pendulum. Similarly, when there is a demand for finer readings than those obtained by the standard adjustment, an extra weight is placed on the lower bob that will cause the pendulum to cover the arc of the scale, for example, in 1/3 of a second. If the corresponding scale is graduated in thousands of a second, each unit will occupy, on the averave, 1 mm. of space. The degree of accuracy will be nearly proportional to the speed, because the latent time of the spark is negligible and the action is frictionless.

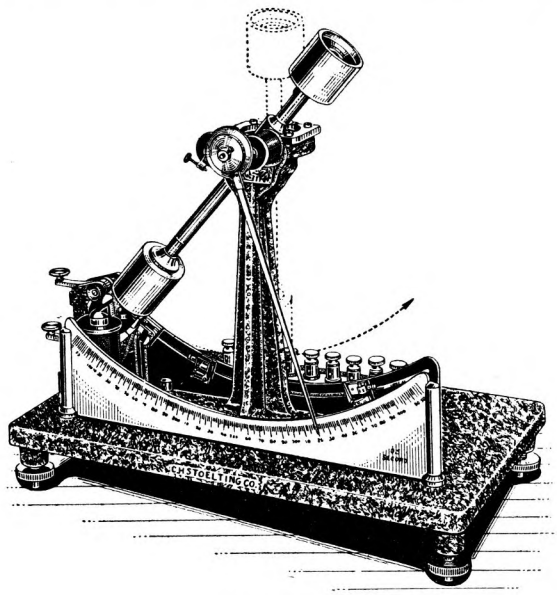
Much of the value of a chronoscope lies in its adaptation to the attachment of a variety of accessories. The possession of the soundless "make" and "break" contacts for the stimulus circuit makes it possible to connect all sorts of electric stimulus apparatus, such as the telephone receiver, the touch key, the tachistoscopes, etc.

For regulating time-exposures, a movable pendulum contact is attached to the front of the base and adjusted, by reference to the scale, for any desired length of exposure from 1/100 of a second to 3 seconds. This contact may be used either as a "make" or "break" and the circuit may be completed either through the "make" or "break" of the stimulus contacts.
Complete with weight and scales as described..... **$750.00**

20155. **Chronoscope, Pendulum,** Bergström's. The chief modification over previous instruments of this type will be found in the device for carrying and clamping the index, the noiseless escapement, and the system of movable keys or dogs. The latter make it possible to interrupt an electric current with great accuracy for intervals varying from about 1/1000 of a second to 2 or more. They are of special service in giving the time of exposure.

As a chronoscope the instrument serves with a very high degree of accuracy for measuring short intervals of time. It may also be used in experiments upon the perception of time or upon the direction of attention to the simultaneous events and for standardizing other time apparatus.

The probable error of a single record in a group of fifty ranges from one to two ten-thousandths of a second, but this includes the variation of the apparatus used as a standard as well as that of the chronoscope.



Number

No. 20155.

Price

The iron base of the instrument is provided with three leveling screws for bringing the pointer to zero. Upon this base is mounted a pedestal which carries the hardened steel bearings on which the knife edges of the pendulum rotate. This pendulum also supports the electromagnets which are used in clamping the pointer at any desired point of the swing. This is accomplished by simply causing a current to flow in the magnets at the proper time.

The brass pendulum is mounted on a hardened steel shaft which serves the double purpose of knife edges and spindle to carry the pointer. In the lower end of the pendulum is fitted a piece of hardened steel which engages the teeth of the release key upon the return swing of the pendulum or when the pendulum is set ready for a forward swing.

The time of swing is regulated by screwing different size cylindrical brass weights on top of the pendulum. The pendulum as shown in the illustration is without either of the weights, and this way is adjustable to the one-half second scale. This scale has 500 divisions which give readings of 1/1000 of a second or 1σ. Weights giving a complete half-swing in one and two seconds respectively are furnished with each instrument. Corresponding to the addition of these weights are two additional aluminum scales, one graduated into 200 and one into 100 divisions. In the former, each division represents 1/200 of a second, or 5σ; and in the latter, 1/100 of a second, or 10σ. These scales are so arranged that they can be easily interchanged, but upon attaching them to the instrument they are obliged to come exactly to the required position.

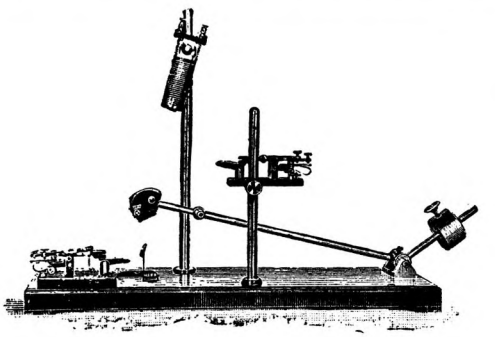
The release key is so situated that it catches and holds the pendulum upon its return swing, thus preventing continued oscillations as well as holding it for release. By a very ingenious arrangement of this key, the pendulum may be released by hand or by a set of electromagnets, of which the key forms a part.

Working in conjunction with this key is a setting key, by the use of which the pendulum is brought to the right position for release. In this manner a complete swing of pendulum is obtained when the pendulum is released.

Situated just below the release key is a small dog which, when the release key is in its normal position, completes an electrical circuit. At the moment the release key releases the pendulum, it also deflects this dog, thus breaking the electrical circuit and thereby registering the beginning of the fall of the pendulum.

There are also two adjustable dogs by means of which circuits may be broken at any desired point of the swing. These circuits are not closed by the return swing, but may be closed by hand.

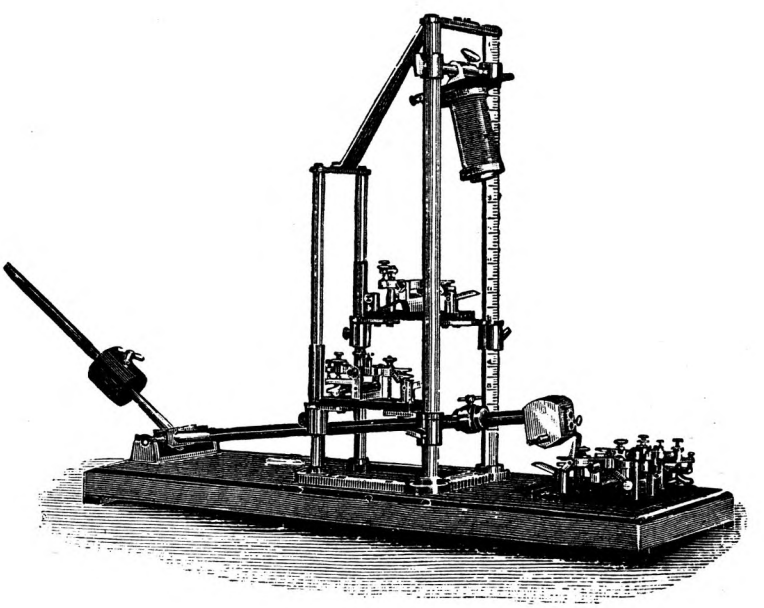
Nine binding posts are mounted upon the base of the instrument. The two posts marked "E" are the terminals of the release magnets, while the two marked "M" and "B" are connected to the stationary dog which is kicked when the release key is deflected. The posts on the end marked "G" are the terminals of the electromagnets used for clamping the pointer. The middle post marked "GD" is grounded to the base and this, together with either one of the posts marked "K1" or "K2," which are insulated from the base, is used when it is desired to use the movable dogs. It is of course necessary to connect the binding post of the dog to either post "K1" or "K2" before connecting as stated above. See No. 23303 phychodometer on pages 113-114. (P.R. Sept. 1900: 483-489; 77:233; 194:155-169; P.R. Jan. 1910:1-18)..... **$560.00**



No. 20181.

Number | Price

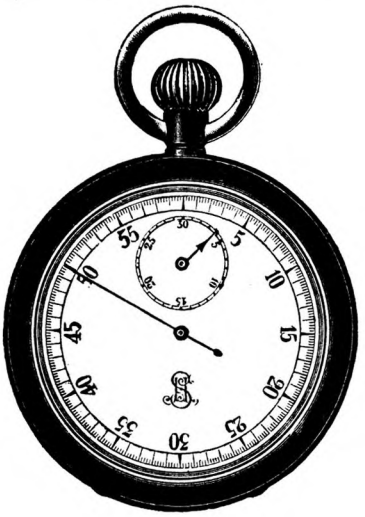
20181. **Control Hammer,** Wundt's. Simplified, with a variable drop of 25 cm., and two contacts for opening and closing a circuit. The upper contact is, as shown in the illustration, adjustable for height on the upright rod. The period of the hammer is regulated by means of the counterpoise shown at the right. This piece of apparatus is very desirable and in fact a virtual necessity when exact work is contemplated with the No. 20241 Hipp chronoscope. (227:151-153, X24) **$178.50**



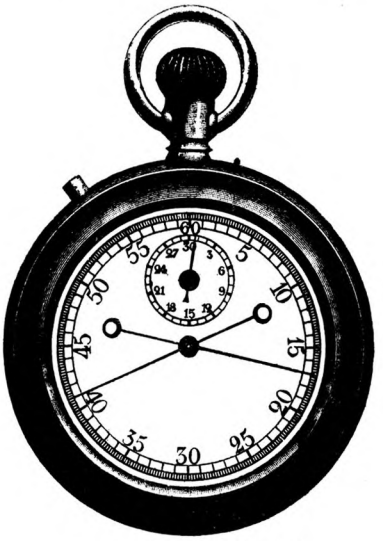
No. 20182.

20182. **Control Hammer,** Wundt's. This is the large model especially recommended for control and correction of the chronoscope. The apparatus is provided with four platinum contacts, adjusted in pairs so that only one at the top and one at the bottom can be used for opening or closing a circuit. The height of the drop of the hammer, also the speed, is regulated by means of the electromagnets and the counterpoise within a range of 900σ. A graphic record of the drop is registered by the chronograph or by means of a fork direct on the recording plate attached to the head of the hammer. This piece of apparatus has accurately graduated scales on the support of the magnet release, hammer handle and counterpoise arm. The entire construction of the apparatus is such as to eliminate all lost motion and at the same time render the action of the hammer exact and virtually frictionless. (139:X88; 228:341-343) **396.50**

20207. **Stop-watch,** Jacquet's. This watch is of superior construction and with reasonable care will give long and satisfactory service. It is particularly recommended to psychologists and others who require a stop-watch for more or less continuous service. Nickel case, 7 jewel movement, lever escapement, non-magnetic, stem wind; second dial, graduated in 1/5 seconds, and small dial to 30 minutes in minute divisions **18.00**

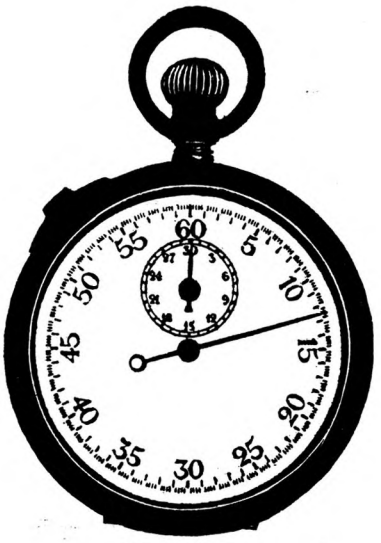


No. 20207.

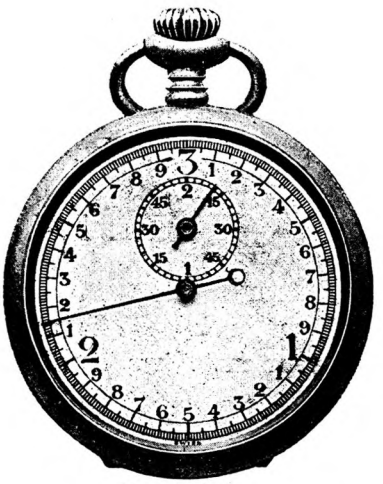


No. 20209.

Number		Price
20208.	**Stop-watch.** Reads to 1/10 seconds. Each second is divided into 10 parts, and the large hand makes two revolutions per minute, i.e., one revolution in 30 seconds. The outside of the large dial is numbered in back 1—30 seconds, and the inside in red 31—60 seconds. The small dial records 15 minutes. This is a 6 jewel watch, otherwise similar to No. 20207. It is recommended for psychological work where greater accuracy is required	**$ 18.00**
20209.	**Stop-watch, Split-second.** Provided with two hands for timing two events starting simultaneously but terminating at different periods. Used in timing laboratory operations, psychological tests, first and second places in races, etc. High-grade 7 jewel movement, stem wind, lever escapement, non-magnetic, nickel case; second dial, graduated to 1 minute in 1/5 seconds, and small minute dial to 30 minutes in minute divisions	**45.00**

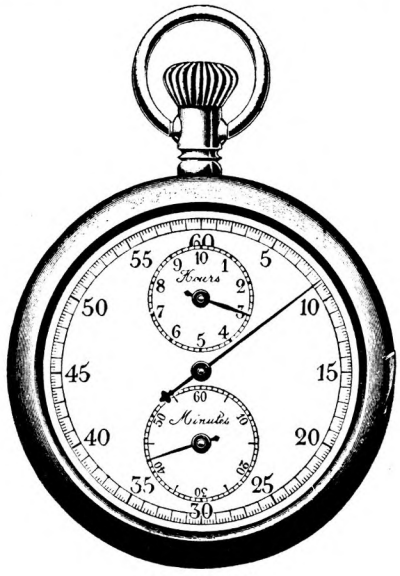


No. 20211.

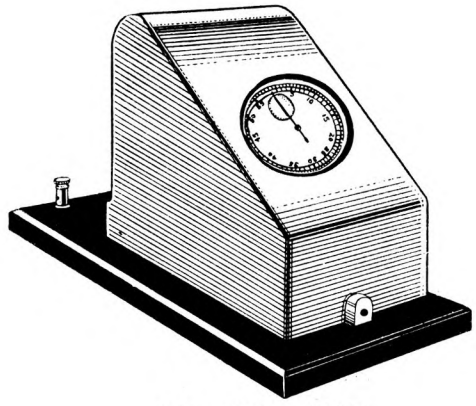


No. 20214.

20211.	**Stop-watch.** An excellent watch for timing an interrupted performance. This watch is started and stopped by means of the "slider," shown on the periphery of the case near the "crown." This device operates smoothly, is easier on the mechanism of the watch, and hence increases its length of service. The hands are brought back to zero by pushing on the "crown" the same as any other stop-watch. Nickel case, stem wind, lever escapement, non-magnetic, 7 jewels, large second dial graduated to 1/5 seconds, minute dial to 30 minutes in minute divisions	**16.70**



No. 20217.



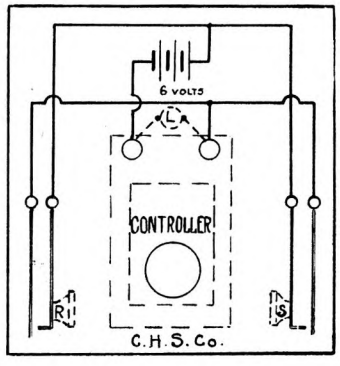
Nos. 20219, 20207.

Number | Price

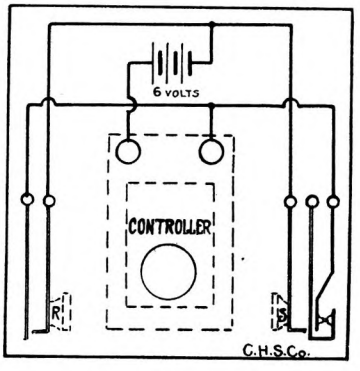
20213. **Stop-watch,** Non-magnetic, 6 jewel. Designed for exact work where the smaller fractions of a second cannot be neglected. The large dial reads to 6 seconds in 1/50 seconds. The small dial records 3 minutes, each minute being divided into 10 divisions. Psychologists and ordinance engineers will find this watch particularly well adapted for their work ..... **$ 20.00**

20214. **Stop-watch,** Non-magnetic. Reads to 1/100 seconds. In the construction of this watch the skill of the watchmaker reaches a degree of precision that will be appreciated by those whose work demands the accurate measurement of small intervals of time. The large dial reads to 3 seconds in 1/100 seconds, and the small dial to 2 minutes in 3 second divisions **20.00**

20217. **Stop-Watch.** Gun-metal case; second, minute, and hour hands. The large hand (the second hand) indicates 1/5 seconds; the small hand at the top, hours up to 10; and the slightly larger hand and dial at the bottom, minutes up to 60. Pressing downward on the "crown" starts the watch, and it is stopped the same way at any point on the dial. The next pressure on the "crown" starts the mechanism from the stopped point, and the procedure can be repeated as often as required without returning the hands to zero until the expiration of the ten-hour period. A spring lever at the right serves to return the hands to zero after a "crown-stop" **28.75**

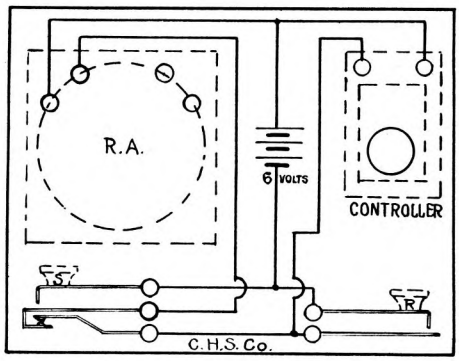


Nos. 58305, 25510, 20219.
(1)



Nos. 58305, 25510, 20219, 23220.
(2)

20219. **Stop-watch Controller.** This device is designed for giving a stop-watch the maximum amount of protection, and operating it electrically. The stop-watch is securely locked in the case and it can only be operated from the outside by means of a battery and contact key. The adjustable stop-watch support and the electromagnetic operating device are substantially constructed and permit of no interference by the user unless the cover is unlocked and removed. The diagrams above indicate how the controller can be used for reaction work. Figure 1 makes use of 2 No. 58305 simple contact keys and the No. 25510 6V. battery. For reaction work of this type we recommend the No. 20213 or No.



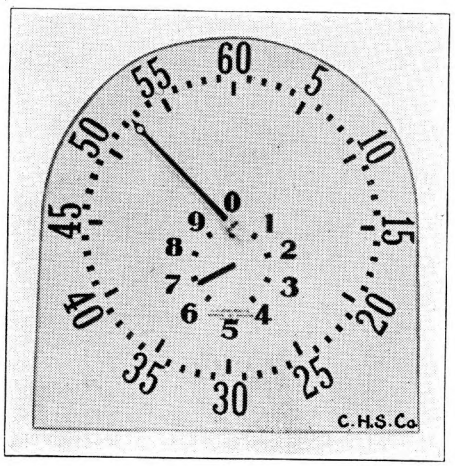
Nos. 21151, 23220, 25510, 20219, 58305.

Number — Price

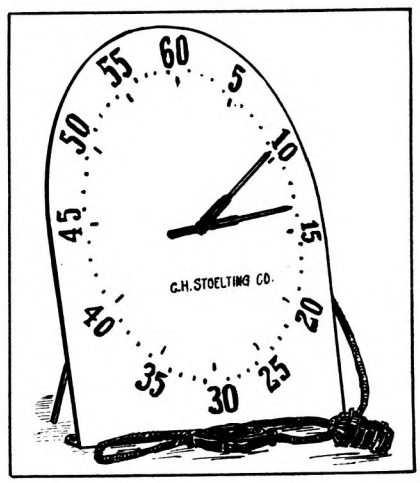
20214 stop-watch with the simple arrangement shown in Figure 1. The experimenter must remove his finger immediately after giving the stimulus so as not to interfere with the reactor. A more desirable arrangement is that shown in Figure 2, where the experimenter makes use of the No. 23220 Dunlap stimulus key which eliminates any possibility of the examiner's interfering with the reactor. Figure 3 illustrates how the stop-watch controller can be used for timing in connection with the No. 21151 Ranschburg memory apparatus ..... $ 35.50

20220. **Stop-Watch Support.** The adjustable support of the No. 20219 controller, without the electromagnetic operating device and cover..... 8.00

20221. **Box, Padded.** To reduce the audibility of a stop-watch. (227:X7)..... 4.00



No. 20223.



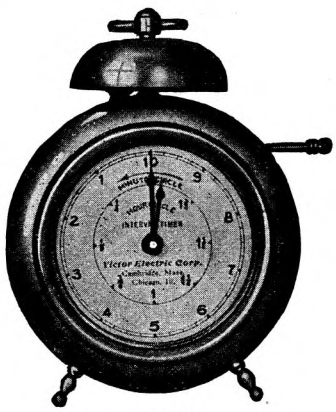
No. 20224.

20223. **Stop-clock,** Whipple's. An improved spring-driven model with a large second dial and a small minute dial with a range of 10 minutes. The figures are large enough to be read at a range of 20—30 ft. by anyone with approximately normal vision. This clock makes group testing by the "work-limit" method feasible with reliable subjects, and provides a readily available timing device for both instructor and student. It may be used on the desk or on the table, or the supporting rod may be passed through the post at the rear and the clock suspended by passing a cord through the eyes at the end of the rod. Two cords attached to the operating lever at the rear, one running over the top to the other side, serve to start and stop the clock. (267:T26)..... 50.00

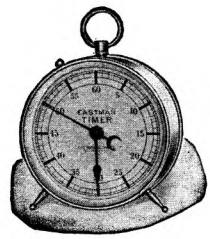
20224. **Stop-clock.** For operation on the 110V. 60 cycle A.C. Improvements in equipment for transmitting and regulating electricity, and the care now exercised by the average commercial generating plant in keeping the current constant, make a clock of this kind feasible for scientific work. Its accuracy compares very favorably with that of the carefully regulated spring-driven clock or the average stop-watch. This clock, like the No. 20223, has figures large enough to be easily read at 20—30 ft. by anyone with approximately normal vision, and it can be used on the table or suspended on the wall. The large hand indicates seconds and the small hand minutes. The small hand has a range of 60 minutes. An easily operated switch inserted in the connecting cord serves to start and stop the clock 58.50

Number | Price

20226. **Stop-clock,** Wall Form; 8½ in. in diameter, with starting and stopping lever and zero setting device. The large dial (6¼ in. in diameter) reads to seconds and is numbered on the periphery every 5 seconds. The small dial (2½ in. in diameter) reads to 10 minutes in quarter-minute divisions..... **$ 16.75**



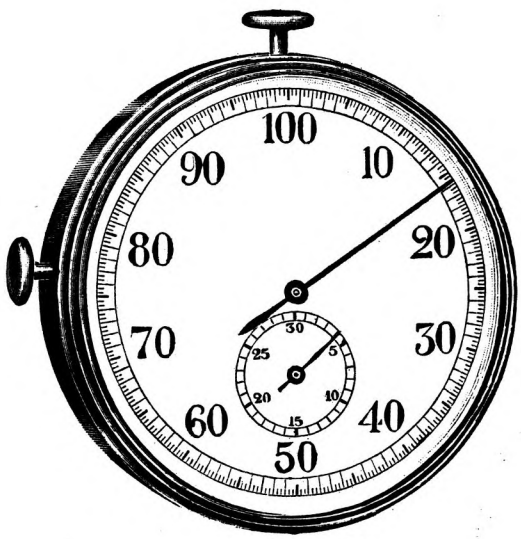
No. 20227.



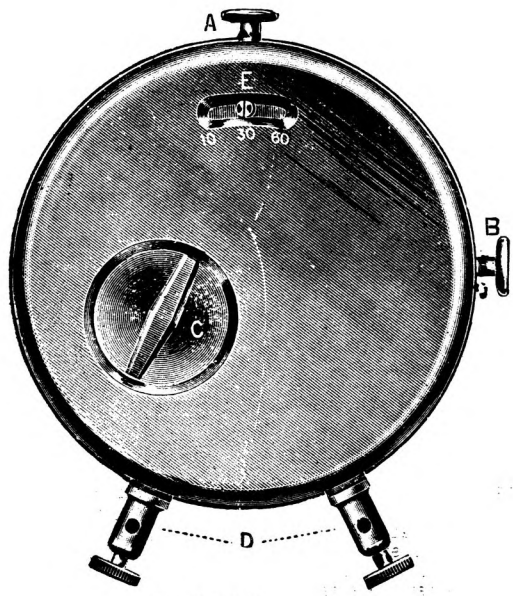
No. 20228.

20227. **Interval Timer.** Designed to ring at any period ranging from 5 seconds to 2 hours. The time at which the bell rings is governed entirely by the setting of the hands. The timer is 3¾x4⅞ in., heavily nickel-plated and furnished with a 2¼ in. dial and a 2 in. bell. Directions for operating accompany each timer..... **5.60**

20228. **Interval Timer.** This is a photographic timer which records half seconds up to 1 hour. Both minute and second hands are readily returnable to zero. Started and stopped by a sliding knob. May be used to time an interrupted performance. (51:X4; 51A:13, 18-21, 23) **5.60**

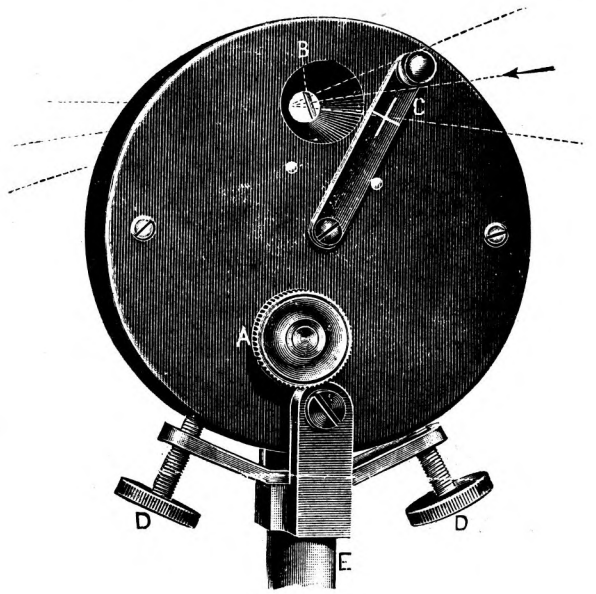


No. 20229.



No. 20229A.

20229. **Stop-watch, Laboratory,** Jacquet's; anti-magnetic. Constructed especially for the steady work required in the laboratory. The dial is 2¼ in. in diameter and is graduated in 1/5 seconds to 60 seconds. The small dial at the bottom has a range of 30 minutes in 1 minute divisions. The watch will run approximately 14 hours without rewinding. The push-button "A" at the top starts and stops the watch, while the one at the left returns the hands to zero after it has been stopped by the examiner; or, after the watch has been started this button permits returning both hands to zero without recourse to the upper button and keeps them there until the finger is removed, when they promptly start to record. It makes a very good timer for gauging without delay the start of a performance or promptly gauging certain phases of a performance..... **22.50**

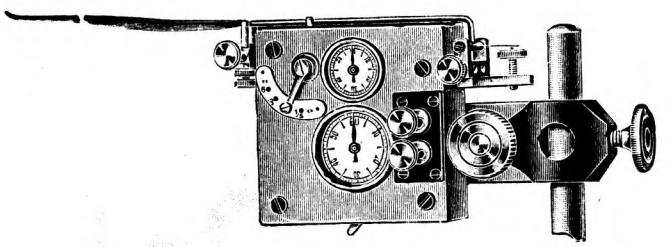


No. 20230.

Number | Price

20229A. **Stop-watch, Laboratory,** Jacquet's. Similar to No. 20229, but provided with two binding posts at the bottom of the case for making electrical connections, and a lever at the rear which may be set for closing circuit every 10, 30, or 60 seconds. See illustration on page 81 ..... **$ 36.00**

20230. **Chronometer, Optical,** Jacquet's; nickel case. Devised for interrupting a converging beam of light every quarter of a second by means of the shutter "B". The lever "C" with the cross is used as an aid in centering the beam. The support-rod "E", with the aid of the leveling screws "D", provides adequate means for exact alingment of chronometer with recording beam. Knurled head "A" is used for winding. The chronometer runs approximately 20 hours without rewinding **65.00**



No. 20232.

20231. **Chronometer, Graphic,** Jacquet's. For convenience, and exact work of a practical nature, the Jacquet chronometer is perhaps the most desirable piece of mechanism for obtaining a graphic record. Numerous experiments locate the probable time error somewhere between 0.0002 and 0.0006 of a second. It is of course incapable of recording the short intervals of time recorded by electrically-maintained tuning forks, but nevertheless, for most work of a practical nature, it meets all requirements. This chronometer, like every other watch movement, must be handled with requisite care and kept in proper adjustment if good work is expected of it. It is not a desirable piece of apparatus to put in the hands of the inexperienced or careless. This chronometer marks 1/5 and 1 second intervals. The upper dial (the small one) records seconds; the lower dial (the large one), minutes. A small lever at the left side of the upper dial is used for changing the time. Moving to the right gives 1/5 second intervals, and to the left, minutes. The chronometer is wound up from the rear by means of a knurled thumbscrew.

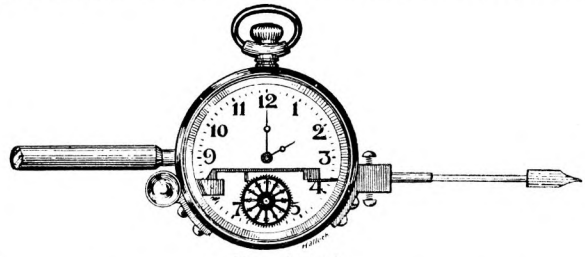
In addition to marking intervals, the chronometer may be used to interrupt either of two electric circuits. The small lever at the bottom returns the hands to zero, also makes electrical contact, so that by making use of the two binding posts at the right of the

Number Price

large dial, it is possible to introduce a time marker into the circuit and record with precision the beginning of an observation. The binding posts located at the top, to the right and left of the case, may be used to operate a distant electrical signal. The thumb-screw contacts directly below the stylus, on the right and left of the case, must be carefully adjusted after the chronometer has been put in operation.

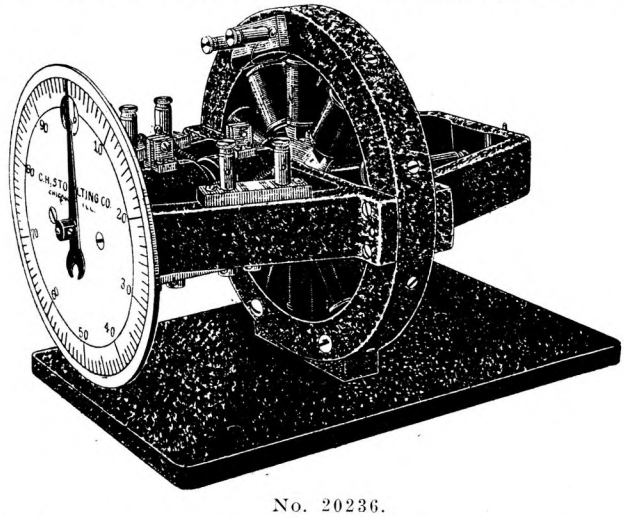
The large knurled thumb-screw at the right of the case serves to make the final adjustment of the chronometer stylus against the drum of the kymograph. Each chronometer is supplied with a leather-covered case and extra support-rod. (32:216-217; 139:X142; 226:178-179; J.E.P.:82) ..... $ 75.00

20232. **Chronometer, Graphic,** Jacquet's. Similar to the No. 20231 but constructed to record intervals of 1/5, 1, 3, and 6 seconds 95.00



No. 20233.

20233. **Chronometer,** Lieb and Becker. An inexpensive time-marking device made from an Ingersoll watch. It will record time intervals of 1, 5, and 60 seconds with a fair degree of accuracy. (J.E.P.:80; Z.L.E.P.:31-32) 15.00



No. 20236.

20236. **Chronoscope,** Model II, Dunlap's. The chronoscope illustrated is like the Model II formerly constructed in Johns Hopkins University. There are many of the instruments in use at present and they are proving very satisfactory for all kinds of reaction work. Model II, illustrated above, is the one principally in use, but we are also making Model III, which is described later on.

Fundamentally this chronoscope is a carefully constructed ten-pole synchronous motor, to which has been added a sensitive clutch mechanism for starting and stopping an independent shaft carrying an indicator, which travels around the face of a graduated dial, 5⅝ in. in diameter, attached to the front of the frame. On the upper half of the rear of the disk is pivoted a small dial which records 10 complete revolutions of the indicator. This dial is actuated by a spur-gear on the indicator shaft and the numerals are read through an aperture in the large dial.

This instrument will run on a direct current of the proper strength, interrupted by a tuning fork with a vibration rate of 15, 25, 50, or 100 per second, or without a fork on an alternating current of sufficient voltage at frequencies from below 10 to above 90 cycles per second. The motor operates continuously, with very little noise, and as the dial and the figures are large and the indicator readily returnable to zero, the instrument possesses many advantages that make it a very desirable addition to any Psychological Laboratory.

Temperature changes have no appreciable affect on the chronoscope mechanism itself. The only thing likely to be appreciably affected is the tuning fork, and this may, if

Number Price

desirable, be put in a box with a thermostat to keep the temperature uniform. Putting the fork in another room and padding the box eliminates the buzz of the fork.

The best method for operation of the motor is a 15, 25, 50, or 100 d.v. tuning fork, supplied with a condenser and actuated by a direct current of the proper strength. In most instances it will be necessary to introduce resistance in the circuit in the shape of a wire or lamp rheostat. With the alternating current, the electrically-maintained tuning fork is not required. Where absolute accuracy is called for, a frequency meter should be placed in the circuit. In some cases it may be desirable, indeed necessary, to make use of transformers or rectifiers.

The clutch circuits must be operated by a direct current. The clutch consists of two stationary electromagnets for controlling the movement of the shaft carrying the indicator. The magnet next to the motor is designed to hold the indicator shaft to the armature shaft so as to start the indicator on its course around the disk when the stimulus is given. The magnet next to the disk serves to attract the indicator shaft in the opposite direction and stop its revolution when the subject reacts with the reaction key. The electromagnets being fixed, as stated above, there are no moving electrical contacts. When the current is off both magnets, the indicator may be set back to zero by turning the milled head attached to the small geared disk at the back of the large one. When the current is on the forward magnet—the one located directly behind the disk and used in the reaction circuit—the indicator may be moved by turning the milled ring between the frame and the magnet.

The value of the divisions on the large disk vary with the vibration rate of the tuning fork when the direct current is used, and by the alternation frequencies when the alternating current is used. With a 25 d.v. fork, each division represents 4σ; with a 50 d.v. fork, 2σ; and with a 100 d.v. fork, 1σ. The rotation of the armature when run on the direct current by means of a fork is one-tenth of the interruptions per second; e.g., with a 50 d.v. fork the armature makes 5 rotations per second. On the alternating current the rotations are one-fifth of the frequencies per second; e.g., on the 60 cycle current the armature makes 12 rotations per second and the measuring unit on the dial will be 1/1200 of a second, or $0.85+\sigma$. With a rectifier in the circuit, the measuring unit will be 1/600 of a second, or $1.66+\sigma$. Complete revolutions of the indicator, as stated above, are recorded by the figures on the small disk, read through the aperture in the large disk. See No. 23301 phychometer on pages 112-113. (J.o.Ex.P. 2, 1917:249-252; Ps'b. May 1918:434-454; 32:45-48; 111:X7B) **$270.00**

20237. Chronoscope, Model III, Dunlap's. Built like Model II, with the exception that it is not supplied with means for recording the number of complete revolutions of the indicator around the large dial. In this model the large dial on the front of the instrument has been elevated and the indicator attached to the pivot of the gear wheel which in Model II serves as a dial for recording its revolutions. As the relation of this gear wheel and the spur-gear on the clutch shaft is in the ratio of 5 to 1, the ten-pole synchronous motor must make 5 revolutions for each revolution of the indicator around the dial. With this arrangement we have the following values for the dial divisions: 20σ with a 25 d.v. fork, 10σ with a 50 d.v. fork, and 5σ with a 100 d.v. fork. (Ps'b. May 1918:435-454) **270.00**

20237A. Dial, Chronoscope. For converting the No. 20236 Model II into a No. 20237 Model III chronoscope. The dial is provided with a gear wheel like that of No. 20237 and can be readily attached with the aid of a screw driver. This dial does not have the small supplementary dial for recording the indicator revolutions **23.00**

20237B. Dial, Chronoscope. Devised to facilitate the use of the Nos. 20236 and 20237 chronoscopes on the 110 v. 60 cycle A.C. by eliminating the fractional readings produced by the required substitution of a rectifier for the tuning fork. Readily attached with the aid of a screw-driver. The dial is provided with a gear wheel that makes the graduations equal to exactly 2σ, like that of a 50 d.v. fork used on a battery or the 110 v. D.C. This dial carries the small supplementary dial for recording indicator revolutions **31.00**

20238. Chronoscope, Dunlap's. The only difference between this model and the No. 20236 Model II is that the armature is supplied with ball-bearings. Not so quiet in operation as the other two models but it requires a little less current for operation and does not require as delicate adjustment of the shaft **300.00**

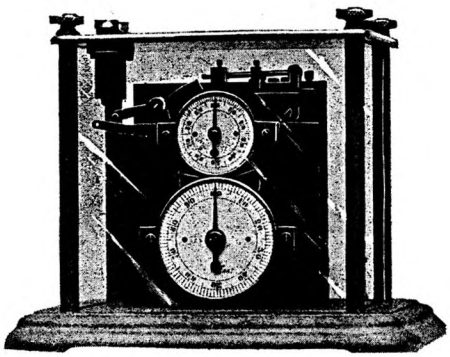
20241. Chronoscope, Model "Amerika," Hipp's. This chronoscope, originally invented by the English Physicist, Wheatstone, and later modified by Hipp, is the oldest device used by the psychologists for measuring extremely small fractions of time. The original model, and in fact, all the succeeding models made on the continent were as a rule operated by means of a weight. This motive power is in many respects unsatisfactory and makes necessary an unduly bulky type of construction.

Our new model, which has been named "Amerika" by the manufacturer making the instrument for us, is actuated by a spring. This spring permits the construction of a compact and easily handled model.

The essential parts of the chronoscope are the following:

1. The motive power. In this case, a spring with a crown wheel having one hundred teeth for engaging and driving the recording mechanism.

2. The recording mechanism. This consists of two dials and two indicators with a spindle and cross-bar for making connection with the crown wheel of the motive power. The revolution of the indicator spindle is instantly stopped when its cross-bar is per-



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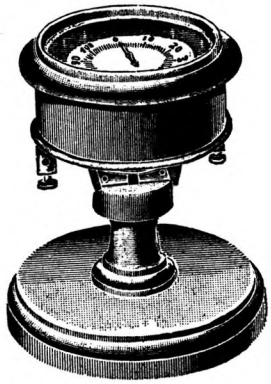


No. 20254.

Number Price

mitted to slip into the stationary crown wheel, which is located back of the small dial and which is an exact counterpart of the one on the driving mechanism.

3. The reaction mechanism. This consists of two pairs of electromagnets, one above the other, with a common armature between them for making and breaking connection between the revolving crown wheel of the motive power when the presentation of a stimuli and the response takes place.

The spring of the driving mechanism is wound up by means of a key placed over the spring spindle projecting through the lower dial. Pressing down the front lever on the left-hand side of the top of the case starts the chronoscope; pressing down on the rear one stops it. The speed of the driving mechanism is governed by means of a carefully adjusted vibrating reed acting on the teeth of the balance-wheel. This reed vibrates 1000 times per second when set in motion by starting the motive power, and as it allows one tooth to escape at every vibration, it moves the upper indicator around the dial 1/1000 of a second or 1σ every time it vibrates.

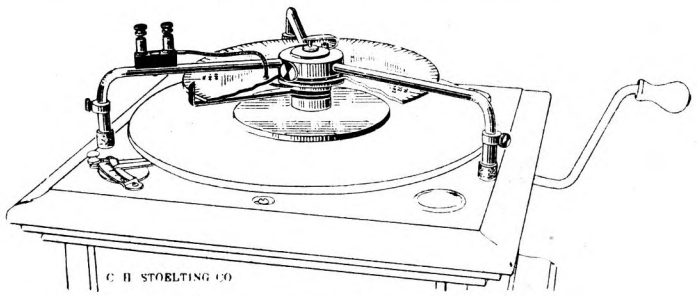
As the movement of the crown wheel of the motive power is by sigma (or 1/1000 of a second), it is of course obvious that the reading of this movement, by means of graduated dials, becomes a comparatively simple matter. The upper dial, being graduated into one hundred parts, reads to 1/1000 of a second; or in sigma, from 1 to 100 inclusive. The indicator of the lower dial is geared to the upper so that it makes but 1 revolution to 100 of the latter. As this large dial is also divided into one hundred parts, each division represents 100σ, or thousandths of a second, and we have a range of 10 seconds in tenths of a second, or 100σ.

We now come to the reaction mechanism. This electrically-operated mechanism is designed to furnish means for starting and arresting the indicators of the recording mechanism; i.e., throwing the bar of the spindle to which they are geared in and out of the crown wheel of the spring motor. For this purpose there is placed at the rear of the instrument two pairs of electromagnets, one above the other, either of which may be used at will. On the rear of the base of the chronoscope are placed four binding posts for placing resistance, keys, etc., in the circuit. Facing the dial, the two on the left lead to the lower set of electromagnets and the two on the right to the upper set. Between these two pairs of magnets is pivoted an armature joined to a light vertical rod or lever which acts on the spindle carrying the upper indicator. The position of the armature between the poles of the magnets is regulated by spiral springs whose tension is adjustable by means of two eccentric levers placed to the right and left of the magnets and moving over a circular scale—also by the magnets when current is flowing through them.

When the armature is poised between the two magnets and the spring motor is started, the hand will not move. If, however, the two eccentrics are turned up so that the upper spiral spring is relaxed and the lower one tense; or if a current is sent through the lower magnet so that the armature is drawn down, then the indicator begins to move. If, on the contrary, the eccentrics are turned down so that the lower spiral is relaxed and the upper one tense; or if a current is sent through the upper magnet so that the armature is drawn up, then the vertical rod presses forward against the upper spindle, the cross-bar is forced between the teeth of the stationary crown wheel, and the movement of the indicator arrested. Due to this two-fold regulation of the position of the armature by spiral springs and by the electric current, it is possible to register the period of time elapsing between "break" and "make," between "break" and "break," between "make" and "break," and between "make" and "make" of an electrical current. (B.J.o.P. 5, 1912:1-7; J.o.Ex.P. 1, 1916: 185-199; 77:232; 103:X15; 137:113-118; 139: X88-91; 223:336-355; 227:120-166, X24-25; 228:324-335) **$425.00**

20252. **Phonograph,** Portable. (11:141-142; 51A:X23) **30.00**

20253. **Chronoscope, Phonograph,** Seashore's. Consists of a dial and two magnets and a small portable tripod for supporting the attachment on any good phonograph of the disk type. The lower magnet rests on the phonograph plate and revolves with it. The upper magnet is mounted on the dial and remains stationary. The pointer is swung in delicate adjustent between the two magnets, so that when the current is sent through



No. 20253.

Number Price

the magnet from the No. 23208 examiner's key, the pointer is picked up by this magnet and turns with the disk until the current is shifted to the upper magnet by means of the No. 23207 observer's key, when it adheres to that magnet and remains stationary, pointing to the desired reading on the scale. If the phonograph is set at 75 r.p.m., the disk divisions equal hundredths of a second. This chronoscope attachment was designed as part of the equipment for musical talent tests. (200:170-173) **$134.50**

20254. **Chronoscope,** Ewald's. One of the simpler chronoscopes and very convenient for those types of reaction experiments that do not demand measurements of periods of time smaller than hundredths of a second. A very desirable feature possessed by this instrument is the device making it possible to return the indicator to zero. The essential part of the chronoscope is a pair of small electromagnets which can be put in the circuit of an electric current which is made and broken by means of a 100 d.v. electrically-maintained tuning fork. Pivoted on the frame of the mechanism is a very light armature which terminates in a vertical rod carrying a thin plate of metal designed to act as the propelling force of the small ratchet wheel pivoted above the magnets. An adjustable spiral spring is attached to the armature and fastened to the frame of the instrument so that sufficient tension can be exerted to draw the armature away from the poles of the magnet after the circuit has been broken by the vibration of the fork. Every time the fork makes contact, the armature is attracted by the magnets and the thin blade at the end slips between the teeth of the small ratchet wheel at the top and causes it to advance one tooth. The indicator is attached to the pivot of this small ratchet wheel and naturally advances one division on the dial every time the armature advances the wheel a tooth. As the dial is graduated into one hundred parts, and the ratchet carries the same number of teeth, each vibration of the fork advances the indicator one division, or 1/100 of a second.

This chronoscope may be used with forks possessing a slower vibration rate, but then of course the value of the dial divisions change accordingly; e.g., a 50 d.v. fork would give the divisions a value of 2/100 or 1/50 of a second, and the range of the scale would then be 2 seconds instead of 1 second.

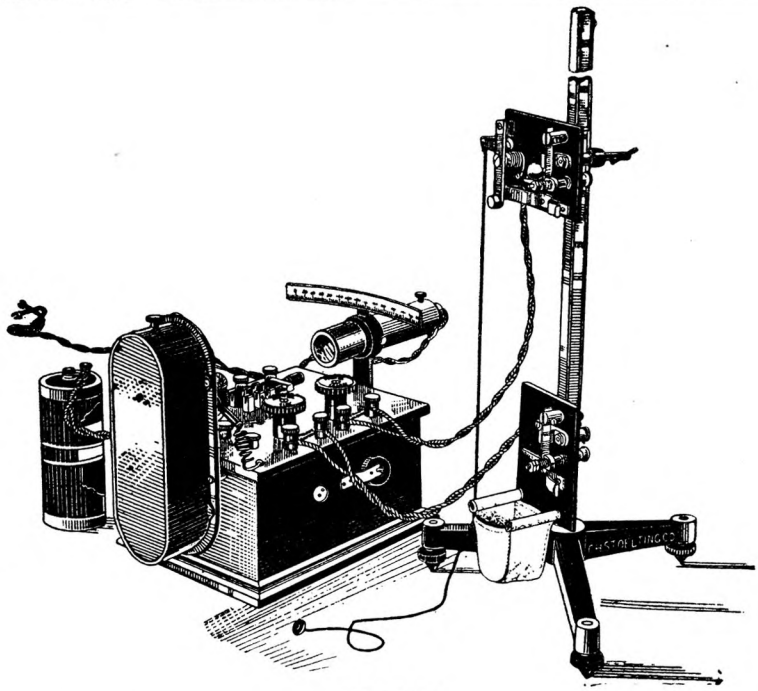
The entire mechanism is mounted on a revolving platform which in reality is a large wheel with one hundred teeth, and as the dial is mounted independently on the base directly above the mechanism, the indicator is readily brought to zero by turning the mechanism by means of the attached milled head at the bottom of the casing. A ratchet serves to engage the teeth of the platform or toothed wheel so that it may be advanced if desirable tooth by tooth. (103:X15; 227:158-160; 228:337-338; 267:T10) **212.00**

20255. **Chronoscope,** Klopsteg's. The principal advantage possessed by this chronoscope is probably the ease with which accurate measurements can be made, and with which standardization can be accomplished whenever desired. The indications of the instrument are tested with a standard time interval, "measured out" by an exceedingly accurate form of fall apparatus. Additional advantages are to be noted. One of them is the absolute silence of the instrument during a measurement; another is the automatic return of the indicator to the zero reading. Each indication is an indication of the actual time interval being measured. With this form of chronoscope it is also possible to demonstrate the measurement of short intervals to an audience. The fall apparatus can be used apart from the chronoscope for making accurate calibrations of other devices.

The measurement of short time intervals by the use of a galvanometer has been known almost as long as galvanometers have been known. Physicists using this method have always obtained the measured intervals by calculations based on fundamental considerations of the electrical quantities involved.

All references to electrical quantities have been avoided. Familiarity with the manipulations enables the experimenter who knows nothing about the principles of electrical measurements to make measurements of time intervals with high accuracy. Since an understanding of the principles underlying the measurements may be of service in understanding the procedure in making the measurements, a brief discussion of the principles is given.

In the Klopsteg chronoscope, an electric current of definite and, in any particular measurement, constant strength is caused the flow through the galvanometer coil during the interval to be measured. It is well known that a current in the coil of the galvanometer



No. 20255.

Number Price

produces a force which tends to turn the coil on its axis. In this chronoscope, although the current is cut off from the coil, say a few hundred sigma after it has been started, the coil continues to move in the same direction and swings through a definite angle, which depends on the strength of the current and the time during which that current was allowed to flow through the coil. With a current of given strength, therefore, the angle will depend only on the time interval during which the current flows.

An excellent analogy to the swinging coil is an ordinary pendulum which, while at rest, may be thought as being given a short, vigorous push, but of definite strength. With a given force the swing of the pendulum will be greater as the time during which the force is applied increases.

From these considerations, it is evident that if we can properly adjust the current, then the angle through which the coil swings, as indicated on a scale, can be made to represent time intervals on a scale of equal divisions.

The current is adjusted to its proper value by means of suitable variable resistances mounted on the same box with the galvanometer and its lamp and scale. The galvanometer scale is graduated to read up to 400σ in 2σ divisions. To guide the operator in the setting of the adjusting rheostats, a fall apparatus is provided which is so constructed that at the instant a steel ball begins its free fall a current is started through the galvanometer. The current is interrupted at the instant the ball arrives at a break switch, which is set at a known distance beneath its starting point. The lower switch is fixed in position while the mechanism which releases the ball can be moved up and down along a scale which reads directly in sigmas the time interval required for the ball to descend through the corresponding distance to the lower switch.

The galvanometer, as will be seen, is connected in the usual manner into a Wheatstone bridge. The current to the bridge can be varied by means of either of two rheostats. One rheostat varies the strength of current from the dry battery, while the other rheostat is nothing more than a potential divided by means of which a suitable potential difference can be "picked off" and applied to the bridge. A key in the battery circuit enables the operator to cut off the current at will.

The "first break" and "second break" may be the breaks produced either by the fall apparatus or by the observer's circuits.

It is evident that the galvanometer will show zero if, when two arms of the bridge are 5 ohms each, the other two arms are also equal (in this case 50 ohms each). The bridge will then be balanced and the galvanometer show zero regardless of the current delivered from the potential divider.

There is always some resistance at the two contact points of any switch or key, and this holds true of the contact points of the "first break." There is also some resistance in the wires which lead to this switch. It is therefore necessary to put into this arm of the bridge a small variable resistance so that the total resistance of the arm can be adjusted to 50 ohms. By this means the galvanometer is made to indicate its zero position; i. e., the position when no current is supplied to the bridge.

Number Price

If, with the current flowing, the "first break" is opened, the bridge at once becomes violently unbalanced as current starts through the galvanometer. The current continues until the "second break" is opened, the latter operation resulting in cutting off the current to the bridge. The electrical impulse through the galvanometer is therefore of the duration defined by the interval between the two successive breaks. It is now quite evident that if the interval between the two brakes is accurately known, it becomes a relatively simple matter to adjust rheostat and potential divider so that the galvanometer scale indicates the identical interval that is included between the two breaks.

With the specially designed fall apparatus, the interval indicated on the vertical rod is accurately reproduced between the two breaks. Once the initial adjustments have been made, any of the indicated intervals may be repeated indefinitely with an error smaller than can be accurately read on the galvanometer scale.

The apparatus is so designed that with a double-pole double-throw switch the reaction circuits are quickly substituted for the circuits of the fall apparatus and vice versa.

The advantages to be pointed out for the chronoscope with its fall apparatus are:

1. Great simplicity, combined with accuracy and ease of manipulation. Every part of the scale of the chronoscope is subject to immediate standardization, merely by throwing over a switch, and dropping a ball from a certain point corresponding to the point on the scale which is under test. The fall apparatus is constructed in such a way that no observable error can enter into the time interval which it determines. The probable accuracy of a single reading is easily within 1σ of the true interval, and the mean variation in ten readings for the same interval is, for the most part, a small fraction of 1σ.

2. Absolute silence during operation. The only moving part is the galvanometer coil, suspended by means of an elastic metallic fiber.

3. Automatic return of the indicator to the zero reading, and rapidity of operation, making possible about four observations per minute.

4. Possibility of demonstrating measurement of short intervals to an audience. This merely requires a different arrangement of lamp and scale from that described, in order to project an image of the indicator large enough to be seen by the audience so that each person can make his own observation.

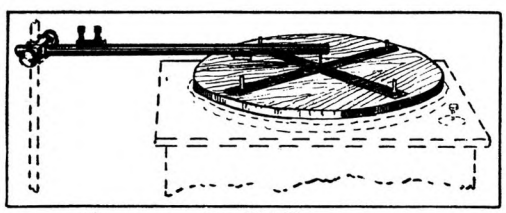
5. Applicability of the fall apparatus, apart from the chronoscope, to the standardization of other devices.

See No. 23305 psychodometer on pages 114-115. Psysical Review Aug. 1916, Jan. 1920; J.o.Ex.P. 2, 1917:253) **$450.00**

20256. **Fall Apparatus** of No. 20255 Klopsteg chronoscope **120.00**

20260. **Transformer** Lamp-Socket Type. For operating the fall apparatus of the No. 20255 Klopsteg chronoscope **11.50**

20261. **Interruptor, Vibrating.** This interruptor consists of a vibrating steel spring with a platinum wire contact, a clamp for supporting the spring, an electromagnet, and a mercury well, both supplied with clamps. In order to operate the interruptor, one end of the spring is attached to the clamp, which in turn is attached to a vertical support. The electromagnet is clamped at the requisite distance just above the spring. The mercury well is clamped on a similar upright support at the proper distance which will permit the platinum wire to dip into the mercury. When the wire touches the mercury, the circuit is closed and the moment of contact may be registered by a signal magnet or time marker. The electromagnet serves to reinforce the metal of the thin steel springs so that the vibrations continue so long as the battery is kept in the circuit..... **14.50**



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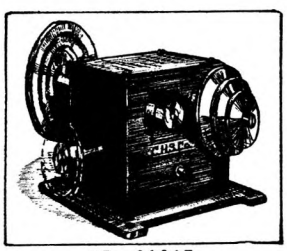

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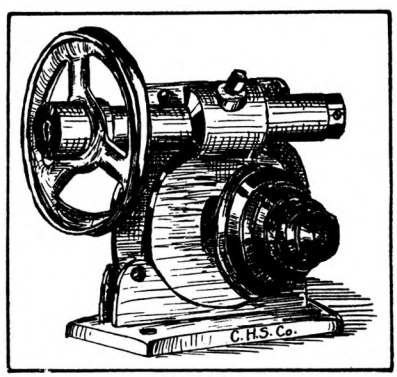


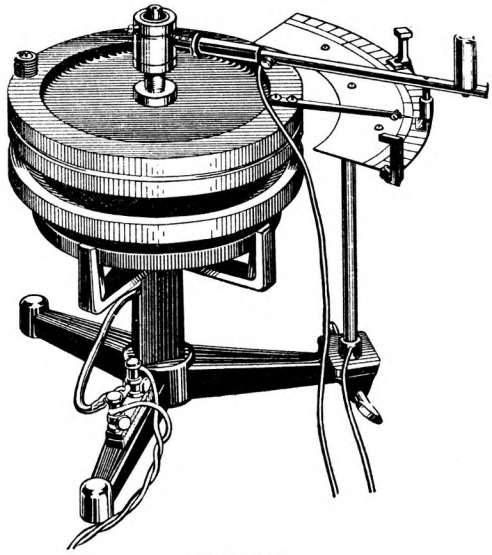
No. 20269.

Number — Price

20263. **Interruptor, Phonograph,** Batson's. A simple and convenient interruptor to be used in connection with a phonograph. It consists of a disk with two metal strips at right angles carrying removable contact pins at the four ends and made to fit the plate of a phonograph, and a horizontal arm carrying a spring contact and binding posts, which may be clamped to any upright laboratory support. By varying the speed of the phonograph or by the removal of posts, a range of contacts varying from 1/6—3 seconds may be obtained. Seashore's work indicates that a good phonograph motor runs with a very high degree of regularity, and that intervals within the range mentioned may be obtained that will not vary over 1σ ..... **$ 10.00**

20267. **Speed Reducer.** A small, compound worm-gear speed reducer of practical design; compact, and giving extremely high ratios. Bronze worm-gears, with hardened and polished worms, assure long life. Will drive any light piece of apparatus. The driver shown at the right consists of a three-step grooved cone pulley with diameters of 1½, 2, and 2½ in. The driven pulleys are located at the left and at the rear. The former is a 2 in. grooved pulley giving a ratio of 1 to 50, and the latter is a three-step grooved cone pulley with diameters of 2, 3, and 4 in. with a ratio of 1 to 100. (226:348-351) .. **40.00**

20269. **Speed Reducer,** Smith's. This device is used a great deal for converting a high rate of speed into slow powerful motion. The ratio between the driving and transmitting pulley is 48 to 1. The driving pulley is 4 in. in diameter and the quadruple-grooved, cone pulley of the reduced shaft has a diameter of 1, 1½, 2, and 2½ in., and requires a ⅛ or ¼ in. round belt **15.00**

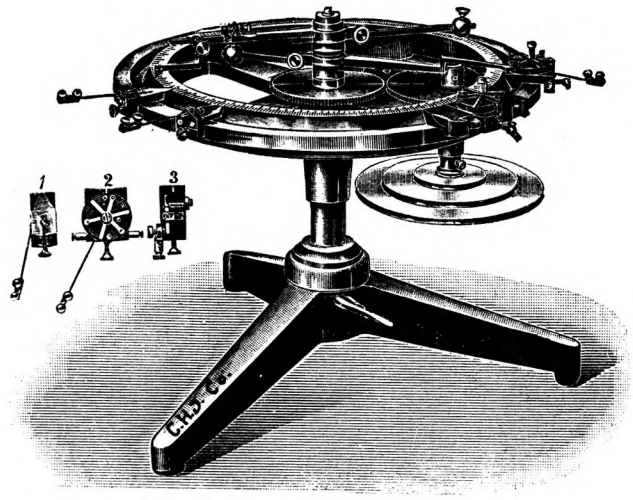


No. 20405.

20405. **Time Sense Apparatus,** Seashore's. This apparatus was devised to measure the least perceptible deviation in duration of musical tones or a standard time interval. The standard time is set by the sounding of five clicks marking off four equal time intervals; a sixth click marks off a fifth time interval which is either longer or shorter than the standard. The test consists in determining whether the last interval was longer or shorter than the standard. The interval is lengthened or shortened by moving the lever on the supporting scale. The apparatus consists of the following parts, attachable, to a phonograph: a lever attachable to the central part of the phonograph disk, a scale and support resting outside of the margin of the disk, and a contact arm resting upon the disk and revolving with it. The illustration shows the apparatus mounted on the synchronous motor with which the original experiments were conducted. (P.M. June, 1914:166-172; 200:108-114) **50.00**

20409. **Rhythm-Meter,** Seashore's. An electrical apparatus devised for recording graphically the exact performance in any rhythm pattern. The norm for performance is indicated on the instrument and each error appears in the graphic record of the entire performance. The apparatus consists of a crank-operated screw carrying an electromagnet controlling a recording pen which records the subject's performance on a properly divided paper disk placed on the rotating table of a phonograph. The apparatus is supplied complete with key, contact, and receiver, and may be attached to any phonograph. (200:32, 115-126, 170-171, 203-204; U.o.I.S.i.P. June 15, 1928:17) **130.00**

20410. **Disks, Paper,** Seashore's. For use on a phonograph with the No. 20409 rhythm-meter. Per 100 ..... **3.50**



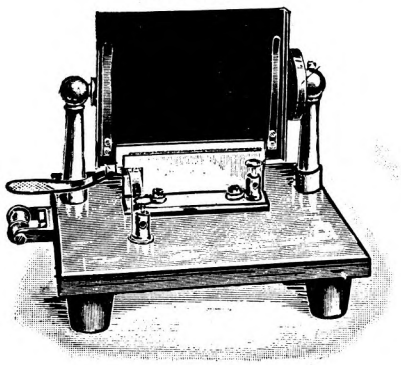
No. 20423-27.

Number		Price
20423.	**Time Sense Apparatus,** Meuman's; also referred to as Universal Contact Apparatus. Consists of a heavy metal circle of 28 cm., graduated in half degrees; with two nicely counterpoised contact arms—one with an extension adjusted by a micrometer screw—attached to a central shaft so that they can be set at any angle, and mounted on a heavy tripod base. Rubber and metal points are provided for the contact arms so that they may be put in or out of the circuit as required. The apparatus is usually made with a triple pulley for motor drive, but may be operated with a kymograph. In the latter case some change in the construction of the transmission is required. The graduations on the metal circle are separated sufficiently to permit readings of a quarter of a degree. This apparatus serves any purpose for which a series of accurately timed contacts are required. Three different types of contacts are listed below. Contacts are not included. (103:X11; 226:337-356; 228:393-402)	**$228.00**
20424.	**Sliding Contact** (Figure 1). Triangular in shape. For use with No. 20423	**13.00**
20426.	**Radial Contact** (Figure 2), 6-point; rotating on a vertical shaft. By a combination of two of the contact points and the contact arm of the No. 20423, a variable contact period of any desirable length is readily obtainable	**24.75**
20427.	**Instantaneous Contact** (Figure 3) for No. 20423	**11.50**
20435.	**Rhythm Frame,** Meyer's. A heavy square frame with support and rubber contacts fastened to the centers of the four inner sides. The following accessories are required for use with this apparatus: No. 21267 rhythm tachistoscope, No. 12611 color mixer, No. 12614 connecting cord, No. 12622 rheostat, No. 25536 series attachment plug, No. 20436 rubber mallet, two 22403 tallying registers, and No. 20227 interval timer. (129: D7; 131:347-348)	**15.00**
20436.	**Mallet, Rubber.** A large solid-rubber ball provided with a substantial handle. (129:D7)	**1.50**
20437.	**Clapping Blocks,** Baldwin and Stecher. Two round blocks, 2¼ in. in diameter, 1 in. thick, faced on one side with copper and attached to flexible wires. (11:141-145). Per pair	**5.50**
20505.	**Lamp Battery,** Scripture's. A lamp resistance board for reducing the ordinary commercial 110 V. D. C. or A. C., by means of lamps, to the current units usually required in the Psychological Laboratory. (103:X4-8; 194:483-484; 227:130-132; 228:321-322)	**13.75**
20508.	**Time Sense Apparatus,** Foster's. A simplified form for use with a kymograph. In addition to this attachment there is required a kymograph, a No. 25545 buzzer, a 25503 dry cell, a 25343 resonance box, and a 25567 knife switch. (51:X22; 53:X22) Attachment only	**17.75**

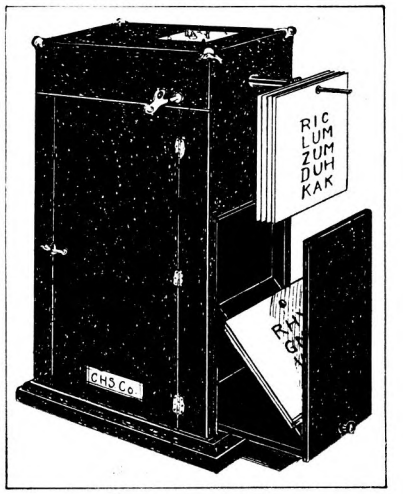
EXPOSURE APPARATUS

21005.	**Exposure Apparatus,** Franz's. For neurological and psychiatric work. A very useful device for exposing letters and figures in making visual memory tests. Since it has been shown that the majority of people are visual, the results of any memory test which omits this visual side cannot be considered truly representative. (55:102-104; 57:95-96)	**3.50**
21007.	**Krypteon,** Sanford's. A simple device for exposing anything attached by thumb-tacks to the inclined board fastened to the heavy base. At the bottom of the inclined board is a slotted shaft, operated from either end, carrying a cardboard which may be rapidly turned up or down for screening or exposing anything attached to the board. (187: 403-404)	**26.00**

No. 21005.

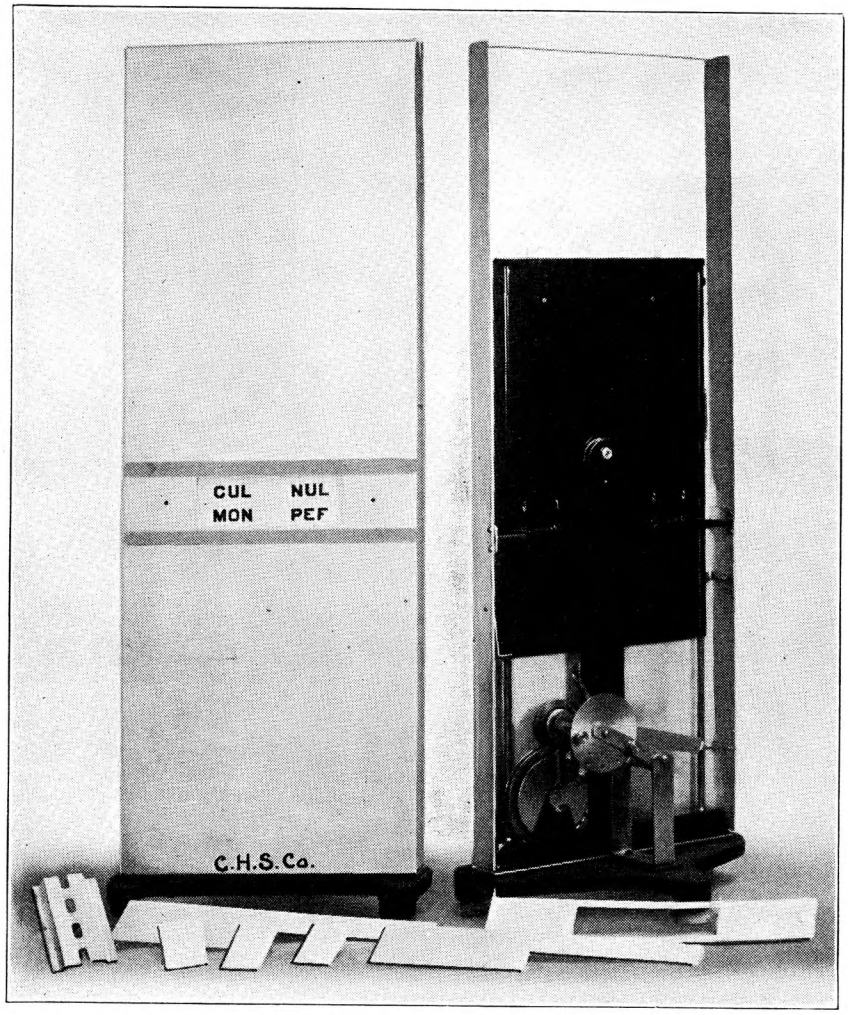


No. 21009.



No. 21113.

Number		Price
21009.	**Exposure Apparatus,** Roemer's. A heavy metal base with two uprights supporting a reversible rectangular stage with spring clips. This stage is actuated by a strong spiral spring, located between the stage and the upright on the right-hand side of the apparatus. The stimulus card is inserted under the clips at the rear so it cannot be seen by the observer. As soon as the stimulus lever with the brake is depressed, the stage is released and turns through an angle of 180° and makes a permanent electric contact. (227:X25)	**$ 78.00**
21011.	**Diaphragm,** Aubert's. Two rectangular plates with V-shaped ends sliding in a frame to which is attached a graduated scale for adjusting the size of the square opening produced by overlapping the ends of the V-shaped plates. Maximum diagonal aperture, 150 mm. (226:44)	**67.00**
21015.	**Exposure Frame,** Tinker's. Devised for use with the No. 27309 cards used for studying the span of visual apprehension, and the No. 24405 cards for studying the affective value of colors. (51A:X21, 26)	**16.50**
21105.	**Memory Apparatus,** Jastrow's; improved form. This model is a modernization of the well-known memory apparatus originally devised by Prof. Joseph Jastrow, of the Dept. of Psychology of the University of Wisconsin, and manufactured by us for the last thirty years. It makes very little noise and embodies all the latest and best in present-day mechanics. We have retained all the good features of the old model and added a number of new ones which we are sure will be appreciated by those who have had experience with the wood models. The entire apparatus is now made of metal and mounted on a heavy iron base. The screen is made of aluminum, with a dull finish, and provided with grooved guides, placed horizontally, for taking a series of diaphragms and slides that meet all the requirements of memory work. Operation of the apparatus is from the rear—out of sight of the class. The device for raising the card-holder provides movements of ½, 1, 1½, and 2 in. in extent, and permits instant return of the holder to the original position by the mere depression of a lever. The shutter gives a clear aperture of 2 in. high and 6 in. wide, and is opened and closed by depressing and releasing a lever on one side of the apparatus. For extended exposure and final release a trip and setting lever are located on the other side of the rear. The stimulus card is slipped into the card-holder from the top between the two projecting grooved guides. It makes no difference whether the card-holder is at the top or at the bottom during the process. This memory apparatus also takes the place of the Chicago University memory drum which we formerly manufactured. Instructions for operation accompany each apparatus. (29:X15; 165:X34-35; 176:X12-13; 225:X37; 226:405-420; 268:T38)	**112.50**
21108.	**Stimulus and Test Cards,** Titchener's. Set of 12. For experiments in the association of ideas. Used with the No. 21105 memory apparatus. (226:405-420)	**7.50**
21109.	**Stimulus and Test Cards.** Set of 12, in blank, with printed headings. For use with No. 21105 memory apparatus	**1.50**
21109A.	**Stimulus and Test Cards,** Kline's. Set of 12: 6 cards with long words and 6 with letters contained in these words, at the same distances apart but entirely transposed. For use with No. 21105 memory apparatus. (111:X49)	**15.00**
21113.	**Card Changer,** Guhin's. A convenient automatic multiple-exposure apparatus for use in group experiments in courses in general and educational psychology as well as in individual laboratory experiments. The spring motor used to push the series of cards	



No. 21105.

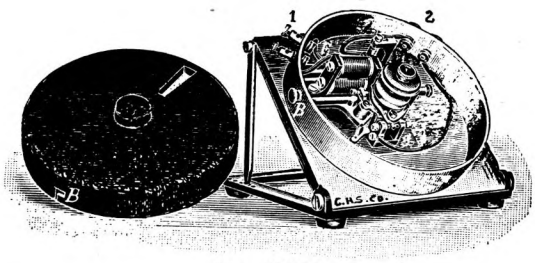
Number | Price

along the supporting rod so that the foremost drops into the trough at the bottom of the cabinet is of the "controlled clock" type and is regulated by a controller located on the top of the cabinet. The exposure time for a series of 45 (the capacity of the apparatus) ten-ply 5½x7 in. cards may be regulated from approximately one card per 2.75 seconds to one card per .13 seconds. The apparatus can be used to measure memory span, rate of learning, efficiency in certain types of "educational tests," ability in fundamental school processes in which automatic reaction is the objective, and simple time reactions. Without exposure material ..... **$ 45.00**

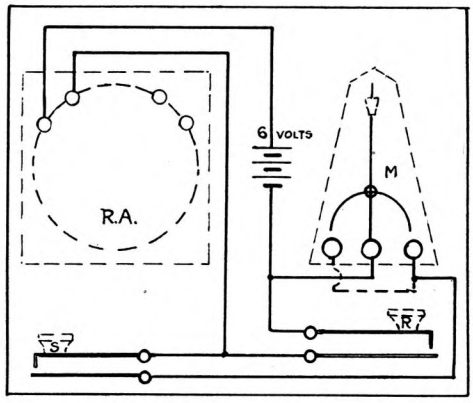
21113A. **Exposure Material** for No. 21113. Ten sets (cards) comprising the following: I. Nonsense Syllables; II. Unrelated Monosyllabic Words; III. Related Monosyllabic Words; IV. Unrelated Sentences; V. Related Sentences; VI. Geometrical Figures; VII. Discrimination of Length of Lines; VIII. Primary Colors—Paired Comparison; IX. Color Tints—Paired Comparison; X. Color Shades—Paired Comparison; XI. Tints and Shades of Gray—Discrimination; XII. Grouped and Ungrouped Number Series..... **24.00**

21113B. **Cards, Grommeted,** Blank. Per 100..... **2.25**

21151. **Memory Apparatus,** Ranschburg's. For the serial exposure of figures, syllables, words, etc., through a radial slit in the lid. The material is printed radially on a cardboard disk placed inside of the apparatus containing the electrically operated mechanism which revolves the disk. The disk is divided into 60 sectors. The radial aperture in the lid is 1½ in. wide and varies in height from 3/16 in. on the inside to 5/16 in. near the edge. The apparatus is mounted on a hinged base so the face of the disk can be placed horizontally or supported at an angle ranging from approximately 45 to 60 degrees. This apparatus has a large field of usefulness and, as shown in the figures on the following pages can, with the requisite keys, be used in connection with a mercury metronome, Hipp chronoscope, or a Dunlap chronoscope. It may also be used in connection with the stop-watch controller, as shown in the figure on page 80. (32:498; 176:X5; 178:C9; 178A:C9; 224:381; 268:T38)..... **150.00**

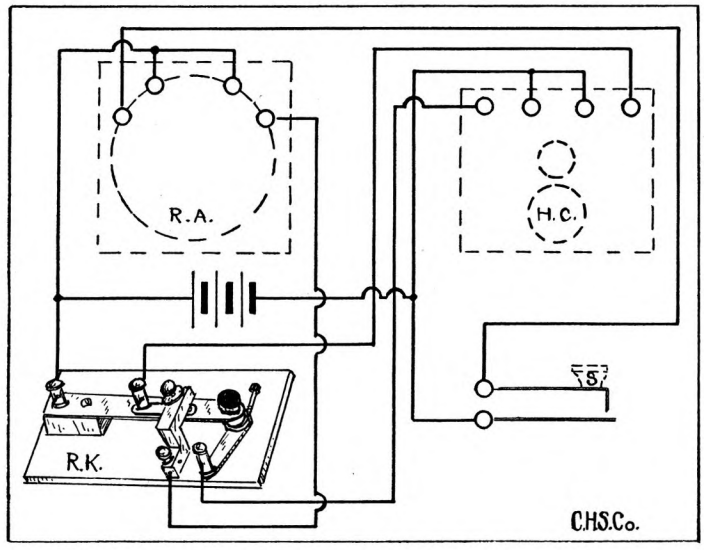


No. 21151.



Nos. 21151, 58305, 25510, 20111.
(1)

Number		Price
21152.	**Stimulus Cards** or Disks, blank, with radial divisions. For use with No. 21151 memory apparatus. Per 50	$ 4.75
21154.	**Stimulus Disk,** Pyle's; with colors. For No. 21151 memory apparatus. 176:X5; 178:C9; 178A:C9)	3.00



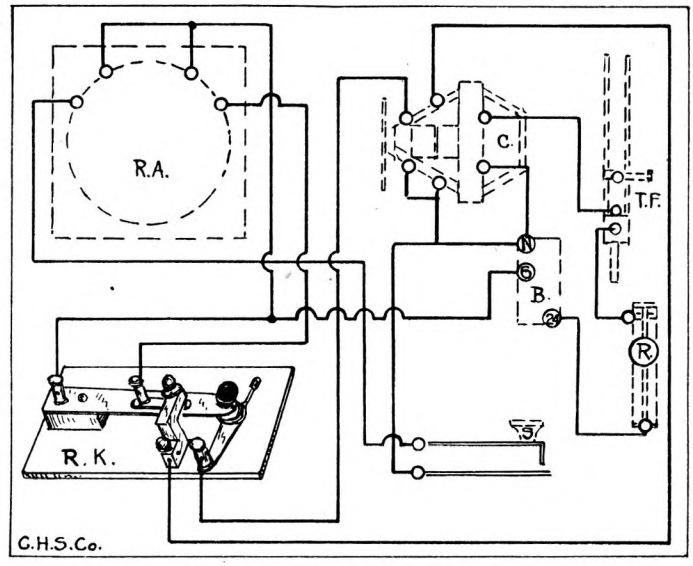
No. 21151, 23207, 25510, 20241, 58305.
(2)

21202. **Tachistoscope,** Kibbe's. Designed especially for the study and practice of reading in the elementary school. It is light and compact, simple to operate, and constructed to stand hard usage. The shutter mechanism is enclosed in a dull-finished aluminum case, at the rear of which is attached the mechanism for moving the heavy linen-reinforced paper belt carrying the reading matter. The tachistoscope is hinged to a rectangular skeleton base which, with the aid of an adjustable bracket, permits inclining the tachistoscope at any angle between the vertical and horizontal positions. The belt carrying the reading matter, and the shutter, may be operated simultaneously or separately. The shutter may also be opened and closed at will. A limited variation of the shutter speed is controlled by a set-screw at the rear. Removal of the belt-operating mechanism for replacing reading matter requires but an instant. In addition to the reading belt furnished with the instrument, we can supply blank belts for printing, typing, or writing any special material that may be wanted. See illustration on page 94 **40.00**

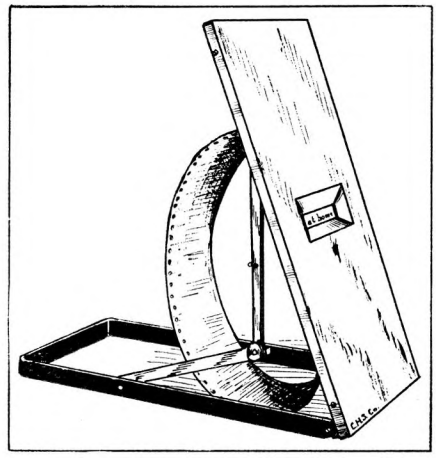
21202A. **Tachistoscope Belt.** Containing regular material usually supplied with No. 21202 tachistoscope. **1.50**

21202B. **Tachistoscope Belts,** blank; with the necessary perforations on one edge. For No. 21202 tachistoscope. Per 10 **5.00**

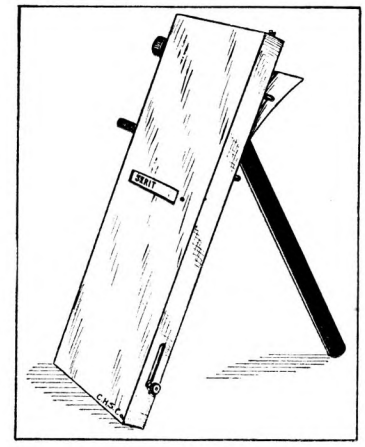
21203. **Tachistoscope Attachment.** Designed to convert the No. 21202 Kibbe tachistoscope into a Dearborn and Langfeld tachistoscope **5.00**



Nos. 21151, 20236, 20013, 25588, 23207, 25510A, 58305.
(3)

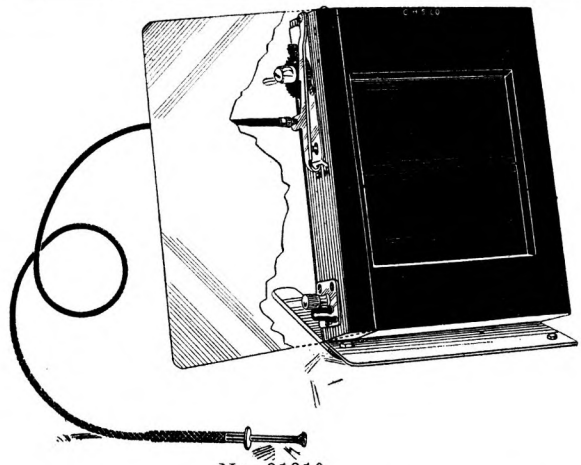


No. 21202.



No. 21207.

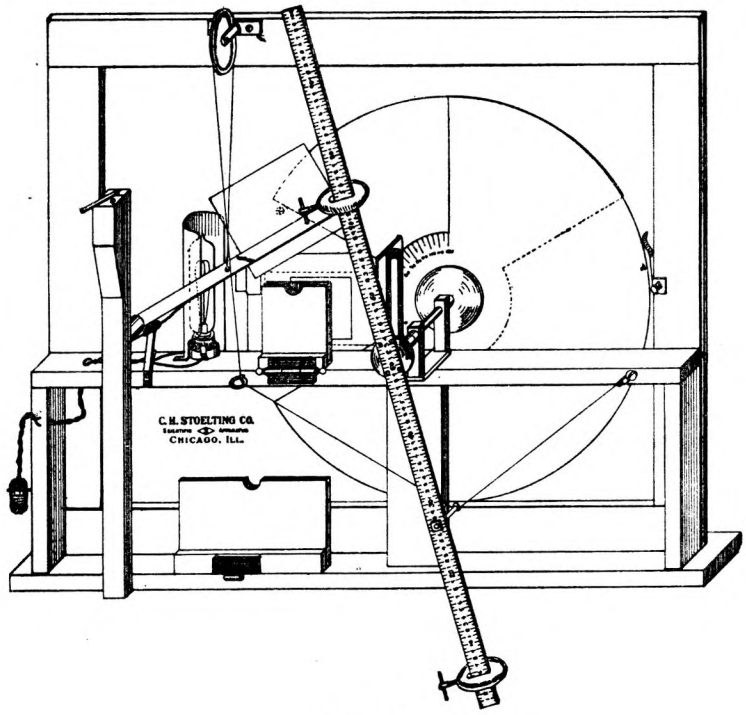
Number		Price
21205.	**Tachistoscope,** Allport and Langfeld; cardboard model. Aperture, 5/16x2¼ in. (119:-X14-49, 50, 51, 52, 53, 54, 55)	$ 1.25
21206.	**Exposure Cards,** Dearborn and Langfeld. A set of 16, for No. 21207. (119:X14-49, 50, 51, 52, 53, 54, 55)	.60
21207.	**Tachistoscope,** Dearborn and Langfeld. Made of aluminum; with limited speed adjustment. Aperture, ½x2½ in. Designed for those who desire something more substantial and satisfactory than the No. 21205 cardboard tachistoscope. (59:X10, 12; 119:X14-49, 50, 51, 52, 53, 54, 55; 245:252-253)	25.00
21208.	**Exposure Slips,** Freeman's. Set of 8, containing figures and words. For No. 21207 tachistoscope. (59:X10)	.30
21209.	**Dot Slips,** Freeman's. Set of 5, for No. 21207 tachistoscope, containing various numbers of dots for the Apprehension of Number Experiment. (59:X12)	.50
21210.	**Tachistoscope, Portable,** Whipple's. A converted, small, focal plane photographic shutter with lever, wire release, card-holders, and folding supports. The present model is an improvement and somewhat different from the illustration in that the front is faced with a fixed dull-finished aluminum shield which extends sufficiently beyond the shutter to hide the operating mechanism. The card-holder at the rear is hinged and takes a card 4¼x6¼ in., and also holds a metal reducing plate with cleats for taking cards approximately 3¾x3½ in. The clear aperture of the screen is 4 1/16x5¾ in. The curtain has apertures of ⅛, ⅜, ¾, and 1½ in. in height, and with the six different	



No. 21210.

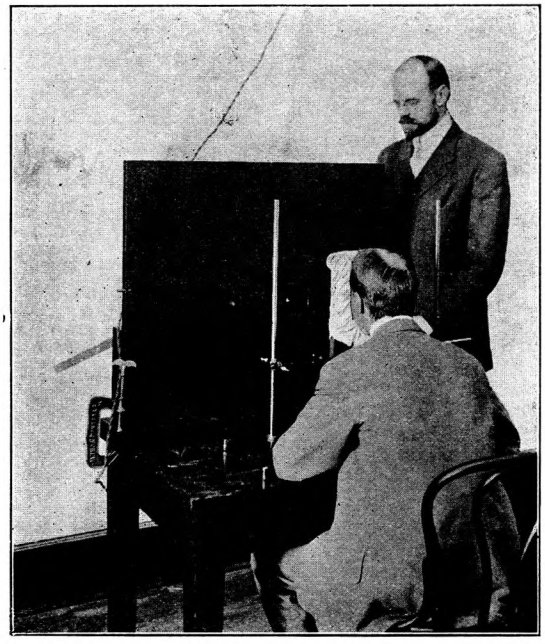
Number Price

tensions, gives speeds ranging approximately from 1/10 to 1/1000 of a second. A plate attached to the side of the tachistoscope, between the release and the tension key, gives the various combinations required to secure the desired speed. There is also a time release which permits holding open the black-curtain shutter any desired length of time. (267:T25A) ..... **$ 64.75**

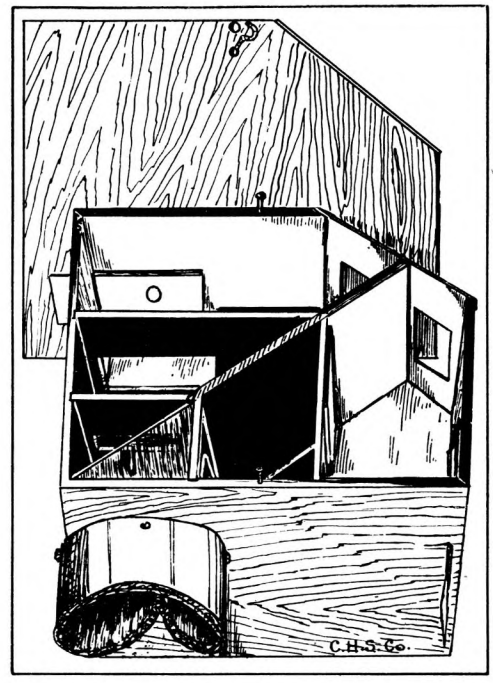


No. 21233.

21233. Tachistoscope, Disk, Whipple's. This is not the ideal tachistoscope, but it has the merit of being relatively noiseless, inexpensive, simple in operation and construction, and answers in a most satisfactory manner the demands of comparative tests. It has also been used to a great extent in research work. The tachistoscope is constructed of wood, with a cardboard shutter. The speed of the cardboard shutter is governed by a meter-stick pendulum with two adjustable bobs. The circular cardboard shutter consists of a series of three disks with projecting sectors, one graduated, which can be combined to give a comparatively wide range of apertures. Two interchangeable card-holders accompany each tachistoscope. The small one takes a card approximately 3½ in. sq., and the large one a card approximately 7⅞x5 in. The cards are illuminated by a straight-filament incandescent lamp shown with additional details of the operating mechanism in figure above. With the aid of the copper contact brush shown on the rear right side of the frame in the figure above, and the accompanying clips with



No. 21233.



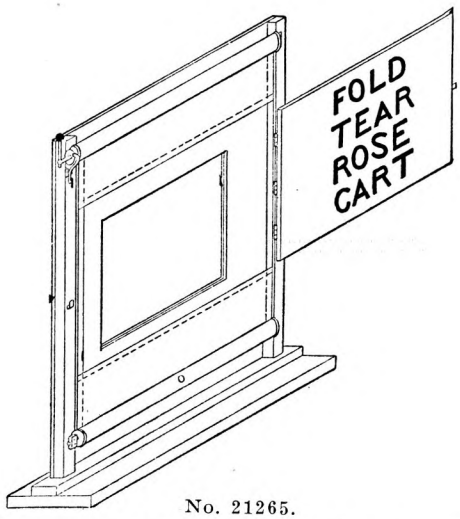
No. 21239.

Number		Price
	attached wires, the tachistoscope may be put in circuit with a signal magnet, electrically-maintained tuning fork, and a battery for securing a kymograph record of the moment of exposure and occlusion of the center of the field. (176:X9, 10, 11; 245:252-253; 267:T24-25A)	$ 85.00
21235.	**Lamp, Tubular,** Frosted, 16 c. p. For No. 21233 tachistoscope	1.50
25657.	**Clamp, Standard,** 3 in. opening. For clamping base of No. 21233 tachistoscope to table. (2 required.) Each	.30
21237.	**Letters and Figures,** Wilson's; gummed, black, size 3, 17/32 in. high. Two boxes of 100 each for making up stimulus cards. (267:T24)	9.00

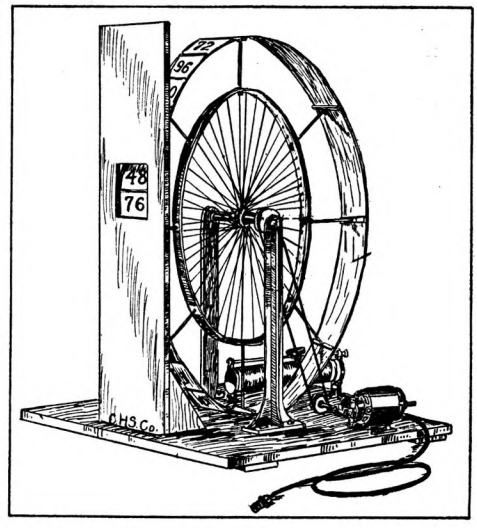
21239. **Tachistoscope, Mirror,** Dodge's. The renewed interest in this type of exposure apparatus is justified by the fact that it satisfies virtually all the conditions of exposures demanded in laboratory work. The principal features of interest are the following: simultaneous exposure of entire object; illumination of fields capable of experimental modifications; fixation point in pre-exposure field capable of accurate adjustment with relation to object of exposure; duration of exposure subject to wide variation without alteration of other experimental conditions; exposure noiseless and without distracting phenomena; adjustable for either monocular or binocular observation or any combination of the two.

The apparatus as shown in the illustration above is substantially constructed of well-seasoned lumber and supplied with an easily removed lid. The objects are inserted through slits in the side of the dark box, one at the upper left and the other at the right front. These objects are illuminated by two diagonal windows located at the upper right. The observer's hood is located at the left front. Between the observer's eyes and the object to be exposed, a plate of smoked glass in inserted diagonally just back of the hood in the line of vision. During the exposure of the object on the upper left, the smoked glass serves no purpose whatever; it is simply a part of the transparent media between the eye and the object. Before and after the exposure, when this object is dark and the one on the lower right is illuminated, the glass plate funtions as a mirror. It reflects the entire lower right field in such a way that it appears to lie in the same plane as the exposed field on the upper left directly in front of the observer's hood. If both fields are illuminated at the same time and both are visible, they appear to occupy the same position in space. The adjacent diagonal windows on the upper right, with the aid of mirrors, provide for the illumination of both the upper left and lower right fields. The light from each window falls on a silvered mirror from which it is reflected to the appropriate field. Diffusion within the apparatus is reduced to a minimum by means of diaphragms just large enough to give a view of the two fields. The windows are glazed with finely ground glass in order to insure an even distribution of light, and internal diaphragms provide for regulation of intensity.

Between the windows and the source of light a shutter must be used for eliminating the light from the pre-exposure window, at the same moment that it allows the light



No. 21265.



No. 21267.

Number Price

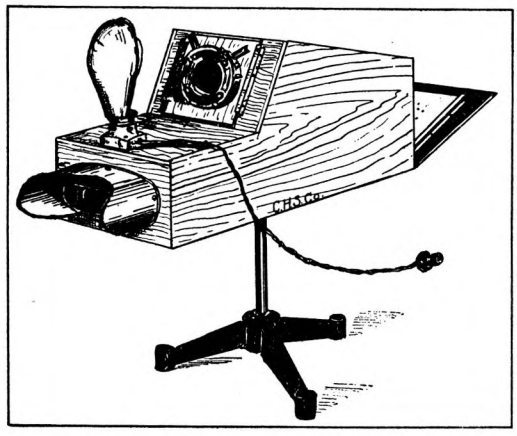
to fall on the exposure window. The form of shutter, as Prof. Dodge states, is altogether a matter of expediency. With his own apparatus he used a large disk carried on the axis of a heavy seconds pendulum, so arranged that when one window was covered, the other was exposed. The duration of the exposure is regulated by the size of the disk openings. A large nitrogen-filled incandescent lamp, such as used in projection lanterns, fitted with a condenser for rendering the rays parallel, makes an excellent illuminator.

In addition to using the apparatus as a tachistoscope, it may also be used for color mixing with the use of gelatin films or colored papers; it also readily adapts itself to the projection of after-images into predetermined post-exposure fields. This type of tachistoscope is capable of many modifications, and we are prepared to manufacture to order any of the modifications that in late years have been described in the psychological journals. Striking testimony to the efficiency of this piece of apparatus is furnished by the fact that it is used by sleight-of-hand performers for producing various illusions of disappearance and transformation. (103:X23; P.B. Jan. 15, 1907: 10-13; A.J.o.P. July, 1925, Oct. 1926)..... **$ 75.00**

21251. **Tachistoscope,** Bergström's. See No. 23303 psychodometer. The tachistoscope includes the base board, screen, mirrors with supports, and necessary keys and switches, omitting the chronoscope, all of the wiring, and other equipment shown for visual, auditory, and tactual stimuli. (P.R. Sept. 1900:483-489; P.R. Jan. 1910:1-18)..... **162.50**

21265. **Tachistoscope, Demonstration,** Titchener's. Made on the order of a focal plane shutter and provided with a hinged card-holder. A set of 2 cards is supplied with each tachistoscope. The clear aperture is 12 in. sq., and the card-holder will take a card 12⅞ high x 16¾ wide. (224:287-289)..... **112.50**

21267. **Tachistoscope, Rhythm,** Meyer's. This tachistoscope is constructed of a bicycle wheel extended to a diameter of 3 ft., and faced with a galvanized-iron rim approximately 4 in. wide, on which are painted 32 digits in random order. The wheel is mounted so



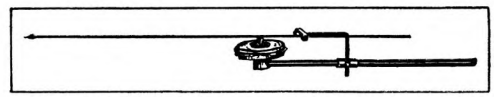
No. 21270.

Number | Price

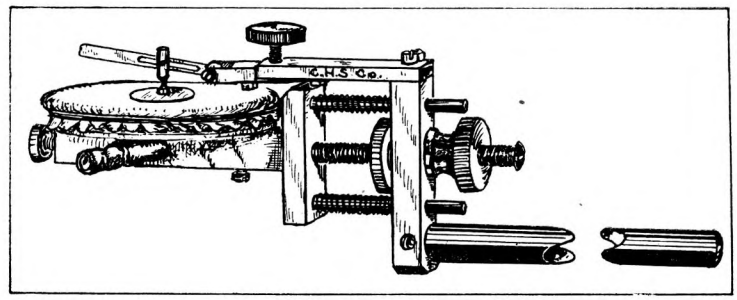
that it can be readily driven by the No. 12611 color mixer. The tachistoscope is supplied with a screen having a window that does not permit more than two digits to be seen simultaneously. (129:D7) **$140.00**

21270. **Tachistoscope, Camera-Shutter,** Dockeray's. This tachistoscope consists of a dark box with an observation hood at one end and a card-holder at the other. The card is illuminated by an incandescent lamp placed in front of the shutter used for regulating the time of exposure. This is a very practical tachistoscope and of course the exposures can be made with the same degree of accuracy achieved in photographic work. The shutter used is one of the best, and with the requisite care will give good service. (99:137-138) **80.00**

RECORDING APPARATUS



No. 22003.



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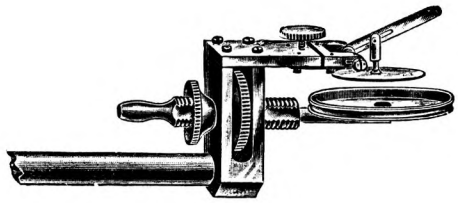

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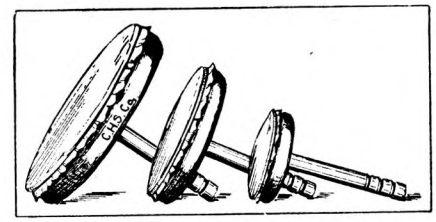


No. 22007.

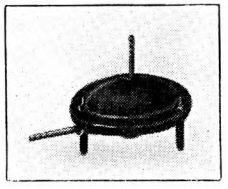
22003. **Tambour, Recording,** Simple. Will answer for demonstrations and work that does not require careful adjustment **5.75**

22004. **Tambour, Recording, Universal.** The latest and without a doubt the most practical of the many different types of tambours devised for recording pneumatically the fluctuation of the air pressure in cardiographs, sphygmographs, and plethysmographs. The support carrying the capsule is adjustable and provided with a set-screw for equalizing the pressure, thus eliminating the use of an inlet valve in the circuit. The three capsules supplied with the tambour are attached to a support carrying a tublature and the set-screw for regulating the pressure. Changing capsules requires but a moment as they are held in place by a single screw, and the disk with the post for attachment to the stylus-holder is held by means of a readily removable pin. The large capsule is 2 in. in diameter; the medium, 1½ in. in diameter; and the small one, 1 in. in diameter. The capsules are all furnished complete with a rubber dam and the stylus disk attached to the top **30.00**

22005. **Tambour, Recording,** Marey's. The standard type used for making a kymograph tracing by means of pneumatic transmission. Our model of this well-known tambour is substantially constructed and devised for hard usage. The transmitting capsule is 1½ in. in diameter. (55:45; 57:41; H.E.P.:106-107; 103:X11; 139:X151; 224:244; 225:X24-25; 226:176-177; 267:T9) **20.00**

22007. **Tambour, Receiving.** Set of 3: 1, 1½, and 2 in. in diameter. A metal pan or bowl, to the center of which it attached a tube for connecting the tambour, by means of rubber tubing, to a recording tambour. (H.E.P.:90-91, 234-236) **4.50**

22009. **Air-cock.** For maintaining normal pressure in the pneumatic circuit between the receiving and recording instruments. (103:X11; 224:244; 226:178) **3.50**



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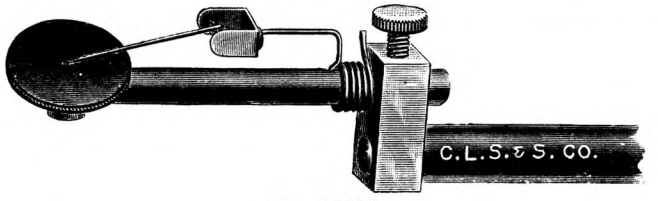

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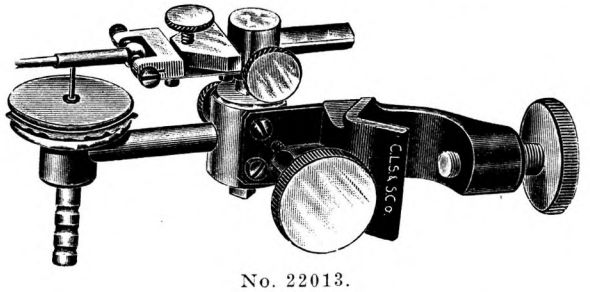
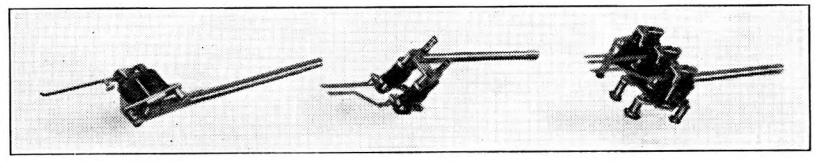


No. 22013.

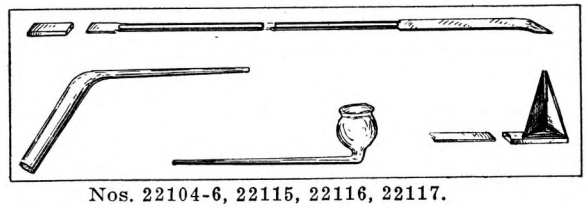
Number		Price
22010.	**Reducing Capsule, Pressure,** Dunlap's. A comparatively inexpensive, simple, and substantial device for reducing the high pressure required for operation of the compression sleeve of the sphygmomanometer to the pressure required for operation of a Marey tambour for making a tracing on a kymograph drum. The device is simplicity itself. It consists essentially of a dome-shaped metal capsule divided into two compartments by means of a diaphragm composed of one to three disks of soft rubber. Each compartment is supplied with a tublature for introducing the device into the pneumatic circuit. The tublature from the dome-shaped compartment—low pressure—is connected to the tambour; the tublature from the other compartment—high pressure—is connected to one of the arms of a glass or metal "T" or "Y" tube. Another arm of the "T" or "Y" tube is connected to one of the rubber tubes of the compression sleeve of the sphygmomanometer. The third arm of the "T" or "Y" tube is connected to the pressure gauge. Thus arranged the blood pressure may be read from the gauge while obtaining a graphic record of its fluctuation. The number of disks required for the diaphragm depends primarly upon the thickness of the disks and to some extent upon the pressure in the high-pressure compartment, and the thickness of the rubber membrane used on the tambour. The capsule can be easily taken apart when it becomes necessary to renew or change the number of rubber disks. The construction is such that the device can be placed on the table or, by means of a right-angle clamp and one of the three legs, attached to a support rod.....	**$ 10.00**
25761.	**"Y" Tube,** Glass, ¼ in.....	**.35**
22011.	**Tambour, Sphygmograph,** Simple. It is of the simplest construction, like the No. 22003 tambour for general purposes, and designed especially for demonstration work with a thistle-tube receiving tambour.....	**3.40**
22012.	**Tambour,** Barrows'; with a capsule ¾ in. in diameter. Devised especially for speech work	**18.00**
22013.	**Tambour, Mercury Manometer.** In this type of tambour the stylus-carrier is separately mounted and permits the delicate adjustment found to be desirable where records are to be taken with as little friction as possible. This type of tambour was originally devised for use with a mercury manometer, used in the Physiological Laboratory for blood pressure. (103:X11).....	**25.00**
22018.	**Ocular Mask,** Yourievitch's. For recording movements of the eyelids with the aid of a Marey tambour and a kymograph. A chamber of the required contour occupies the rear of one side of the plaster mask and communicates through a small-bore rubber tube with a Marey tambour, while the other side is provided with an aperture large enough to give unobstructed vision to the other eye. The contour of the contact side of the mask is such that it can be fitted virtually air-tight to the face of the average person without very much trouble, and can be kept sanitary by means of rubber tissue or paper napkins around the margin, and a quick-drying antiseptic applied by means of a camel's-hair brush to the wall of the eye chamber. Properly adjusted, this mask registers the slightest displacement of the air volume produced by winking. It can be supplied for recording the movements of either the right or left eye. In ordering, please state which eye is to be used for making the record. (Comptes Rendus, t 187, 1928:844, 1160).....	**25.00**
22019.	**Goggles,** Yourievitch's. Devised for recording movements of the eyelids. A substantially constructed pair of goggles with pneumatic cushions for air-tight connections	

Number		Price
	with the subject's face. The goggles are glazed with transparent glass, and as each is supplied with a tambour connection, one or both eyes can be used for recording. These goggles have manifest advantages over the plaster mask, but they also have some disadvantages from a sanitary standpoint	$ 35.00
22021.	**Rubber Dam** for tambours. Per sq. ft	.25
22023.	**Rubber Tubing** for tambours. 6 ft. lengths	.80
	12 ft. lengths	1.60
22053.	**Time Marking Attachment.** For use on the No. 25515 telegraph sounder and key. (267:T13)	2.25
22055.	**Signal Magnet.** A rod supporting an open metal case containing an electromagnet, binding posts, and an adjustable spring armature terminating in a stylus. A set-screw is provided for regulating the amplitude of the stylus	3.40



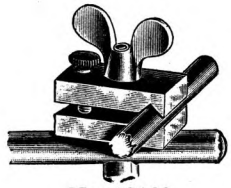
No. 22061. No. 22062. No. 22063.

22061.	**Time Marker, Electric,** Single. An extremely sensitive and well constructed time marker, with all the necessary adjustments, that will respond without fail to forks of high vibration usually used in psychological and physiological work. This time marker is constructed in such compact units that four or five of them can be combined on one support. (139:X88; 267:T10)	16.25
22062.	**Time Marker, Electric,** Double. Two units of No. 22061 mounted on a single plate attached to a rod	34.25
22063.	**Time Marker, Electric,** Triple. Three units of No. 22061 mounted on a single plate attached to a rod	50.50
22104.	**Stylus, Aluminum,** flat, 6 in. long. Ribbed to increase rigidity	.15
22106.	**Stylus, Aluminum,** flat, 8 in. long. Ribbed to increase rigidity	.15
22111.	**Ferrule, Slit, Flat.** For attaching a No. 22104 or 22106 stylus to flat terminals	.10
22113.	**Ferrule, Slit, Round.** For attaching a No. 22104 or 22106 stylus to round terminals	.50

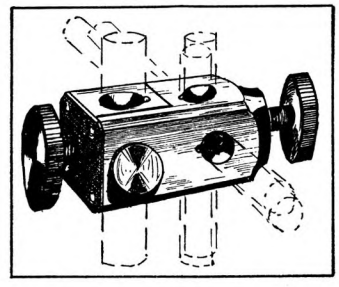


Nos. 22104-6, 22115, 22116, 22117.

22115.	**Stylus, Bent-Tube,** Ludwig's. For use with ink	.75
22116.	**Stylus, Thistle-Tube.** For use with ink. (103:X12)	.75
22117.	**Stylus, German Silver,** Triangular. Of the type used on barographs and thermographs. For use with ink	1.12
22120.	**Wax, Universal.** For temporary attachment of writing points to tuning forks and other blunt-end recording devices	.20



No. 22163.



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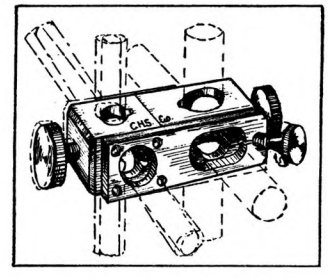
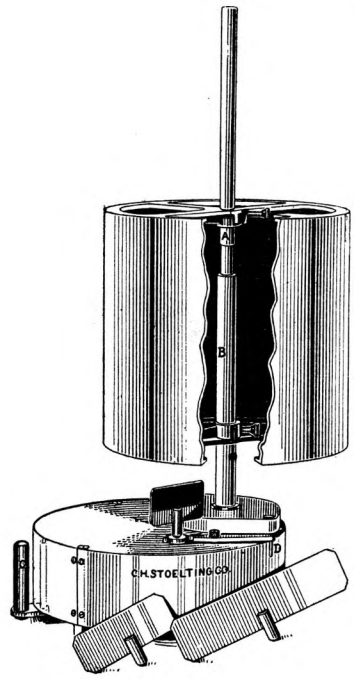
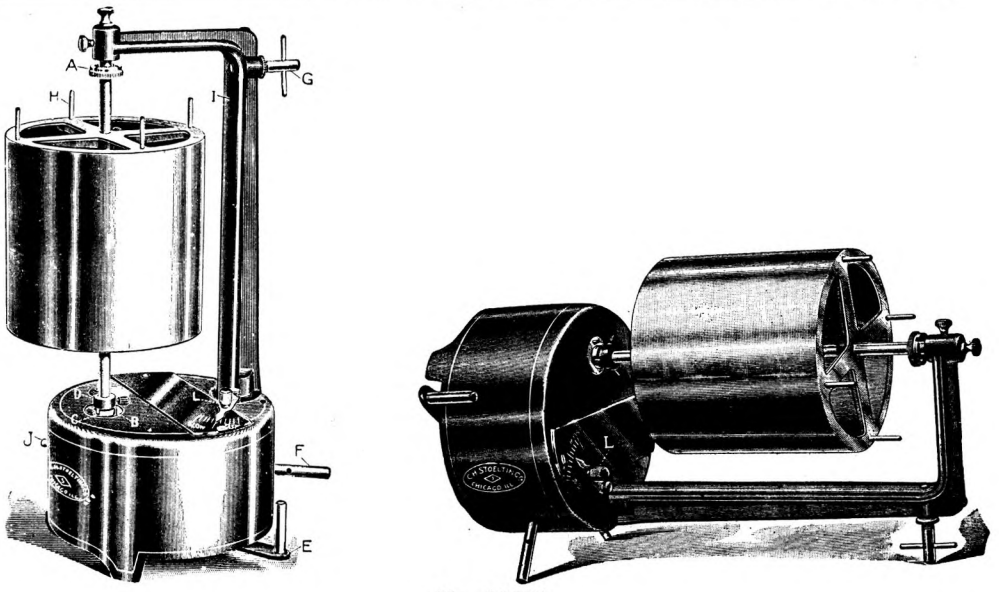


No. 22166.



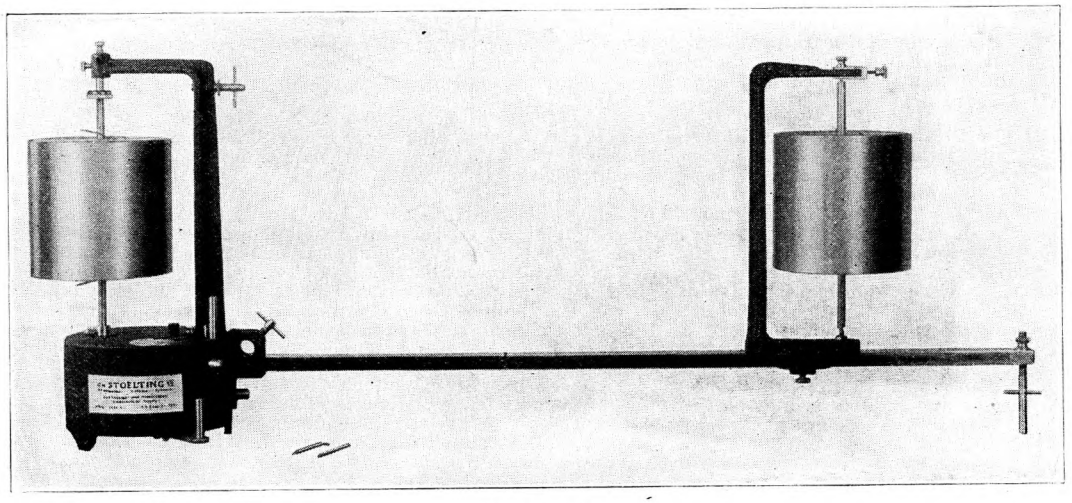
No. 22205.

Number		Price
22163.	**Clamp, Universal.** For holding time markers, tambours, and similar equipment, at any desired angle	$ 6.50
22164.	**Clamp, Fine Adjustment,** Thomas'. An efficient little clamp used in the Jefferson Medical School of Philadelphia for providing the delicate adjustment required to give styli the proper contact with the smoked paper of the kymograph. Designed to take time markers and tambours with rods of ⅜ in. diameter or less, and can be used on supports with rods of the same diameter. The small set-screw shown on the long side of the clamp serves to move the stylus through an angle of approximately 10°	5.60
22166.	**Clamp,** Fine Adjustment. In action somewhat siimlar to No. 22264, but drilled to fit a half-inch support rod. Will move time markers and tambours through an angle of approximately 5°	5.60
22205.	**Kymograph.** Designed to meet the requirements of those who have occasional use for a kymograph, and for those who feel that their limited resources do not justify the purchase of instruments of the standard type. The price of course necessarily eliminates some of the refinements in construction found in the higher priced instruments, but it is nevertheless a carefully constructed and substantial instrument that will meet the average requirements of the Physiological, Pharmacological, and Psychological Laboratory. The driving power is a substantially constructed spring motor, regulated by means of fans attached to the spindle projecting through the upper part of the base. The winding lever "C" is shown on the left of the base. The starting and stopping lever "D" is located on the top of the base at the right. The driving shaft for furnishing the "fast" drive operates inside of a sleeve which, like the sleeve itself, is connected to the driving gear. The sleeve provides the "slow" movement for the drum. The thumb-screw on the upper part of the drum frame is used to engage the shaft for the "fast" drive "A," and the one on the lower part of the frame engages the sleeve "B" for the slow drive. The three fans furnished with the instrument are used to vary the speeds of both the "fast" and "slow" drives. Loosening both screws and letting the upper part of the drum frame rest on the sleeve, permits the operator to spin the drum by hand at a high rate of speed. The drum is 16 cm. in diameter, 15.5 cm. (6 in.) high, and like the drums on the more expensive models is made of aluminum. The surface is comparatively free from blow-holes and provides an excellent backing for the paper. The drum surface is 50 cm. in circumference and by use of the "fast" and "slow" drives in combination with fans, gives a drum-surface speed ranging approximately from 93 to 12000 mm. per minute.	65.00
22206.	**Kymograph.** The No. 22205 with a drum 25.4 cm. (10 in.) high in place of the regular drum	72.00



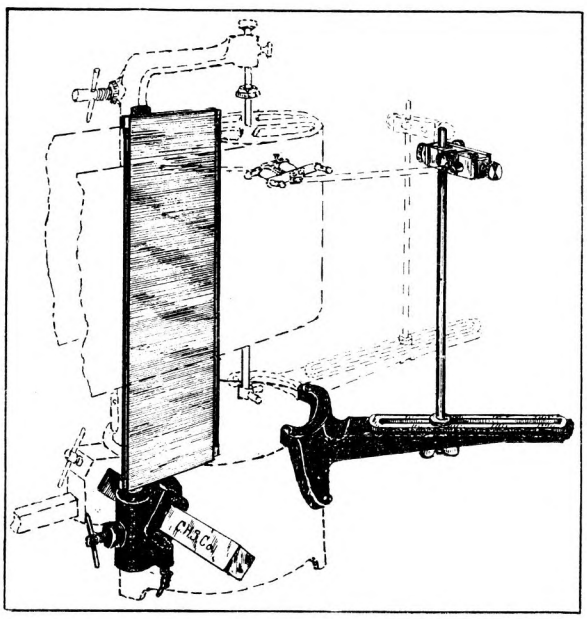
No. 22207.

Number		Price
22207.	**Kymograph.** Constructed for either vertical or horizontal use. The drum carrying the smoked paper on which the tracings are made is rotated by a strong spring motor enclosed in a heavy iron base. The speed is uniform and is regulated by means of a magnetic control. Starting, stopping, and regulation of speed is all done on the outside. The drum is the regulation size, 16 cm. in diameter, 15.5 cm. (6 in.) high. It is made of aluminum, carefully turned, and provided with a set-screw at the top and at the bottom. The shaft carrying the drum is reversible and each end has a clutch which engages the driving mechanism projecting through the top of the casing. The clutch "A," inserted in the base, gives the "fast" speed, while the clutch "D" gives the "slow" speed. Both of these speeds may be varied by the knob "L" operating the magnetic control. This kymograph is the driving unit of the Nos. 22211 and 22212 long paper instruments. It is converted into a long paper kymograph by adding the Nos. 22209 or 22210 extensions. The base of all kymographs manufactured since 1923 have been drilled for taking the extensions. There are hundreds of these kymographs in daily use; one institution is using about 75 of them. With ordinary care this kymograph will give decades of service. (32:216-218; H.E.P.:52-53; H.T.P.:65-66; 98:79-80; 99:144; M.E.P.:122; 225:X24-25, 27; 267:T9-10; Z.L.E.P.:X5, 11, 17)	**$115.00**
22208.	**Kymograph.** Like the No. 22207 but supplied with a drum 25.4 cm. (10 in.) high in place of the regular drum	**120.00**

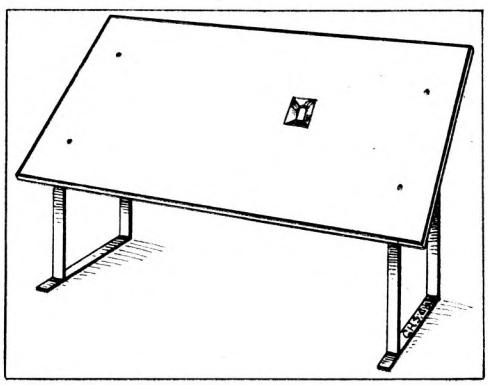


No. 22211.

Number		Price
22209.	**Kymograph Extension.** For converting the No. 22207 kymograph into a long paper kymograph. The extension comprises a backing-up flange with two sockets, a bed-rod with leveling screw, a sliding drum-carrier, and a regulation 6 in. drum.....	**$ 60.00**
22210.	**Kymograph Extension.** The same as No. 22209 but supplied with a 10 in. drum instead of the regulation 6 in. drum.....	**65.00**
22211.	**Kymograph, Long Paper.** The driving unit is the No. 22207 spring-motor-driven, magnetically-controlled kymograph designed for operation in either the vertical or horizontal position. The No. 22209 extension used for converting it into a long paper kymograph has a bed-rod 3 ft. long, and is provided with an adjustable end-support and a sliding drum-carrier with a 6 in. drum. With the aid of the No. 22227 support usually used for smoking, the kymograph can be used in a horizontal position. The support, however, is not regularly supplied with the kymograph. (Z.L.E.P.:X17).....	**175.00**
22212.	**Kymograph, Long Paper.** The same as No. 22211 except 10 in. drums in place of the regulation 6 in. drums.....	**185.00**
22213.	**Drum, Kymograph,** 6 in. For Nos. 22207, 22209, and 22211.....	**15.00**
22214.	**Drum, Kymograph,** 10 in. For Nos. 22208, 22210, and 22212.....	**20.00**
22215.	**Shaft, Drum;** with clutch at top and bottom. Used for both the 6 and 10 in. drums....	**4.00**
22216.	**Drum, Kymograph,** 6 in. For No. 22205.....	**17.00**
22217.	**Drum, Kymograph,** 10 in. For No. 22206.....	**22.00**

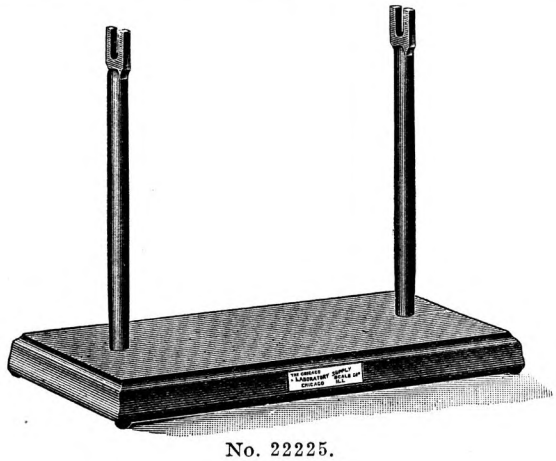


Nos. 22218, 22166, 22224.

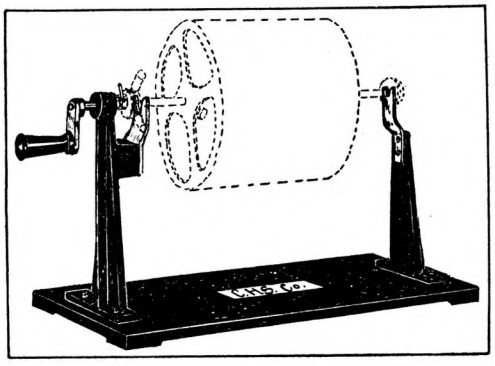


No. 22223.

22218.	**Writing Plate,** Flat. A support carrying two vertical rollers with a flat plate between them in order to provide a flat writing surface for the Nos. 22211 and 22212 long paper kymographs. The support fits into the upper socket of the backing-up flange shown at the right of the driving kymograph in illustration No. 22211.....	**9.40**
22219.	**Kymograph Attachment,** Titchener's. For controlling the pressure of the No. 18108 Von Frey limen gauge and the rate of application. (227:X6; 228:52-55).....	**30.00**
22221.	**Hand and Arm Rest,** Franz's. Devised for use with the No. 22207 kymograph in determining the rapidity of movement. (55:48; 57:42).....	**6.00**
22223.	**Hand and Arm Rest,** with slit. For use with No. 22207 kymograph in Dot Tapping Test. (267:T30).....	**7.50**
22224.	**Support, Accessory.** Attachable to 1922 and all subsequent models of No. 22207 kymograph. The use of this support insures a stable base for time markers and tambours, and eliminates the objectionable features inherent in the use of the supports with the tripod or rectangular base.....	**10.00**

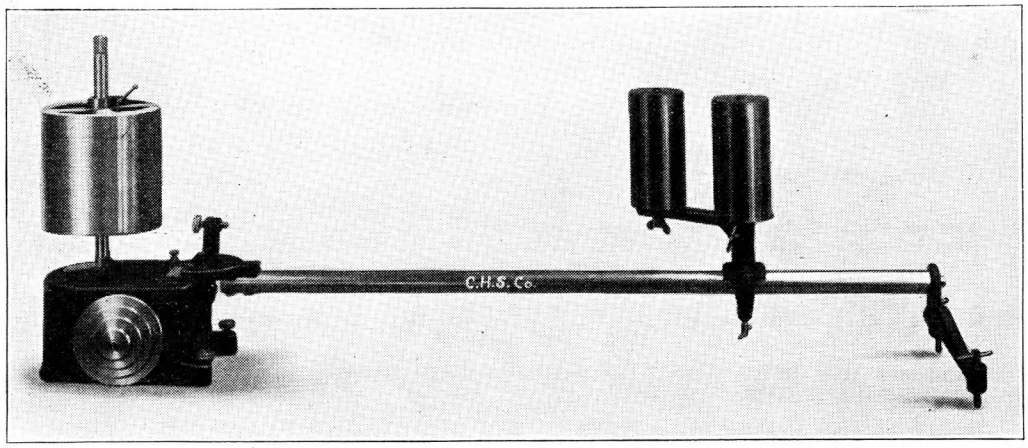


No. 22225.



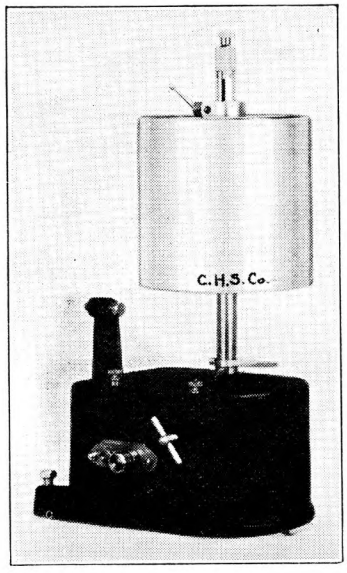
No. 22228.

Number		Price
22225.	**Support, Drum.** Used for holding a 6 or 10 in. kymograph drum in a horizontal position while smoking the paper. A special spindle is required for all drums except those used on Nos. 22207, 22208, 22209, and 22210. A spindle of small diameter is required for Nos. 22205 and 22206, and one of larger diameter for the drums used on Nos. 22260 and 22262. When ordering this support, specify the type of drum.....	$ 8.50
22226.	**Support, Drum.** For holding a 6 in. Sherrington and Starling kymograph drum in a horizontal position while smoking the paper.....	9.50
22227.	**Support, Tripod.** A heavy base with a short rod of large diameter which fits into the socket shown above the backing-up flange at the right of the driving kymograph of No. 22211. Resting two legs of the tripod on the table and grasping the arm supporting the drum of the driving kymograph, enables the operator to easily turn the entire long paper kymograph into a horizontal position for smoking or record-making with the drums running on horizontal axes.....	4.00
22228.	**Support, Drum.** With crank for turning the kymograph drum while the paper is being smoked. This support will take the 6 and 10 in. drums used on the Nos. 22207 and 22208 kymographs	20.00
22260.	**Kymograph,** Sherrington and Starling. This kymograph may be driven from a countershaft or by a small electric motor. The driving gear for the "slow" speed consists of a worm and wheel, while the driving gear for the "fast" speed is a volute gear which runs smoothly and with very little friction. The T-headed knob shown at the right of the gear-shifting end of the shaft in illustration No. 22262 operates a friction clutch for starting or stopping drum. The grooved quadruple driving pulley shown on the left	

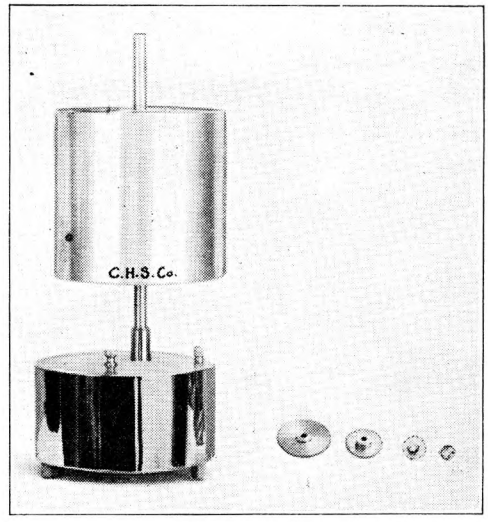


No. 22265.

of the illustration of the No. 22265 long paper kymograph has diameters of 1½, 2½, 3½ and 4½ in., and is attached to a sliding shaft with three grooves at the opposite end, held in place by means of a latch locked with a thumb-screw. The end groove ad-



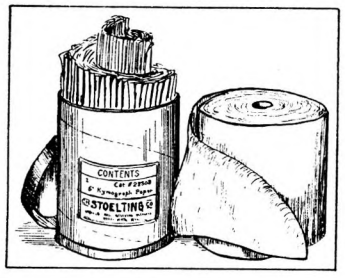
No. 22262.



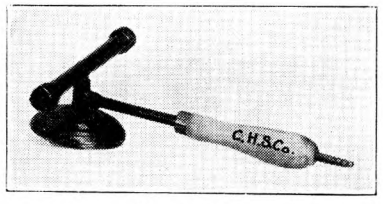
No. 22270.

Number		Price
	justs the sliding shaft for the "fast" and the third groove for the "slow" speed. The middle groove disengages the pulley altogether and permits the drum to be spun by hand. This pulley, with the aid of the gear-shifting device shown in illustration No. 22262, provides for a large range of speeds. The drum is the standard size, 15.5 cm., and with the special locking device, may be instantly locked in any position on the spindle. The kymograph may be used with the drum in the vertical or horizontal position. The extra leg with the leveling screw, shown in illustration No. 22265, serves for leveling the drum when placed horizontally. The drum shaft of the kymograph is supplied with two adjustable arms for timing contacts; binding posts, and a Knowlton adjustable spring contact with binding posts.....	**$105.00**
22262.	**Kymograph,** Sherrington and Starling. Similar to the No. 22260 but provided with a screw lift for obtaining spiral records. The screw lift operates through a range of $4\frac{1}{16}$ in. This kymograph, like the No. 22260, can be converted into a long paper kymograph by means of the No. 22264 extension shown in illustration No. 22265.....	**113.50**
22264.	**Kymograph Extension.** For converting the Nos. 22260 and 22262 into a long paper kymograph. The extension comprises a Y-shaped end-piece with screw-bolts which fit into holes on the top of the base of the kymographs. Attached to the Y-shaped connection by means of two screw-bolts is a cylindrical bed-rod terminating in an end-support with two leveling screws. An adjustable clamp supports a slotted arm carrying two cylinders, one of which is adjustable, so that the distance between the cylinders can be varied to provide the proper tension on the kymograph paper. This twin-cylinder device provides a flat writing surface on the paper.....	**65.00**
22265.	**Kymograph, Long Paper,** Sherrington and Starling. The driving unit of this combination consists of the No. 22260 kymograph and the No. 22264 extension with twin cylinders for providing, if desirable, a flat writing surface. The driving unit of course may be used separately with the drum in either a vertical or horizontal position.....	**170.00**
22266.	**Drum, Kymograph,** 6 in. For Nos. 22260 and 22262.....	**20.00**
22270.	**Kymograph, "Slow Speed."** Devised to meet the demands of those who require a slow-moving drum that will run with a reasonable degree of accuracy without rewinding for approximately 8 days. This kymograph gives one revolution in either 6, 12, 24, or 48 hours. This gives a paper movement of 8, 4, 2, and 1 cm. respectively per hour. The spring motor and driving gear for changing the speeds are thoroughly protected inside of the case, but at the same time easily accessible. A single thumb-screw near the center of the case serves to hold the lid in position. Removing the thumb-screw and raising the lid above the starting and stopping knob, permits swinging it to the right or left around the spindle of the drum. Inside of the casing, resting on steel pins, are three of the four gears of different diameters, all mounted on hollow spindles; one gear is usually in place. The casing also contains the key used for winding. The drum is 15 cm. high and 15 cm. in diameter. It is smoothly finished and has a circumference of a trifle over 50 cm.....	**112.50**
22270A.	**Kymograph, "Slow Speed."** Like No. 22270 but supplied with a drum 25.4 cm. (10 in.) high in place of the regular drum.....	**117.50**
22271.	**Kymograph, Demonstration,** Titchener's. This is a large kymograph, devised especially for the lecture room, and is provided with a special time marker and tambour giving	

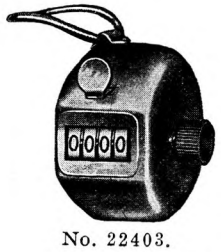
Number		Price
	large amplitudes of movement, so that the operation of the entire equipment can readily be seen by the members of the class in the back of the room. This demonstration apparatus is only made to order	$220.00
22303.	**Paper, Glazed,** for kymographs; 21½x6¼ in. Gummed on one edge. Per 100 sheets	2.00
22304.	**Paper, Glazed,** for kymographs; 21½x10 in. Gummed on one edge. Per 100 sheets	3.50
22305.	**Paper, Glazed,** for long paper kymographs. In rolls of 100 M., for 6 in. drums	3.00
22306.	**Paper, Glazed,** for long paper kymographs. In rolls of 100 M., for 10 in. drums	4.50
22317.	**Oil Lamp** with wide wick. For smoking kymograph paper	2.75



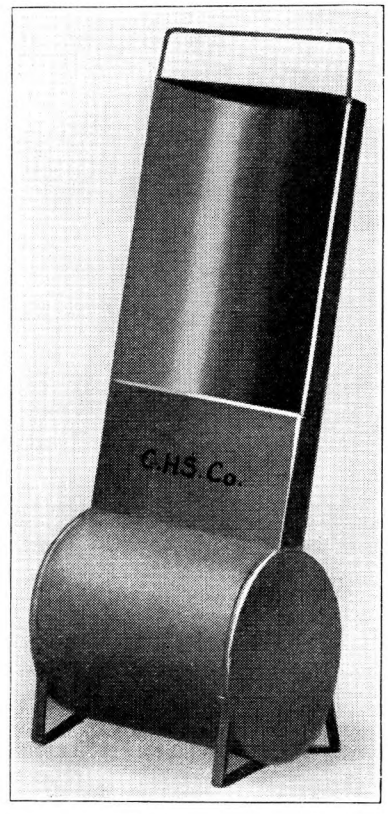
Nos. 22303, 22305.



No. 22318.

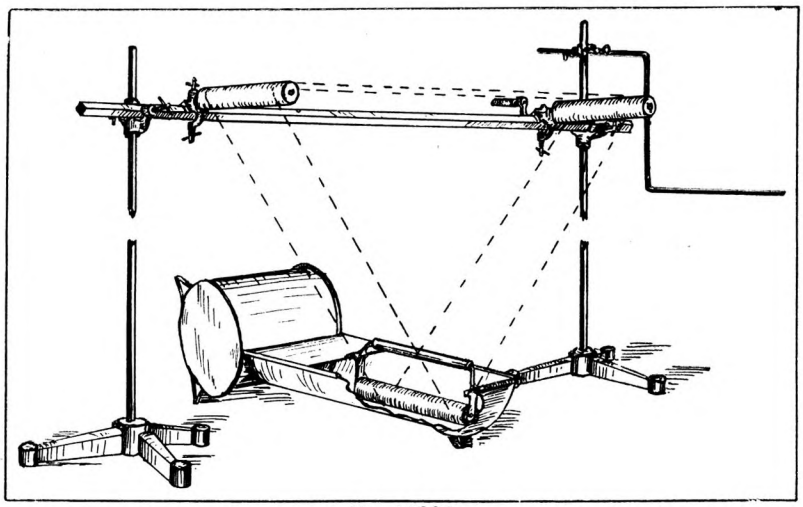


No. 22403.

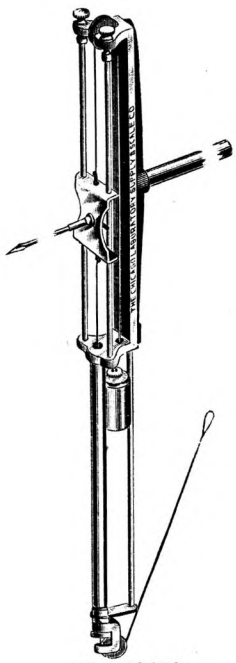


No. 22326.

22318.	**Gas Burner,** Northwestern University Model. For smoking kymograph paper	5.00
22321.	**Fixing Solution** for rendering kymograph tracings permanent. Per qt	2.50
22326.	**Fixing Bath,** Northwestern University Model. For kymograph tracings. In the position shown in the illustration, the fixing solution remains in the cylindrical reservoir at the bottom; placing the bath in the horizontal position, the required amount of the fixing solution flows into the cylindrical trough at the top. When through with the bath, it should always be returned to the vertical position in order that the fixing solution will flow into the reservoir. This keeps the solution clean, and the accompanying stopper prevents evaporation	15.00
22327.	**Fixing Bath.** For long paper kymograph tracings of the belt type. With the aid of the weighted roller with a handle, two tripod supports, and two right angle clamps supporting a cross-bar which carries two adjustable rollers (one with a crank), the No. 22326 fixing bath is converted into a very practical fixing bath for long paper tracings. The weighted roller is placed in the trough on the paper, and the crank serves to pass the triangular-shaped belt through the solution at any desired speed. The hanger shown on the support at the right, when turned up, holds the paper while drying	45.00
22403.	**Counter, Hand Tally,** V-R. Useful for lecture room, laboratory, and clinic. It is inconspicuous and fits the hand as perfectly as it fits a hundred-and-one different purposes of record-making. It reduces unnecessary mental effort and eliminates the crude pencil and paper tallying method. Each pressure on the thumb-lever registers	



No. 22327.



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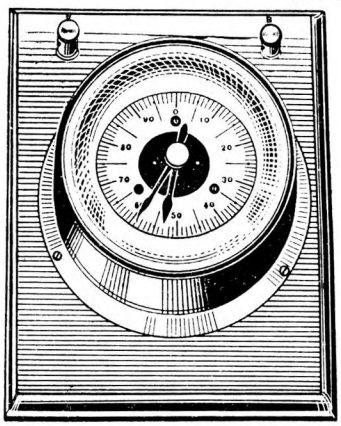

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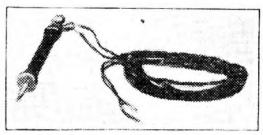

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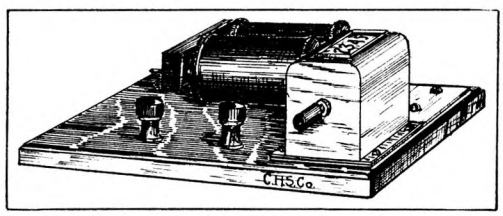
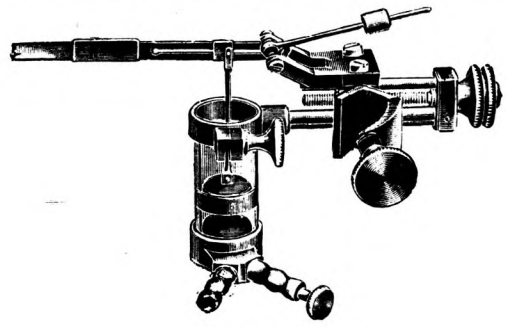


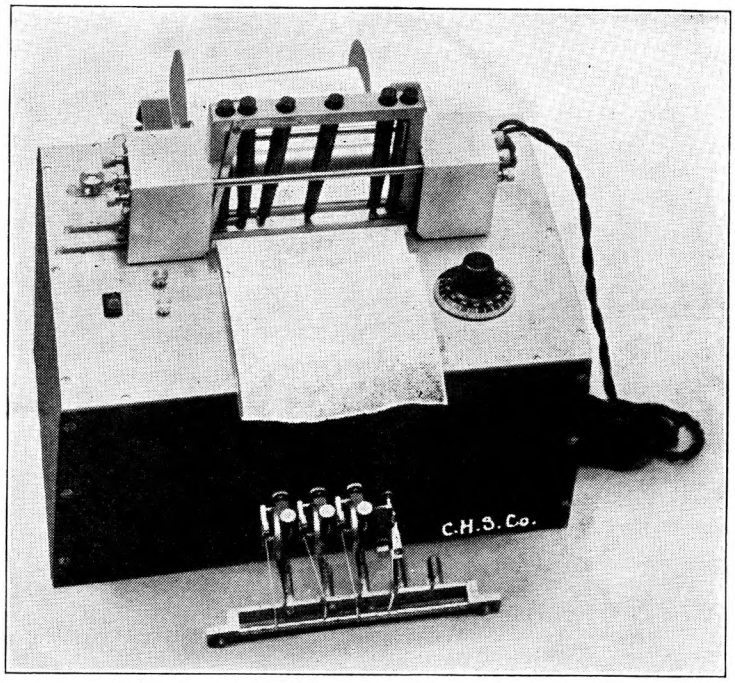
No. 22408.

Number		Price
	one on the dial. The dial has a range from 0—10000 and may be set back to zero from any number by one turn of the setting knob. (129:D7)	$ 5.60
22407.	**Counter, Electric.** This electric counter has withstood the test of time and is the only type of electric counter likely to give satisfaction in the Psychological Laboratory or Clinic for tapping and similar operations of a high degree of rapidity. It has been used in laboratories and clinics for the last twenty-five or thirty years and to date nothing in the shape of a counter has been devised that approaches it in reliability and convenience. The dial is graduated in 100 divisions, and the counter will register 9999 and may be set to zero from any point on the dial. A 6V. battery furnishes the necessary current. (11:93-94; 32:61; 77:224; 245:494-495; 261:70-80; 267:T10)	28.75
22408.	**Counter, Electric,** V-R. Mounted on a base with an operating magnet. This counter, with the No. 23207 observer's key, was used by M. J. Ream for part of his tapping apparatus and by W. Koerth in conjunction with the No. 19245 pursuit apparatus. (P.M. 140, 1922:288-292, 299-319)	45.00
22450.	**Pencil, Contact,** Dorcus'. This device is essentially a metal pencil of standard make, sliding freely in a light fiber sleeve. The movement of the pencil in the sleeve is controlled by a spiral spring, limited in one direction by a stop and in the other by contact points. Downward pressure of the pencil sleeve makes a mark or puncture and moves the pencil upward so as to establish contact with the recording apparatus connected through the binding posts at the top. Renewal of lead or substitution of a steel needle for the lead is no more difficult than replacing leads in an ordinary pencil. This pencil is particularly useful in obtaining time intervals involved in making judgments where checking could be employed. It can also be adapted to certain problems of co-ordination as well as to certain problems in learning, where substitution tests involving the making of simple marks can be used. It may also be found useful in analyzing the breaks which occur in writing. J.o.C.P. Oct. 1926)	21.00
22453.	**Writing Lever, Vertical.** Arranged for attachment to a vertical support by means of a right angle clamp. A very useful laboratory device for making kymograph tracings with the drum in the vertical position when movements take place in the horizontal plane.	40.75



No. 22456.

Number		Price
22456.	**Recorder, Piston.** May be attached to any vertical support. The stylus lever is supplied with a counterpoise and attached to a hard-rubber piston operating in a glass cylinder. The set-screw at the right serves to regulate the amplitude of the stylus. A small micrometer screw at the lower right of the cylinder serves to maintain normal pressure in the pneumatic circuit.....	**$ 35.00**
22459.	**Lever, Vierordt's.** Devised for the reproduction of a time interval. The lever consists of a brass plate which turns about a transverse axis and carries at the short end a flexible writing point and at the bottom of the long end a brass rod. The lever is maintained in a horizontal position by a spiral spring whose tension is regulated by the position of a coil and set-screw adjusted to the right-angled arm. This apparatus may be attached to a vertical support by means of a right angle clamp. (227:X27; 228:400).	**18.00**



Nos. 22470-A-B-C.

22470. **Polygraph,** Renshaw's; improved model. For operation on either the 110V. D.C. or A.C. lighting circuit. A small motor, virtually free from vibration, combined with a four-point (1—2—4—8) gear-shift and controlled by a rheostat, produces a paper movement ranging from 1 to 50 mm. a second. The paper used for recording is 5 in. wide and comes in rolls of approximately 450 ft. Dimensions of polygraph, 10x13x11 in.; weight, 26 pounds.

The motor, gearing, and rheostat for regulating the speed of the paper are mounted in a substantially constructed wooden case with nickel-plated brass top. The top of the polygraph is provided with a support carrying six stylographic pens, operating levers, and two series of electromagnets. The two center pens provide for mechanical operation by means of the two levers extending from the bottom of the left electromagnet casing, and the other four, two at the left and two at the right, are operated electrically by the electromagnets actuated by a 6V. external battery in circuit with the six binding posts shown at the sides near the top of the left and right electromagnet

Number Price

casings. The center binding post of each set of three is the common lead for the pair of pens on the left and right of the central pair. The remaining four binding posts provide for connections to the first, second, fifth, and sixth pens.

The paper reel or carrier, as shown in the illustration, is attached to the rear of the polygraph. Raising the flat spring on the left of the roller permits lifting out roller with paper. The paper passes over an idle roller and under a feed roller provided with a lever for starting and stopping the paper. It is not necessary to stop the motor in order to arrest movement of the paper.

All adjustments are made on the outside top of the apparatus. Two oil caps, shown at right of starting and stopping switch on left front of the apparatus, provide means for oiling without removing the top.

In order to shift gears for changing speed of paper, loosen the thumb-screw on the left rear of the apparatus, move it along the slot, and turn the feed roller back and forth a trifle until the gears mesh. A lever on the right of the feed roller serves to raise it and promptly stop the movement of the paper.

Lifting off the two electromagnet casings and removing the thumb-screws at the left and right on the front of the support carrying electromagnets and pens, permits the entire support to be pulled forward and removed for substitution of the support shown in front of the polygraph. This support, as will be noticed, is constructed to carry three tambours and two electric time markers or signal magnets. Both tambours and time markers are provided with special pens for giving an ink tracing.

Polygraph, including 6 pens but without the accessories such as tambours, time markers, and support shown in front of apparatus..... **$280.00**

22470A. Support, Tambour and Time Marker, for No. 22470 polygraph. Constructed to carry three tambours and two time markers. Without tambours and time markers..... **15.00**

22470B. Tambour. With pen, to fit No. 22470A support..... **22.50**

22470C. Time Marker or Signal Magnet, Electric, Single. To fit No. 22470A support..... **22.50**

22470D. Pen only for No. 22470B tambour..... **1.30**

22470E. Pen only for No. 22470C time marker..... **1.30**

22470F. Ink for tambour and time marker pens. Per oz. bottle..... **.60**

22470G. Pen, Stylographic. For No. 22470 Polygraph..... **1.70**

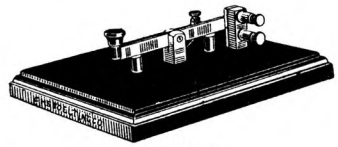
22470H. Ink, Waterman's; 2 oz. bottle. For No. 22470G stylographic pen..... **.25**

22470I. Paper for polygraph; 5 in. wide, approximately 450 ft. to roll. Per roll..... **1.00**

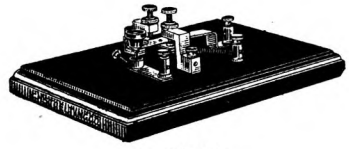
REACTION

23007. Cards, Playing. Used by Dr. Franz for measuring the time of simple movement, discrimination and association of abnormal subjects. It has been found that the normal time for dealing 50 cards as rapidly as possible varies from 10 to 15 seconds, giving the average simple reaction time from 200 to 300 sigma. This, it will be noted, is in excess of the simple reaction time measured by the chronoscope. (55:135; 57:127; 111:X85-86.) Per pack of 52 cards..... **.60**

23007A. Cards, Playing. Pack of 60, minus Jacks, Queens, Kings, and Jokers; with an equal number of cards in each suit. For use with the No. 31245 sorting placard. (51A:X20) **2.30**



No. 23207.



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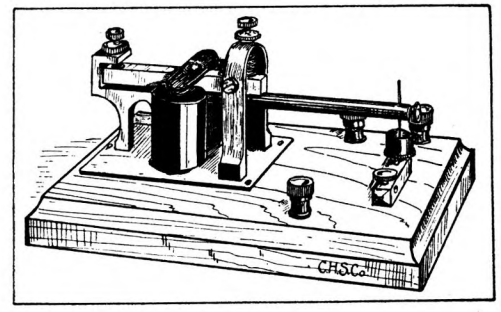


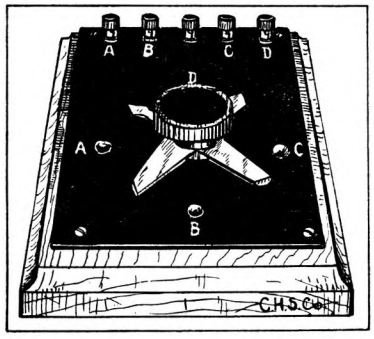
No. 23209.

Number — Price

23207. **Key, Reaction,** Seashore's. Used by the examiner or experimenter with the No. 19245 pursuit apparatus and in the No. 19309 motility apparatus; also used with the No. 20253 chronoscope attachment for use on a phonograph. See illustration on page 109. (200:170-173; P.M. 140:288-292, 299-319) ..... **$ 32.00**

23208. **Key, Stimulus,** Seashore's. Used in connection with the No. 20253 chronoscope attachment. A spring key for breaking two separate circuits and making a third. The platinum contacts for the closed circuits can be nicely adjusted by set-screws with a locknut; the "make" contact is a mercury contact with an adjusting screw for regulating the height of the mercury in the well. This key can be used to advantage in a number of circuits. See figures 2 and 3 on pages 93-94, also illustration on page 109. (200:170-173) **37.75**

23209. **Circuit Breaker,** Gopalaswami's. A telegraph sounder provided with an extension carrying an adjustable contact point which dips into a mercury well. Devised for use with the No. 23216 rotary switch and the No. 23217 four-finger reaction key in connection with the No. 20155 Bergström chronoscope **22.50**



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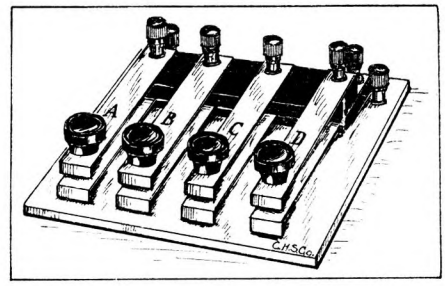

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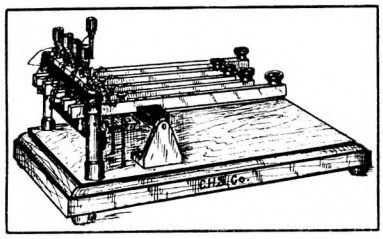
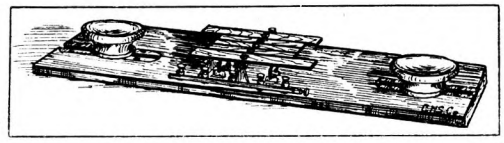


No. 23218.



No. 23219.

23216. **Switch, Rotary,** Gopalaswami's. For use with the No. 23217 four-finger reaction key .. **30.00**

23217. **Key, Reaction, Four-finger,** Gopalaswami's. Designed for use with the No. 23216 rotary switch in connection with the No. 20155 Bergström chronoscope **62.25**

23218. **Key, Reaction, Five-finger.** Improved form in which provision is made for the easy exchange of the two end keys; i.e., the keys used by the thumb and little finger. This improvement enables the key to be readily converted into a right- or left-hand set of keys. Plugs like those in a resistance box are used for throwing the keys in and out of the circuit. (77:230-231; 194:160; 227:X24) **80.75**

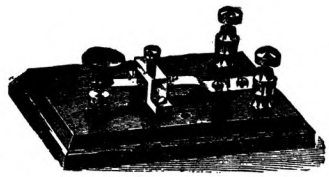
23219. **Key, Reaction, Five-finger,** Jastrow's. The keys, with the electrical connections, are mounted in the center of the base with a hand-rest at both ends. The keys may be used as "make" or "break" keys for the right hand. The base contains a common binding post and an additional binding post for each key, also a removable contact bar with a pin for each of the five binding posts. The center of each key has a circular recess for color disks or disks carrying digits, letters, or geometrical figures. This key has a wide range of usefulness **40.00**

23220. **Key, Stimulus,** Dunlap's. A double key for virtually instantaneous "making" and "breaking" of a circuit. See No. 23301 psychodometer on pages 112-113 ..... **22.00**

23221. **Key, Master,** Dunlap's. Devised for closing two currents in rapid succession. See No. 23301 psychodometer on pages 112-113 ..... **16.50**

23223. **Relay, Balanced,** Dunlap's. Developed for use with the Dunlap chronoscope. For balancing the experimenter's and reactor's circuits. See No. 23301 psychodometer on pages 112-113. (Ps'b. May 1918:455-456) **37.75**

23224. **Key, Reaction, Pneumatic,** Dunlap's. Operated by squeezing a bulb; very sensitive. See No. 23301 psychodometer on pages 112-113. (Ps'b. May 1918:455) **29.50**



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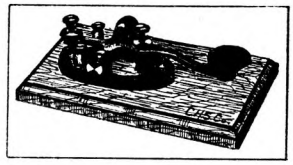

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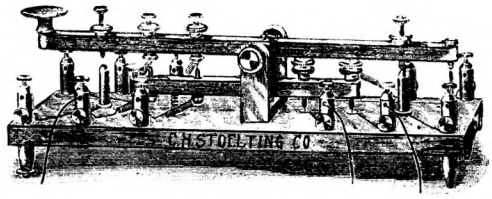

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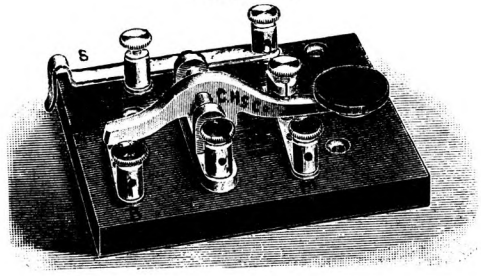
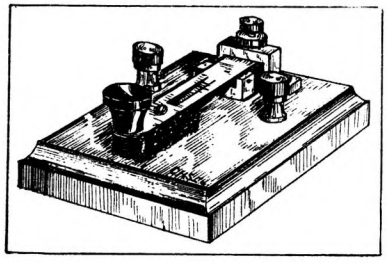


No. 23233.

Number		Price
23225.	**Key, Break and Make.** An adjustable thumb-screw with a lock-nut above the "break" contact serves to regulate the finger movement to the desired amplitude.....	**$ 11.25**
23227.	**Key, Break.** A modified telegraph key. See No. 23305 psychodometer on page 115. (224:413; 227:164).....	**6.00**
23231.	**Key, Multiple.** This key is constructed with a double lever, both levers supported from the same center. When the key is at rest, the rear end of the lower lever keeps two electric circuits closed. As the other end of the upper lever is made to descend by pressing the button, its two contacts strike the corresponding two front contacts of the lower lever; this simultaneously closes two electric circuits. But at the moment this occurs, the rear of the lower lever which was forced to move breaks the two rear circuits. This way two circuits are closed and two are broken at exactly the same moment. These combinations are frequently required. A very useful laboratory key; it permits currents to be combined in 41 different ways. (194:138-141; 195; 43-44; 228:350).....	**92.00**
23233.	**Key, Make or Break,** Ranschburg's. A very useful key for the laboratory. The central binding post of the group of three serves as a common contact. Connecting one of the wires to "M" turns the key into a "make"; connecting to "B" gives the "break." At the rear is a short-circuiting switch. (228:350).....	**17.50**



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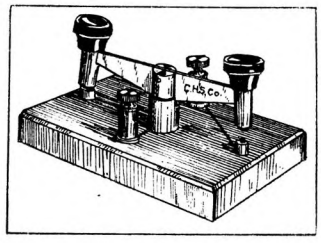
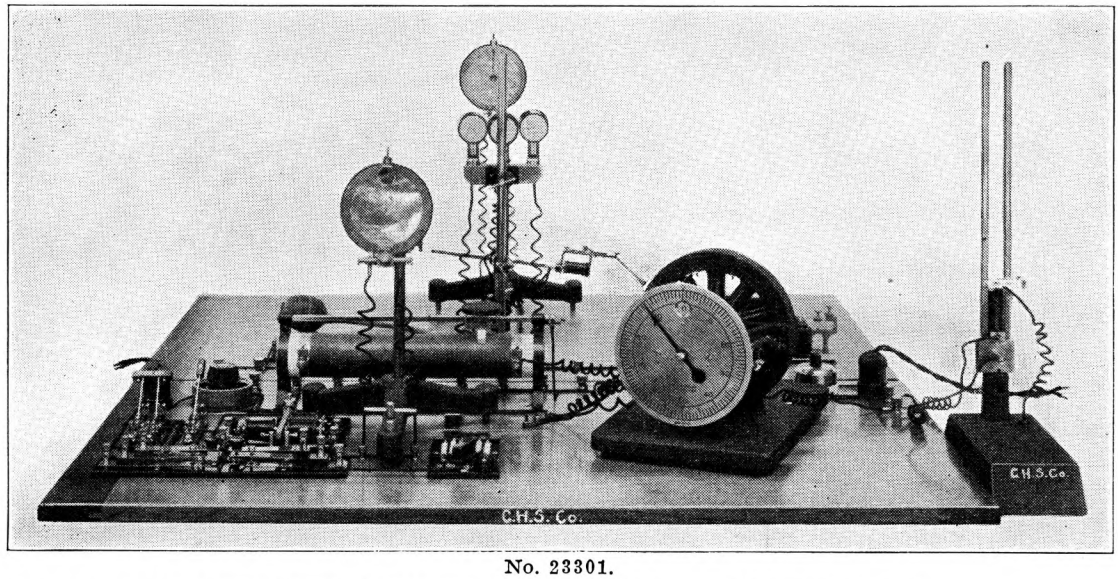


No. 23259.

23237.	**Key, Contact, Noiseless,** Scripture's. A felt-cushion contact key with an adjustable contact point	**17.50**
23247.	**Key, Reaction,** Scripture and Dessoir. A hand key designed to break a circuit, but it may also be used as a "make" key. (195:43-44; 227:165).....	**36.00**
23259.	**Key, Break,** Jastrow's. Rocking type. (227:164).....	**15.50**
23267.	**Stimulus, Tactual, Electric.** Devised for use with reaction apparatus. See Nos. 23301, 23303, and 23305 psychodometers on pages 112-115.....	**34.25**
23268.	**Pencil, Electric,** Kraeplin's. Originally devised for use with an electric time marker and kymograph. Pressing the point closes the circuit and sets the time marker in operation. The pencil can also be used for a tactual stimulus. For this purpose a hard-rubber point is substituted for the metallic point.....	**19.00**
23271.	**Key, Touch,** Scripture's. A handle supplied with binding posts, one of which is connected to the stimulating spring which terminates in a hard-rubber point, and the other to an adjustable platinum contact point. (194:135-136; 195:46-47; 227:157-159)..	**20.00**

Number | Price

23284. **Stimulus, Visual.** Dunlap's. A cylindrical tube with ground glass, carrying white, red, and green incandescent lamps. The rear of the tube is supplied with three binding posts so that the ground glass may be illuminated by either the white, red, or green lamps. The tube is attached to a support which permits its use on any vertical laboratory support. Designed for use with reaction apparatus..... **$ 12.50**



No. 23301.

23301. **Psychodometer, Chicago.** In the past the assembling and adjustment of equipment for reaction experiments nearly always required the services of the instructor or those of a fairly experienced technician. Few students possess the mechanical and electrical experience to cope satisfactorily with the problem. Frequently several days were consumed in getting the equipment together and ready for use. The advent of this psychodometer produced a change; reaction experiments became interesting, and the study was carried on without the former waste of time and annoyance. The first outfit was constructed about five years ago at the suggestion of Dr. H. A. Carr, of the Department of Psychology, and Dr. E. S. Robinson (now of Yale) for the University of Chicago. After the construction of a few of the psychodometers, a number of changes suggested themselves to us, and these, with modifications suggested later on by those who worked with the earlier models, led to the present arrangement, which provides the experimenter with visual, auditory, tactual, and vocal stimuli, and enables the reactor to respond manually with the Dunlap pneumatic key or vocally by means of the Dunlap voice key.

A great deal of the satisfactory performance of this equipment is due to the simplicity, accuracy, and reliability of the recording instrument, the Dunlap chronoscope. The design and construction of this chronoscope is such that it can be placed with impunity in the hands of the most inexperienced students. The other important feature of this psychodometer is the ease and speed with which one can change from one type of reaction to another. All that is required is the placing of the circular reaction switch on the proper contact, and throwing a knife switch or two. The wiring, binding posts, switches, and in fact all equipment is in full view on top of the experimenter's and reactor's bases. This makes it easy for those interested in the physics of the problem to trace the different circuits. With the aid of connecting cords of the required length, the experimenter's and reactor's bases may be separated any desired distance. Ordinarily we supply cords of sufficient length to permit the bases to be used a few feet apart with the interposition of a screen.

The best means of operation is a 24V. storage battery, although the apparatus may, with proper adjustment of the rheostat, be operated on the 110V. D.C., also on the 110V. A.C.; but in the latter case a rectifier is substituted for the electrically maintained tuning fork used to govern the speed of the chronoscope. On both the 110V. D.C. and A.C. a 6V. storage battery is required to operate the reaction circuit. The illustration shows the two terminals for a 24V. storage battery projecting at the right of the experimenter's base board. From this battery 6 volts are connected to the terminals projecting at the left of the experimenter's base board for operation of the reaction circuit.

Usually a 50 d.v. electrically maintained tuning fork is included for controlling the chronoscope when operated with the 24V. storage battery. With this fork each of the divisions on the large dial equal 2σ. If a 100 d.v. fork is used, the divisions equal 1σ, and with a 25 d.v. fork, 4σ. When operating on A.C., with a rectifier in the circuit instead of the fork, each division of the dial is equal to 1/600 of a second, or $1.66+\sigma$. Complete revolutions of the indicator are recorded by the figures on the small disk, readable through the aperture on the upper part of the large disk. For further details on the construction of the Dunlap chronoscope, refer to pages 83-84.

Number Price

The popularity of this equipment is attested by the fact that in the short space of five years it has been placed in 27 institutions; there are 21 in educational institutions in the United States, 3 in foreign educational institutions, and 1 each in an American hospital, transportation organization, and prison clinic. In addition to these complete outfits, there are 26 Dunlap chronoscopes being used in American and foreign educational institutions with accessories formerly used with other chronoscopes.

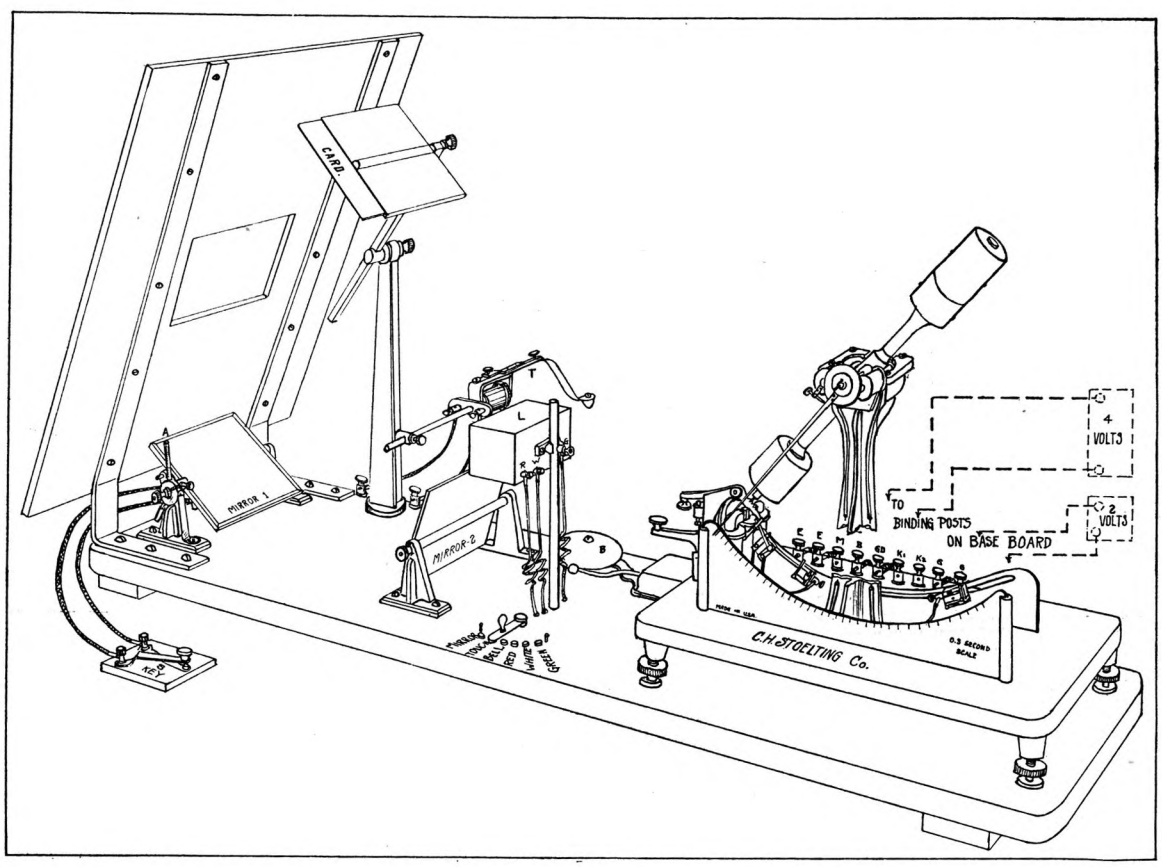
Experimenter's Equipment

20236.	Dunlap Chronoscope	**$270.00**
25588.	Chronoscope Rheostat	**12.00**
23223.	Dunlap Balanced Relay	**37.75**
23220.	Dunlap Stimulus Key	**22.00**
23221.	Dunlap Master Key	**16.50**
17216.	Dunlap Voice Key	**45.00**
25589.	Reaction Circuit Rheostat	**4.50**
20013.	Electrically Maintained Tuning Fork, 50 d.v. with condenser	**77.00**
23301A.	Base with switches, binding posts, and connecting cords	**126.00**
25510A.	Storage Battery, 24V	**70.00**

Reactor's Equipment

23224.	Dunlap Pneumatic Reaction Key	**$29.50**
17216.	Dunlap Voice Key	**45.00**
23284.	Three-lamp Visual Stimulus	**12.50**
23267.	Tactual Stimulus	**34.25**
25640.	Swivel Clamp for tactual stimulus	**1.20**
25513.	Telegraph Sounder (auditory stimulus)	**3.75**
23301B.	Base with binding posts and connecting cords	**30.00**

Complete as described, with battery (J.o Ex.P.2, 1917:249-252; Ps'b. May 1918; 25:73-74; 32:45-48; 111:X7B) **$836.95**



No. 23303.

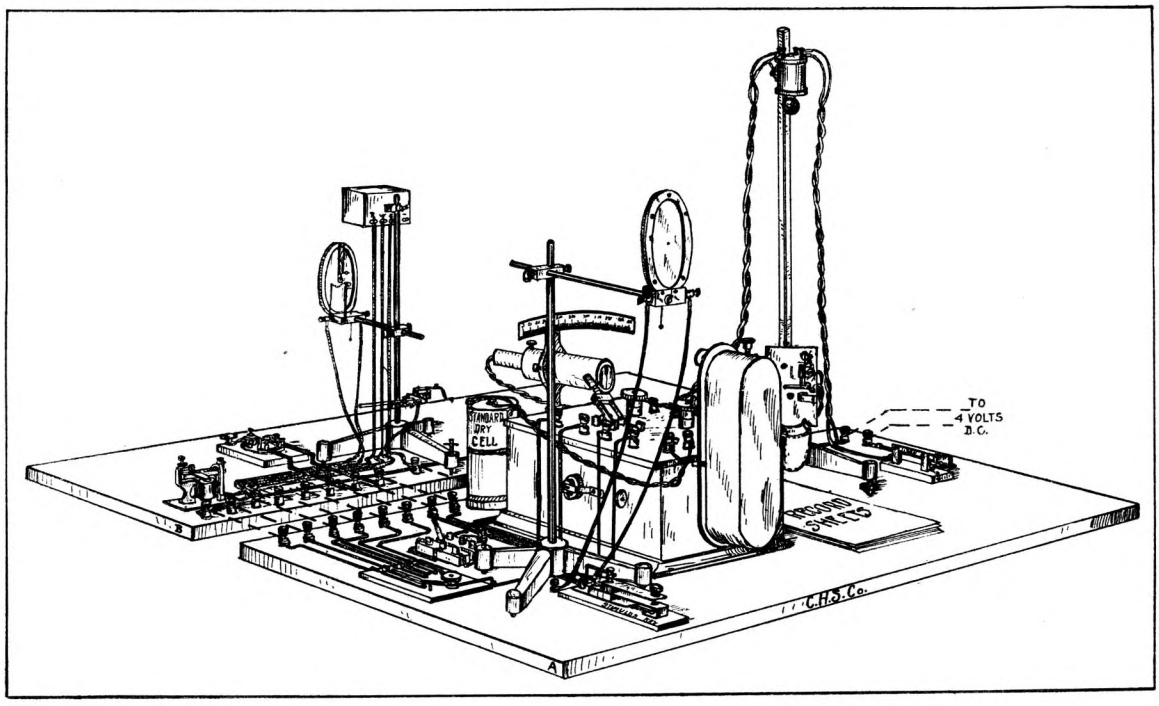
23303. Psychodometer, Bergström's. Modified and brought up to date by using improved tactual, auditory, and visual stimuli and a base provided with the necessary wiring, binding posts, and switches so that the change from one stimulus to another can be made instantly without shifting position of accessories or re-wiring circuits. Those having the Bergström chronoscope illustrated on page 76 can easily adjust the instrument on the base in the position shown in the illustration.

Number Price

The outstanding feature of this psychodometer is the Bergström mirror tachistoscope, operated by the combination exposure-contact lever "A," shown at the lower left of the illustration. The tachistoscope, which is permanently attached to the base, consists of a screen with a rectangular aperture, a card-holder, and mirrors "1" and "2." Mirror "1," operated by the lever "A," brings the material on the card into the field of vision, and at the same time releases the pendulum of the chronoscope. This psychodometer, like the Chicago psychodometer, is provided with a circular stimulus switch which enables the experimenter to instantly change from one stimulus to another. The outfit, arranged for operation by a 6V. storage battery, comprises the following equipment:

20155.	Bergström Pendulum Chronoscope	**$560.00**
25543.	Single-stroke Electric Bell (auditory stimulus)	**1.90**
23284.	Three-lamp Visual Stimulus	**12.50**
23267.	Tactual Stimulus	**34.25**
58305.	Contact Key (reactor's key)	**4.25**
23303A.	Base with attached Bergström Mirror Tachistoscope, wiring, binding posts, and circular stimulus switch	**230.00**
25510.	Storage Battery, 6V.	**17.50**
Complete as described, with battery. (P.R., Jan. 1910:1-18; 15:X125-143)		**$860.10**

N. B. If voice keys are desired for use with this apparatus, we would suggest a set of 2 special Dunlap voice keys, composed of the No. 17216 voice key and the No. 17216A relay. See pages 46 and 47.



No. 23305.

23305. **Psychodometer,** Klopsteg's. This reaction apparatus, like the No. 23301, is mounted on two bases, one for the experimenter and the other for the reactor. The Klopsteg chronoscope is the No. 20255 illustrated and described on pages 86-88. The outstanding feature of this apparatus is the possibility of making the readings visible on a screen in a large auditorium by a slight alteration of the galvanometer projection system. Like the Nos. 23301 and 23303 psychodometers, this apparatus is supplied with a circular stimulus switch whereby the change from one stimulus to another can be made by the simple operation of turning a switch. In common with No. 23301, the reactor's and experimenter's bases may be separated any desirable distance by lengthening the connecting cords. The experimenter has at his command auditory, vocal, tactual, and visual stimuli, and the reactor can react to any one of them either manually by means of a "break" key, or vocally by means of a special voice key. This apparatus, like those referred to above, is compact and extremely simple to operate. It is perfectly safe in the hands of the average student as no special electrical or optical sklil is required for operation. A standard dry cell is used for operating the chronoscope proper. The fall apparatus for checking the galvanometer readings is shown at the right. It is operated electrically by means of a 4V. storage battery. The apparatus as illustrated, plus battery, comprises the following:

Number Price

Experimenter's Base

20255.	Klopsteg Chronoscope (including fall apparatus) reading from 0—400σ in 2σ divisions	**$450.00**
23220.	Dunlap Stimulus Key	**22.00**
17218.	Dunlap Voice Key (with No. 17216A relay)	**67.25**
23305A.	Experimenter's Base with wiring, binding posts, rotary stimulus switch, S.P.S.T. knife switch, and 2 S.P.D.T. knife switches	**108.00**
25503.	Dry Cell	**.75**
25510B.	Storage Battery, 4V	**11.00**

Reactor's Base

17218.	Dunlap Voice Key (with No. 17216A relay)	**$67.25**
23284.	Three-lamp Visual Stimulus	**12.50**
23267.	Tactual Stimulus	**34.25**
25640.	Swivel Clamp for tactual stimulus	**1.20**
25513.	Telegraph Sounder (auditory stimulus)	**3.75**
23227.	Reactor's Break Key	**6.00**
23305B.	Reactor's Base with wiring and binding posts	**30.00**
	Complete as described, with battery	**$813.95**

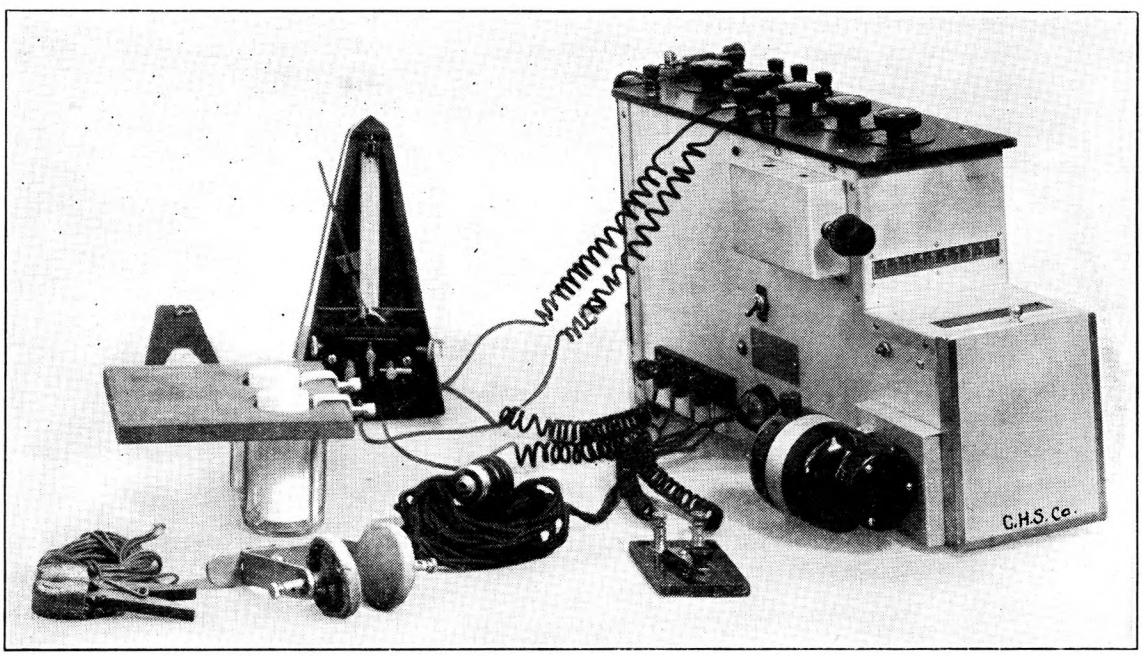
23310. **Berry-Capper.** Used to determine auditory reaction time. (111:X2) **.12**

23312. **Disks.** Set of 3, with handle. For determining visual, discriminative, and choice reaction time. (111:X3-5) **1.35**

23314. **Cards, Stimulus.** Set of 20. For determining cognitive reaction time. (111:X6) **1.15**

AFFECTION—FEELING—EMOTION

For Dynamometers refer to Nos. 19039—19146, and for Sphygmographs, Sphygmomanometers, Plethysmographs, Cardiographs, and Pneumographs, to Nos. 56000—57499 of the Physiological Section.



Nos. 24210, 24211, 24212, 20111, 25111, 24201.

24201. **Psychogalvanograph,** Wechsler's; improved model. The interest again aroused a few years ago in the study of the emotions by means of the psychogalvanic reflex, led to the demand for a compact and portable arrangement of the necessary electrical and photographic equipment that would meet the requirements of both the Psychological Clinic and the Psychological Laboratory. In devising this instrument, Dr. David Wechsler has met the requirements of both in a very satisfactory manner. The improved apparatus, as now constructed, provides the clinician with a compact and unobtrusive piece of apparatus which, if necessary, can be operated without the services of an assistant. For the student in the Psychological Laboratory, it provides a substantial piece of equipment which, in spite of its delicacy, cannot be seriously damaged by anyone inexperienced in the handling of electrical and photographic equipment. A knowledge of operation can be acquired in the course of ten or fifteen minutes. The

Number Price

psychogalvanograph can be used in broad daylight and provides three different methods for securing the psychogalvanic reflex variations. They may be obtained in ohms resistance by means of the Wheatstone bridge located on the top of the instrument; by means of the fluctuations of the luminous indicator on the translucent millimeter scale; and by means of the photographic film unrolling in the lower front part of the instrument.

The beam of light from a vertical filament is arranged to give a sharp-cut line of light which serves as an indicator. As the subject reacts, the line of light moves from the zero point and can be brought back by introducing the required amount of resistance from the Wheatstone bridge, or allowed to return to zero of its own accord. In the latter case, it may not always return to zero, but the examiner can readily see when it comes to rest. Using it in the first way, the resistance required to bring the index back to zero gives the subject's resistance in ohms; using it the second way allows the examiner to make scale readings of the excursions of the index, and gives a relative measurement of the subject's reactions. Where a photographic record is not required or desired, the instrument can of course be used without putting in motion the motor which operates the film.

While the psychogalvanograph was primarily designed for mental measurements of an indirect character, its use is nevertheless not confined to the psychologists and psychoanalysts. It can be used to very good advantage by the physiologists, neurologists, and physicians for studying the phenomena of polarization, conductivity of tissues, resistivity of the blood, body, etc.; and with the addition of a thermo-electrical couple, for determining variations of temperature imperceptible and unrecordable with the ordinary thermometer.

The psychogalvanograph as quoted below does not include time-recording apparatus, stimulus key, or electrodes. These accessories are usually on hand in the majority of laboratories and clinics and hence have not been included in the price. (259:64-67; P.B. 26, 1929:64-119) **$395.00**

N. B. Accessories: See Nos. 20231 and 20232 Jacquet graphic chronometers; No. 20111 metronome with mercury contacts; No. 20115 Jacquet metronome with mercury contacts; No. 25113 seconds pendulum; No. 25111 telegraph key; No. 58305 contact key with platinum points; No. 25551 flat connectors, and No. 25552 flexible connectors.

24203. **Psychogalvanoscope,** Hathaway's. Developed in the Psychological Laboratory of Ohio University, for demonstrating and measuring the psychogalvanic response. The apparatus consists of two portable units: one containing the electrical recording instruments, mounted on a sloping instrument board in a nicely finished walnut case, and the other a 20x13x9 in. metal cabinet with carrying handle, containing the transformer, batteries, and other accessories. The two portable units are easily and quickly connected by means of a nine-prong plug. The apparatus is designed to operate on a 110V. 60 cycle A.C. circuit. Binding posts are provided so that the apparatus may be used with a galvanometer for class demonstrations or the making of photographic records. Readings are made on a milliammeter with a range of 0—50 divisions. The electrodes are attached to a long flexible cord with a plug at the other end for insertion in the instrument cabinet. Detailed instructions for operation are supplied with each apparatus. Without batteries **195.00**

25525. **Galvanometer,** D'Arsonval. Mounted with illuminant in a 4½x5x8½ in. case with translucent scale. The scale is 50 mm. long with 25 mm. divisions on either side of a central zero and is easily read in a fully lighted room. Sensitivity: .5 microampere per millimeter division. Period: 3 seconds. External critical damping resistance: 10,000 ohms. Coil resistance, including suspension: 300 ohms. The lamp is a 4V. straight filament lamp requiring .5 amperes. (205:32-36; 227:X24) **55.60**

25526. **Shunt,** Adjustable, Ayrton's; 10,000 ohms. (205:32-36) **20.00**

25533. **Bridge,** Wheatstone's; enclosed four dial. Rheostat: four dial decades; 9 (1+10+100 +1000) ohms. Ratio arms: single dial control; seven multipliers, .001, .01, .1, 1, 10, 100 and 1000. Accuracy: rheostat coils, 1/10%; ratio coils, 1/20%. Polished mahogany box. (205:32-36; 227:X24) **61.25**

24210. **Electrodes, Finger,** Malmud's **6.50**

24211. **Electrodes, Finger,** Liquid, Wechsler's. (259:68-69) **6.70**

24212. **Electrodes, Zinc,** Smith's; chamois-covered, adjustable. (205:32-33) **36.50**

24400. **Cards, Linear Proportion.** For studying affective value. Set of 6 cards, 12x2 in. Each card contains a line 9⅛ in. long, and each of these lines is divided into two parts. The division occurs at a different point on each card. (119:X28-77) ..... **.35**

24404. **Color Preference.** Holder, cover, and 10 colors mounted on cardboard slips. (119:X28-74) **1.20**

24405. **Color Cards,** Tinkers. A set of 21 cards, 8x11 in., with colored panels. For studying the affective value of single and paired colors. Used in the No. 21015 exposure frame. (51A:X26) **7.00**

24410. **Cartoons, Humorous,** Williams'. For the study of feelings. These cartoons were drawn by J. R. Williams under the legend "Out Our Way." Two sets of 10 each, mounted on stiff cardboard 6x8 in. Each card of the set may be compared with every other card by using an exposure frame and using the comparative method. The result of such com-

Number | Price

parisons not only indicates the several degrees of humor stimulated by the card, but if used in a large class they also will indicate the humorous sense of the individual. (111: X105) ..... $ 20.00

24411. **Exposure Frame.** For use with the No. 24410 cartoons. (111:X105)..... 5.00

24500. **X-O Test,** Pressey's; adult form (A). For investigating the emotions. This test has been developed with two uses especially in mind: (1) The test should make a convenient means for research in dealing with delinquents, neurotics, or other atypical individuals, where disorder of the emotions and sentiments may be expected; (2) They should prove distinctly interesting for use in classes in psychology and in the laboratory as a basis for the study of sex and individual differences, affective and moral judgment, and emotional make-up.

The tests are designed to obtain, very quickly and in an objective manner, a large amount of information with regard to affective attitudes, associational tendencies, moral sentiments and anxiety tendencies.

The first test consists of twenty-five lists, such as: disgust, fear, sex, suspicion, aunt. The second test consists of twenty-five lists, such as: dream, floating, heart, beautiful, manhood, bicycle.

The third test consists of twenty-five lists, such as: begging, swearing, smoking, flirting, spitting.

The last test consists of twenty-five lists, such as: injustice, noise, self-consciousness, discouragement, germs.

The subjects are told to cross out and encircle certain words in each series of words. The directions are printed on the blanks, and there is no time limit. So the examiner need do nothing more than pass out the blanks, telling the subjects to "read the directions and do what they tell you to do." The subjects then turn in their blanks when they have finished. The examination has also been found extremely useful as an individual test, using the lists as a basis for further questioning, or a psycho-analysis.

The examination has many special features, including sets of "jokers" (which yield an indication as to whether directions have been understood), and special hidden classifications of words within the tests, making analysis readily possible, once the key is shown. The most important features are, however, two in number.

(1) In reality, six hundred questions are presented in this examination on a single four-page folder, nine by twelve. Since all responses are a single stroke of a pencil, the working time of the average subject is only about thirty minutes. Scoring is altogether objective and very rapid.

(2) The test is not a single examination, but rather many examinations in one. It has been the aim to include the words which might be involved in a variety of emotional disorders. The test is, then, to be used by working out "differential units," or sets of words most differential with reference to a given problem. (265:C1) Per 25.... 1.00

Per 100 ..... 3.00

24502. **X-O Test,** Pressey's; juvenile form (B). An expurgated and simpler form of the No. 24500 used for adults. (J.o.A.a.S.P. Oct. 1925:303-311; P.S.a.J.o.G.P. Dec. 1925:637-647) Per 25 1.00
Per 100 ..... 3.00

46525. **Manual,** Pressey's. Covering Nos. 24500 and 24502 X-O Tests..... .15

24503. **Stencils,** West's. Dr. Robert West, the Director of the Speech Clinic of the University of Wisconsin, in his manual of "Methods and Apparatus for the Diagnosis of Disorders of Speech," states that the No. 24500 Pressey X-O Test A (adult form) is one of the most valuable groups of test for the study of the emotional background. For purposes of the study of cases of speech defect, he states that the tests may be relied upon to show two things: (1) The types of complexes to which the patient is most prone. These complexes are brought out by Tests I and IV. (2) To supplement the Jung association test. In all tests, and particularly in Tests II and III, the examiner should watch for unusual and bizarre associations. For the rapid scoring of Tests I and IV, Dr. West has provided a series of 9 stencils which show at a glance the disgust, fear, sex, and suspicion complexes; and the paranoid, neurotic, self-conscious, melancholic, and hypochondriac worries. (265:C1)..... .30

46117. **Reprint** from the Journal of Abnormal and Social Psychology, Vol. XX, No. 3, Oct. 1925: "Character Trait Tests and The Prognosis of College Achievement," by Othniel R. Chambers, Ph.D. Suggests another method for prognosticating scholastic achievement by means of the Pressey X-O test, Form B..... .25

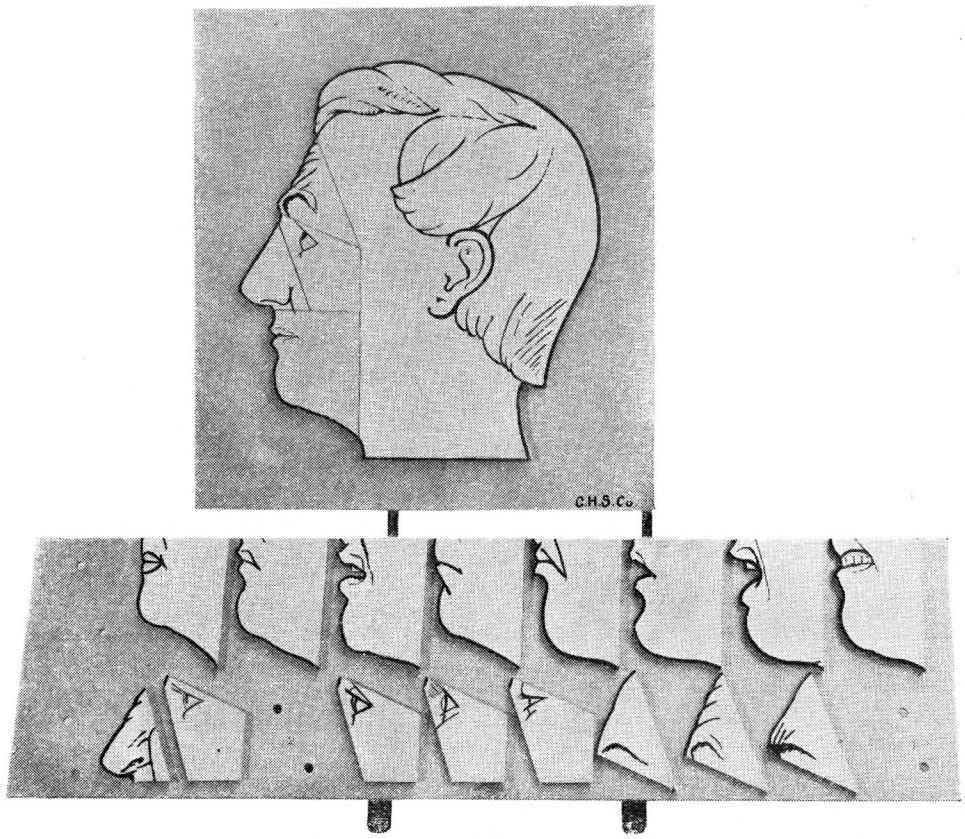
46118. **Reprint** from the Pedagogical Seminary and Journal of Genetic Psychology, Vol. XXXII, No. 4, Dec. 1925: "A Method of Measuring the Emotional Maturity of Children," by Othniel R. Chambers, Ph.D. Covers research with the Pressey X-O test, Form B..... .25

24504. **Personal Problems Test,** Davis'. Devised to aid counselors in dealing understandingly with the disturbing problems of life which associate themselves with dread and anxiety. It helps bring these problems to the surface; discloses their relative pressures on thoughts and feelings; and facilitates discussion and counsel. The test can be marked by the subject in 20 minutes or less. Per 25..... 1.00

Per 100 ..... 3.00

Number		Price
46128.	**Manual** for No. 24504	$ 0.15
24506.	**Personal Data Sheet,** Woodworth's. A test of emotional instability, or a psychoneurotic inventory, for adults. (55:170-176; 88:117-150; J.o.G.P. July-Oct. 1928; 155:359-364) Per 25	2.25
	Per 100	6.75
24506A.	**Personal Data Sheet,** Woodworth's. No. 24506 modified for use with female adults, by Dr. F. C. Richmond, Dir. of the Wisconsin Psychiatric Field Service. Per 25	2.85
	Per 100	8.50
24507.	**Personal Data Sheet,** Woodworth and Mathews. A pschoneurotic questionnaire for obtaining a measurement of the general emotionality, nervous, and mental stability of pre-adolescents and adolescents. A combination of the original separate forms. (J.o.D. Jan. 1923; 65:464-466) Per 25	1.20
	Per 100	3.50

24509. Facial Profile, Articulated, Boring and Titchener; based on Piderit's suggestions. Through the courtesy of Dr. E. G. Boring, of the Dept. of Psychology, Harvard University, who supplied us with drawings, we are now able to offer this very desirable device for demonstrating facial expressions of the emotions.



No. 24509.

The outlines of this profile are printed on heavy white paper, and the model is made up on the order of a form or puzzle picture, with the difference that we have inserted two dowel pins on each of the attachable mouths, eyes, brows, and noses. Inserting these dowel pins in these sections keeps them in place on the basic part of the profile; and as the dowel pins are of sufficient length to project through the base board at the rear, the demonstrator is enabled to push out the sections far enough to permit removal without incurring the danger of soiling the surfaces or injuring the edges of the sections.

The profile is mounted so as to be vertically adjustable on two supporting tripods, and below the profile is a rack for supporting the attachable sections. Each tripod is supplied with a leveling screw so that if necessary, the model can be given a slight backward or forward inclination.

The complete model consists of the basic head (minus mouth, eyes, brow, and nose), and 20 attachable pieces comprising 9 mouths, 5 eyes, 4 brows, and 2 noses. These parts make possible 360 combinations. (A. J. O. P. Oct. 1923: 471-485; Oct. 1924: 602-604; Oct. 1926: 565-570) 73.50

Number		Price
24511.	**Rating Scale, North Carolina,** Allport's (F. H.). For fundamental traits. This scale is designed for a general study of the personality and is not limited to fitness for particular types of occupation. For this reason fundamental personality traits are used, and the scale will be basic in ascertaining the deeper individual factors underlying vocational, educational, and social adjustments. The satisfaction which this scale gave when used at the University of North Carolina and elsewhere leads us to believe that there are many psychologists, vocational counselors, administrators, and executives who would like to make use of it. Per 25	$ 1.25
	Per 100	3.75
24512.	**Key** for No. 24511 N. C. Rating Scale for Fundamental Traits. Provides a fuller description of traits by relating each of them to the corresponding trait name given in the table on page 103 of Allport's "Social Psychology." This key will enable the teacher to use the scale intelligently in connection with the discussion of personality given in the text	.30
24513.	**Systematic Questionnaire,** Allport's (F. H.). For the study of personality. This questionnaire is used for intensive studies of individuals for the purpose of student personnel work, academic adjustments and advice, vocational counsel, and questions of emotional and nervous instability. It may be used, if carefully written out, by the counselor in order to get an advance acquaintance with the subject preliminary to the interview, and to bring out those questions toward which the interview might be profitably directed. It may also be used as a guide to a comprehensive interview. A second use to which the questionnaire may be put is that of objective self study for teacher, student, executive, salesman, employee and the like. Used in this way it has produced good results in college courses in personnel and the psychology of personality. Thirdly, the questionnaire runs parallel to the discussion of personality and its social relations in chapters five and six of Allport's "Social Psychology," hence, it may be of value in teaching in this field, and to practical social workers. Per 25	6.25
	Per 100	18.75
24514.	**Systematic Questionnaire,** Allport's (F. H.); abridged form. For the study of personality. Designed to meet the requirements of a rapid yet fairly thorough study by selecting the questions that disclose the most important facts likely to have a bearing on personality. Per 25	3.20
	Per 100	9.60
24516.	**Personnel Questionnaire,** Jones'. This blank has been prepared by Dr. E. S. Jones, of the University of Buffalo, on the basis of several years of experience in interviewing and advising college students. It has been revised on three different occasions, and only those parts retained which give valuable results. Its primary value is to serve as a storehouse of information about each student, so that each may be treated as an individual and advised accordingly. It is particularly useful as a basis for interviewing problem cases or those desiring vocational or educational advice, and it does not overlap in the slightest upon the ordinary class-room data filed in the registrar's office. The blank, six pages in length, fits neatly when folded into the regular cabinets provided for 11x8½ in. cards, making them conveniently available for any personnel administrator. The subject matter of the blank is divided into eleven sections, the most extensive of which are the parts dealing with Training and with Interests. For the past three years Dr. Jones has carried on extensive research in connection with this blank, and he has made observations on the relation of each of the items and college grades, and in many cases with vocational adjustment. The medical, legal, and engineering students, for example, present characteristically different patterns of response. Per 25	5.60
	Per 100	16.80
24518.	**Social Relationship Questionnaire,** Allport's (F. H.). An outline for the study of the social relationships of an individual. A booklet 8½x11 in., 40 pages, neatly mimeographed, and covering in three sections, in the most comprehensive manner, "Unorganized Relationship," "Organized Relationships," and "Community Relationships." (A. J. O. S. 21, 1927:95). Per 25	53.50
	Per 100	160.00
24520.	**Measurement of Students' Attitudes,** Allport's (F. H.). A reaction study consisting of a combined questionnaire and attitude scale covering the major aspects of college life. The items are to be answered wholly by checking (no writing is called for); hence, objectivity and quantitative treatment are facilitated. Its purpose is to provide, first, a campus survey for administrative and personnel use, and second, a research instrument for studying social attitudes. A monograph presenting the findings from the use of the reaction study at Syracuse University is being published by the Ohio State University Press, under the title "The Measurement of Students' Attitudes." Per 25	18.00
	Per 100	54.00
24522.	**Public Opinion Test,** Watson's (G. B.). Form B. This 16 page test, while referred to as a survey of public opinion, really measures the common deviations from fair-mindedness in the field of religious and economic issues. It does not assume that the radical, the conversative, or the middleground (liberal) position is necessarily the correct one to take, and no opinion held by the subject will count as prejudice unless the opinion leads to some deviation from fair-mindedness. The test is a standardized, objectively-scorable test and measures the tendency of an individual to manifest prejudice in a number of different ways. Complete information regarding the construction and standardization of this test, together with results of previous studies and suggestions for further experimentation, will be found in "The Measurement of Fair-mindedness," by Goodwin B. Watson, Ph. D. Per 25	2.80
	Per 100	11.00

Number		Price
46739.	**Manual, Watson's.** Containing directions and norms for giving and scoring the Watson Test of Public Opinion	$ 0.30

24525. **Analytical Interview,** Tjaden's. An 8½x11 in. record manual of 34 pages, for clinical psychologists, psychiatrists, state and private training schools for juveniles, private asylums, state hospitals for the insane, juvenile courts, psychopathic hospitals, state prisons, child guidance clinics, social workers, and graduate research students. This analytical interview is in no sense a test, but it is distinctly a device for the purpose of enabling institutional psychologists and other trained workers to explore the patient's mental life and to construct a working psychogram on the basis of the data thus secured. The "interview" consists of twenty-two sections, over which are distributed six hundred pertinent questions designed to furnish the analyst with a complete picture of the factors that have contributed to the patient's anti-social conduct. Space is provided for the written insertion of the date on each question, thus providing a permanent record for institutional filing or for research material in the hands of the interested investigator. A single copy is employed for each "case," the result being an intimately personal and comprehensive history of the individual in question.

This is the most complete case history record yet produced. It contains graded psychological approaches to every department of life experience grouped under the major captions of Anti-Social Conduct; Intellectual Status; Mental Conflict, Causative Factors Amenable to Therapeutic Treatment; and Developmental Factors not Amenable to Therapeutic Treatment. Space is provided for the records of a battery of fifteen performance tests; of the Pressey X-O Tests, and of the standard association test. There is also a short but reliable test for the determination of school grade in cases where this item is not known. Complete instructions for use are part of each "interview." Per 25 .. 25.15
Per 100 .. 75.45

24527. **Mental Hygiene Inventory,** Woodworth and House. This questionnaire, based partly upon previous studies, more particularly Woodworth's Psychoneurotic Inventory (originally labeled the "Personal Data Sheet"), has been for the greatest part a co-operative research involving the assistance of a group of psychiatrists and psychologists. The purpose of this questionnaire is thoroughly practical and human, viz., to assist the male student to understand the problems of mal-adjustment that may trouble his peace of mind. This questionnaire can be adapted to the uses of research among young women, also; in fact, it has been done in a number of instances.

There is an urgent need at present for a general survey of the "psychoneurotic" situation in our institutions of learning, from the kindergarten to the university. In view of the growing conviction among students of human behavior that childhood is the "golden period for mental hygiene"—if we accept the ideal of preventive medicine—and because of the illuminating observations and speculations of the psychoanalytical school concerning the pivotal and strategic importance of the early years of life (as witness the enlightening ideas of Dr. Alfred Adler in reference to the childhood origins of the feelings of inferiority and of the "neurotic constitution"), it seemed wise to include in this inventory a childhood period, terminating about the time of puberty. Whether the matter is envisaged from the viewpoint of a dynamic psychology or personality, or from the standpoint of a mental hygiene therapy, the period of childhood is a fact too large to be neglected, as it is psychiatrically of immense importance.

This inventory consists of a questionnaire embracing 100 questions pertinent to the discovery of mental disorder. For a detailed description and assistance in interpretation see monograph. (93) Per 25 .. 2.25
Per 100 .. 6.75

24528. **Mental Hygiene Inventory,** Woodworth and House; abridged form. This abridged form of 75 questions is still being used experimentally. The unabridged form is to be used for comparable data. Per 25 .. 2.25
Per 100 .. 6.75

24530. **Introversion-Extroversion Test,** Neymann and Kohlstedt. A new test for introversion-extroversion, which has been standardized on 100 cases of schizophrenia and manic-depressive insanity. The results coincide in 93% of the cases with those obtained by prolonged clinical observation. Similar results were obtained by applying the test to 200 normal individuals.

The test consists of 50 statements, for which the subject is asked to express his like or dislike. Each statement is followed by the words "Yes" and "No." There is no implication of right or wrong in any of the statements.

This test was worked out by Dr. C. A. Neymann, Professor of Psychiatry, Northwestern University Medical School, and K. D. Kohlstedt, Ph. B., M. A., Clinical Psychologist for Northwestern University Medical School, with the assistance of Dr. John J. B. Morgan, of the Dept. of Psychology, Northwestern University, and a number of superintendents and physicians connected with state institutions. (J.o.A.a.S.P. Jan.-Mar. 1929: 482-478).
Per 25 .. 1.00
Per 100 .. 3.00

46453. **Manual** for application and evaluation of the No. 24530 Neymann and Kohlstedt Introversion-Extroversion Test .. .25

MISCELLANEOUS ACCESSORIES

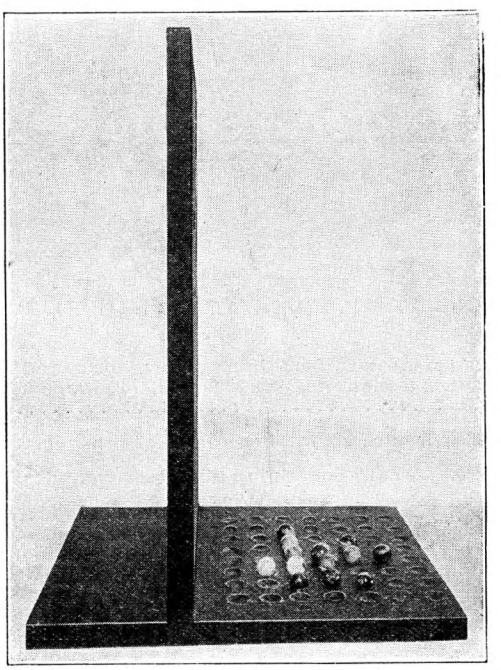
Number		Price
25107.	**Divider,** Plain Brass, 4½ in. (29:x6)	$ 0.65
25113.	**Seconds Pendulum** with mercury contact. (267:T10)	17.50
25117.	**Meter Stick, Brass Tipped.** Metric and English graduations. (29:x11; 111:x73; 119:x 12-37; 165:x40; 227:x7; 267:T14-15, 18)	.75
25122.	**Pocket Tape,** Steel, 2 M. (111:x32, 70; 119:x2-10; 267:T4)	2.00
25125.	**Ruler,** Wood, 30 cm. long. Metric and English graduations. (11:104; 29:x3; 51:x5; 51A:x3; 55:40; 57:33; 111:x72; 119:x7-25; 165:x41; 225:x27; 267:T11)	.13
25127.	**Rule,** Celluloid, 6 in. Graduated in inches and millimeters. (51:x1;51A:x9)	.15
25133.	**Paper Scale,** Millimeter, on heavy paper. (51:x21; 51A:x8; 225:x2). Per doz	.75
25137.	**Rule,** Steel, 20 cm. long. Graduated in inches to hundredths and in centimeters to half millimeter. (47:536)	2.00
25138.	**Slide Rule,** Mannheim's. Boxwood, 10 in. long. (178:C14; 178A:C16)	1.65
25149.	**Balance, Army Prescription.** (11:152-154; 224:7)	9.00
25150.	**Balance, Trip,** Harvard. (129:D3)	11.25
25154.	**Weights,** Brass, in block; 500 grams to 1 gram. (129:D3)	5.00
25165.	**Level, Cross Test.** Will fit on any square corner. (225:X17)	.50
25217.	**Thermometer.** Graduated to 100° C. in degrees. (111:X22; 225:X11)	1.35
25223.	**Thermometer.** Graduated to 50° C. in tenths. (225:X11)	6.25
25235.	**Bunsen Burner.** (225:X10)	.55
25239.	**Lamp, Alcohol,** 4 oz. (15:X148; 268:T44)	.60
25307.	**Bow, Bass.** (129:D19; 224:99)	7.00
25309.	**Bow, Violin.** (224:99)	2.30
25317.	**Rubber Cord,** 25 cm. long (225:87)	.25
25321.	**Sonometer,** 2-string. (225:X9)	11.25
25335.	**Tuning Fork,** a^1 (435 d.v.) (225:X9; 226:61-64)	.75
25339.	**Tuning Fork,** c^2 (517.4 d.v.) (225:X9; 226:61-64)	.75
25341.	**Tuning Fork,** c^1 (256 d.v.). On resonance case	6.70
25342.	**Tuning Fork,** a^1 (426⅔ d.v.). On resonance case	6.70
25343.	**Tuning Forks.** Set of 8: c^1—c^2 (256 d.v.—512 d.v.). On resonance cases	56.00
25343A.	**Tuning Forks.** Set of 4: c, e, g, c. On resonance cases. (111:X35)	26.80
25345.	**Resonance Case** for tuning forks. (51:X22)	3.25
25351.	**Manometric Flame Apparatus.** Consisting of rotator, mirror, support, gas capsule, tube, and mouthpiece. (265:C1-2)	90.90
25375.	**Xylophone,** Wood. (224:96)	2.50
25409.	**Reading Glass,** 2 in. diameter. (15:X57; 119:X5-18; 225:X12)	.95
25421.	**Color Top and Disks.** (51:X11; 119:xv)	.20
25431.	**Lens, Biconvex,** on support. (225:X14)	11.75
25441.	**Photometer,** Rumford's. (103:X10; 228:73; 227:X10)	14.00
25445.	**Candle,** Standard. For use with the No. 25441 Rumford photometer	.75
25450.	**Pocket Spectroscope.** (S.P.P.:46-54; S.P.P.:74-77; Z.L.E.P.:87)	20.00
25455.	**Magnifier, Tripod.** (51:X10; 119:X6-22; 225:X13)	.90
25503.	**Dry Cell.** (227:X24; 267:T10)	.75
25505.	**Daniell Cell;** gal. size. (227:123)	3.35
25507.	**Samson Cell.** Supersedes the LeClanche Cell. (225:X20; 227:123)	4.00
25510.	**Storage Battery,** 6V	17.50
25510A.	**Storage Battery,** 24V	70.00
25510B.	**Storage Battery,** 4V	11.00
25511.	**Key, Telegraph.** Brass frame, nickel-plated short-circuiting lever. Mounted on base. (55:47; 57-41; 119:X18-58)	4.75
25513.	**Telegraph Sounder.** (281:S7)	3.75
25515.	**Telegraph Sounder and Key.** (15:X121; 111:X12; 267:T12)	4.50
25517.	**Telephone Receiver,** Watchcase Type. (119:X12-35; 225:X32)	1.95
25525.	**Galvanometer.** (205:32-36; 227:X24)	55.60
25526.	**Shunt,** Adjustable, Ayerton's; 10,000 ohms. (205:32-36)	20.00
25527.	**Volt-Ammeter.** (267:T10)	22.50
25533.	**Bridge,** Wheatstone's. (205:32-36; 227:135)	61.25
25534.	**Bridge, Slidewire,** Wheatstone's. (227:135)	7.00
25536.	**Series Attachment Plug**	2.50
25537.	**Resistance,** "Dim-a-lite," 135 ohms. Used in making a slight reduction in the speed of the No. 12611 color mixer	3.70
25538.	**Current Controller.** Used in the 110V. A.C. For use with electrical diagnostic instruments. (265:C1)	13.40
25539.	**Switch,** Two-point. (227:X24)	.40
25540.	**Bell,** Electric. (29:X17)	.85
25543.	**Bell, Single-Stroke,** Electric. (129:D1; 227:X24)	1.90
25545.	**Buzzer.** (51:X22; 227:X24)	.80
25549.	**Connector, Battery.** (267:T10)	.10
25550.	**Tips,** Round. For connecting cords. (267:T10)	.18
25551.	**Tips,** Flat. For connecting cords. (267:T10)	.20
25552.	**Connector.** With round tip at each end; flexible wire, 3 ft. (267:T10)	.50

Number		Price
25561.	**Push-Button.** (227:X24)	$ 0.16
25567.	**Switch, Knife,** S.P.S.T. Porcelain base. (51:X22; 267:T10)	.50
25573.	**Wire, Annunciator;** No. 18 B and S. Pound coils only. (225:X20; 267:T10)	1.00
25575.	**Induction Coil.** For use with Geissler tubes and No. 20137 Sanford Vernier Chronoscope Model II. (A.J.o.P. 12:590-594)	6.00
25580.	**Condenser,** 2 M.F	5.75
25588.	**Rheostat, Dunlap Chronoscope**	12.00
25589.	**Rheostat, Reaction Circuit,** Dunlap	4.50
25593.	**Rectifier,** Tungar, large, for 110V. A.C	31.25
25630.	**Clamp, Right Angle.** Takes a ½ in. round and a ⅛ in. sq. rod	4.00
25639.	**Clamp, Flat-Jaw.** For holding cardboard and small, light, wooden screens	3.70
25640.	**Clamp, Swivel**	1.20
25651.	**Clamp, Right-Angle.** Takes a ½ in. round rod	.45
25657.	**Clamp, Standard;** 3 in. opening. (11:95-96; 51:X3; 51A:X2)	.30
25659.	**Clamp, Burette.** (51:X8; 51A:X15; 111:X74; 225:X19	.65
25663.	**Tripod,** 6 in. For use with Bunsen burner. (225:X11)	.65
25673.	**Clamp,** 4 in. (165:X47)	.90
25709.	**Jar, Hydrometer,** 18x3 in. (15:X47; 225:X5)	1.50
25710.	**Jar, Battery,** 9x12 in. (111:X22)	5.00
25713.	**Glass, Drinking.** (51:X10; 119:X6-22; 225:X14)	.11
25719.	**Beaker, Glass,** 100 cc. (225:X19)	.22
25721.	**Beaker, Glass,** 150 cc. (225:X19)	.25
25735.	**Phials,** 2 oz. N.M. (225:X15). Per 10	2.50
25739.	**Phials,** 2 oz. W.M. (225:X14). Per 10	2.75
25743.	**Phials,** Cork-stoppered, 4 drams. (225:X19). Per half gross	2.50
25751.	**Pipette,** 25 cc., graduated in .1 cc. (225:X16)	1.00
25761.	**"Y" Tube,** Glass, ¼ in. (225:X30)	.35
25809.	**Razor.** (225:X13)	2.00
25813.	**Brushes, Camel's Hair.** Set of 12. (111:X42B)	.50
25827.	**Finger Stalls.** (111:X24). Per doz	1.15
25829.	**Rubber Tubing,** ¼ in., 3 ft. For Bunsen burner. (225:X10)	.45
25831.	**Compass, Pencil.** (111:X42B; 225:X4)	.25
25835.	**Scissors,** Small, Fine-Pointed. (111:X16; 119:X5-18)	1.40
25836.	**Scissors,** Kindergarten Type. For Stutsman's Cutting Test	.60
25837.	**Rubber Bands.** (51:X3; 51A:X2; 111:X26). Per gross	.60
25838.	**Shoe-Strings.** (11:146). Per doz	.60
25840.	**Dice.** Set of 3. (217:L24)	.30
25841.	**Paper, Adding Machine,** 8.8 cm. wide. (111:X56). Per roll	.55
25842.	**Paper, Carbon,** 8½x11 in. (51:X4). Per 10 sheets	.20
25843.	**Folder, Manila.** For maze covers and tracing surfaces. (51:X7; 51A:X14)	.10
25844.	**Pill Boxes,** Cardboard, Round. (11:152-153). Per doz	.50
25845.	**Trimmer,** Paper or Cardboard; 12 in. knife. (J.E.P.:63)	7.40
25850.	**Felt,** 1 in. thick. For placing under apparatus in order to eliminate vibration and resonance. Per sq. ft	1.25
25851.	**Beaver-Board,** 24x40 in	.65
25852.	**Lead Shot.** (11:152-154). Per 100 grams	.15
25853.	**Mercury.** (111:X17). Per lb	4.00
25855.	**Marbles.** (111:X79). Per doz	.15
25857.	**Carrying Case** for Set A of the Drever and Collins performance tests. (42:C2)	15.00

ATTENTION—PERCEPTION—COMPREHENSION—APPREHENSION

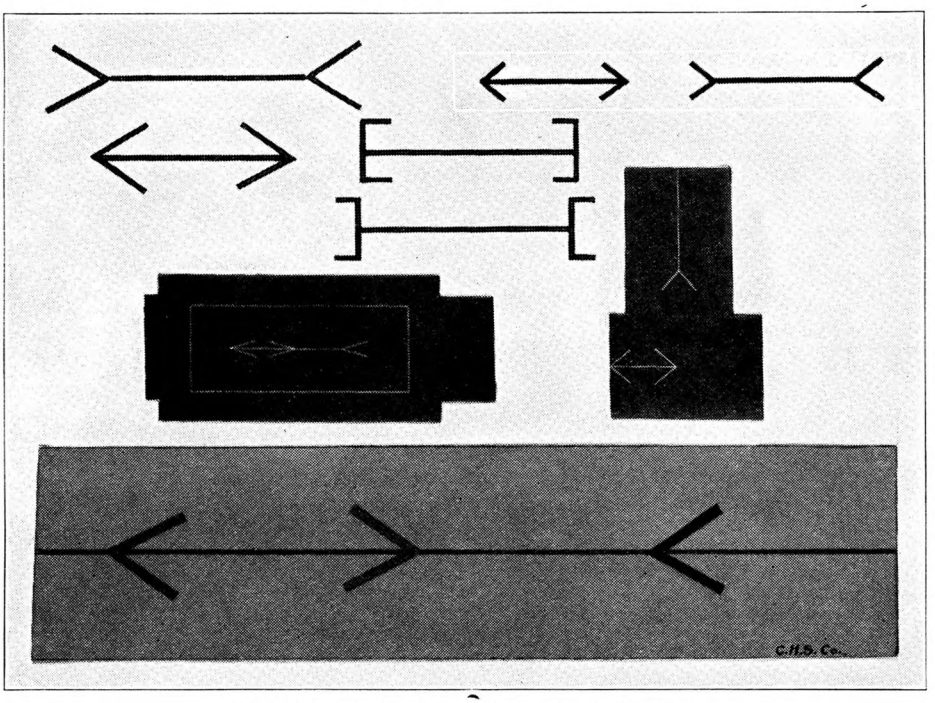
27000.	**Illusions, Optical.** A set of 24 cards, 4x6 in., with one figure on a card, including all of the more desirable illusions described and illustrated in books on optics, psychology, and physiology. (27:111-117; 32:399-405; 75:247-251; 103:X1; 111:X79; 139:C22-24; 158:196-203; 187:184-332; 215:95-121; 225:X29; 226:303-328; 255:167-173; 275:450-460)	6.00
27001.	**Attention Test I,** Münsterberg's. Letters. (119:X16-56). Per 100	.80
27002.	**Attention Test II,** Münsterberg's. Figures. (119:X16-56). Per 100	.80
27004.	**Cancellation Test,** N. Y. S.B.o.C. A set of different numerals and letters in twenty lines with fifty characters in a line. Each numeral appears five times in a line, except when its place is taken by one of the letters. (145:T6; 147:T2). Per 100	1.50
27005.	**Stimuli Card,** Franz's. A series of numbers and letters to test the fluctuation of attention. (55:77-79; 57:70-72)	.15
27008.	**Cancellation Test.** A sheet of pied type beginning h p l g. (175:35-36; 261:87-95; 267:T26; 279:75-79, 247; 281:S10). Per 100	.80
27009.	**Cancellation Test.** A sheet of pied type beginning z c y u. (267:T26; 279:75-79, 247; 281:S10) Per 100	.80
27010.	**Cancellation Test,** Geometrical Forms. (267:T26). Per 100	1.50
27011.	**Cancellation Test,** Digits. Beginning 1 7 2 5. (51A:X1; 267:T26). Per 100	1.50
27013.	**Scoring Guides,** Fraser's. Set of 3. Indispensible for instantly locating any one of the digits to be scored on No. 27011 blank	3.75
27014.	**Pied Type.** A printed form containing twelve paragraphs of pied type with hidden words. (51:X6). Per 100	1.50
27015.	**Cancellation Test.** A page from a Spanish text. (267:T26). Per 100	.80
27017.	**Calcellation Test,** Consists of two blanks containing a large number of misspelled words. (267:T26). Per 100 sets	1.50

Number		Price
27021.	**Dot Counting Test.** Two sets of 31 cards each, containing rows or groups of dots, 1.5 mm. in diameter. Cards A1—A10 contain rows of dots with uniform spacing on each Cards Ba1-Bd4 contain rows with groups of 2, 3, 4 or 5 dots each, in which the spacing within the groups and between the groups varies. Cards C1—C5 contain arrangements of dots in irregular clusters. (267:T27)	$ 1.85
27023.	**Adding Test.** A printed form ruled in series of three vertical columns, with the numbers 6, 28, and 43 printed at the head of the first three columns. (267:T29). Per 100	.80
27025.	**Dot Tapping Blanks.** Gummed for use on kymograph drum. (267:T30). Per 100	3.00
27027.	**Dot Counting Test,** Knox's. A card containing 60 dots, arranged in ten parallel lines. (113:6)	.15
27030.	**Attention Test.** Set of 20 carefully selected advertisements. For the study of conditions of attention. (99:69-70)	25.00
27051.	**Rubber Bulb** for tubing; attachable. (225:X25)	.40
27052.	**Scissors,** 4½ in. long. (225:X26)	.50
27054.	**Tube,** Black Rubber. (225:X25)	1.00
27055.	**Card, Accommodation.** (225:X25)	.15
27056.	**Cards, Object.** Set of 6, and sector disk. (225:X25)	3.75
27058.	**Problem Blanks,** Kline's. For studying sustained attention. (111:X46). Per 100	1.50



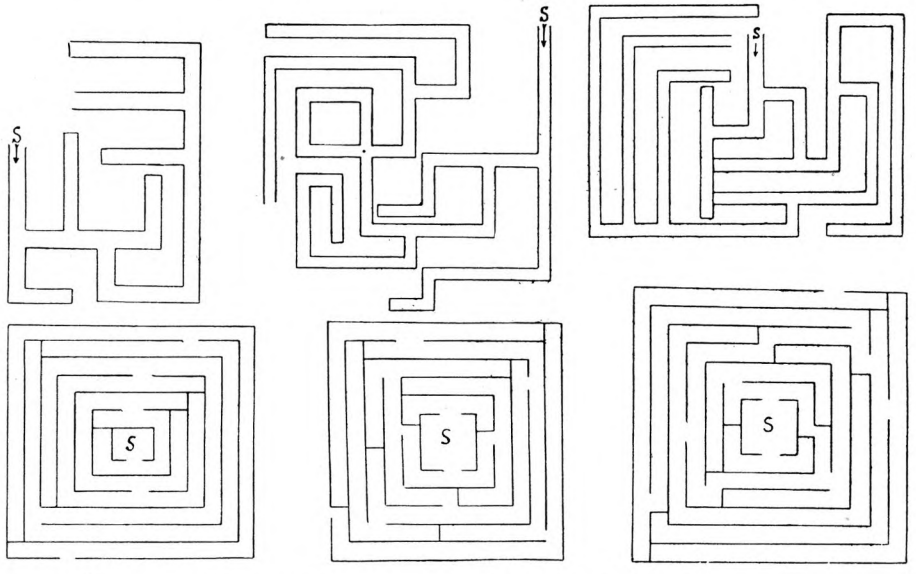
No. 27060.

27060.	**Exposure Board,** Kline's. A rectangular base with a vertical partition and 56 cavities arranged in seven rows on one side of the base for holding marbles. Used to determine the span of attention for touch. Complete with 1 doz. marbles. (111:X52)	12.00
27100.	**Illusion Board,** Müller and Lyer; Foster's model. Made of heavy cardboard, with 2 sets of stimulus cards. (51:X1; 51A:X9; 228:411)	2.50
27100A.	**Illusion Board.** Müller and Lyer; Reid's model. A rectangular wooden frame for supporting the changeable cardboard background and three metallic angles, which can be set and clamped at any position along a black horizontal bar running the full length of the frame. The two halves of the background can, by means of thumb-tacks, be separated so as to give the horizontal line any desired width	28.00
27101.	**Illusion,** Müller and Lyer. A heavy rectangular card about 22 in. long and about 3½ in. wide, supporting two thin metallic Müller and Lyer figures with fixed angle-pieces which may be turned in or out	2.50
27102A.	**Illusion,** Müller and Lyer. A metal rod about 9½ in. long, with fixed rectangular end-pieces which may be turned in or out. Per pair	10.50
27102B.	**Illusion,** Müller and Lyer. A metal rod about 9½ in. long, with fixed angular end-pieces which may be turned in or out. Per pair	10.50
27103.	**Perception Test,** Wallin's. For quickness and accuracy. Six record blanks: E1, E2, E3, E4, E5, and E6, each containing twenty-six lines of pied type. (D.C. April and May 1912; 248; 249:257, 275, 313; 251). Per 25 sets	2.00
27104.	**Perception Test,** Pyle's. For use with the No. 21233 disk tachistoscope. Set of 20 cards, 10 containing six letters and 10 containing seven letters. (176:X10)	4.00
27105.	**Question Card.** Fernald's. An ethical perception test. The card contains ten questions, seven of which are to be answered by "Yes" or "No" and three by taking one or the other horn of a dilemma. (47:544-545)	.15



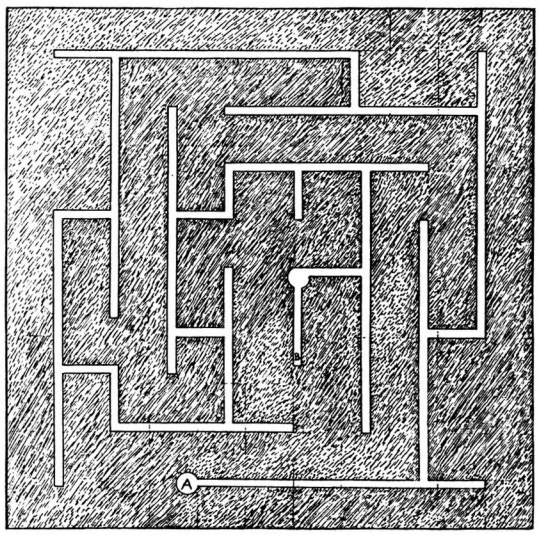
Nos. 27102B, 27102A, 27101, 27100, 27100A.

Number		Price
27106.	**Language Test,** Stutman's. A card containing a few words and phrases to be repeated, and a series of ten easy questions to be answered. Suitable for children from 18-30 months. (219:22-26)	$ 0.20
27108.	**Reading Test,** Whipple's. A card containing a page of prose in regular form. (267:T28)	.12
27109.	**Reading Test,** Whipple's. A card containing a page of complicated prose. (267:T28)..	.12
27113.	**Hand Test,** Thurstone's. A spatial relations test for use with people who have an aversion to geometrical figures. Designed to tap ability in space thinking. The figures used in this test are a right and a left hand in different positions.. The problem to be solved is whether the figure is that of the right or left hand. Below the figures are two squares, and if the examinee decides the figure is a right hand, a check is placed in the right square; where the decision is that the figure is a left hand, a check is placed in the left square. (23:T8; 155:333-344). Per 100	2.50
27114.	**Spatial Relations Test (A),** Thurstone's. Devised to tap ability to think in three dimensional terms. A geometrical figure, lozenge-shape, one edge printed a heavy black, with a circle in one corner. The figure is printed in different positions and represents a small card with a hole in one corner. The examinee is instructed to place a small circle in the corner where the hole would be if the card were placed in the indicated position. (23:T120; 155:333-344). Per 100	2.50
27115.	**Spatial Relations Test (B),** Thurstone's. Similar to No. 27114, with the exception that the diagram represents a card with two holes punched along one side of the margin. A plus or minus sign in the square following the designs is used to indicate whether or not the diagrams represent the same face of the card—a plus sign if they do and a minus sign if they do not. (23:T120; 155:333-344). Per 100	2.50
27116.	**Relational Test,** Yerkes'. A set of 6 cards for Test 12 of the Yerkes and Foster Adolescent and Adult Point Scale. (285:101, 109, 121)	1.20
27117.	**Perception Test,** Set I, Whitley's. A sheet of pied capitals beginning O Y K. (271:61-64). Per 100	.80
27118.	**Perception Test,** Set II, Whitley's. A sheet of pied capitals beginning G A A. (271:61-64). Per 100	.80
27119.	**Perception Test,** Set III, Whitley's. A sheet of pied capitals beginning G W B. (271:61-64). Per 100	.80
27120.	**Maze Test, Beta,** Simple. From Form O of the No. 37090 U. S. A. Beta Test. (55:148-149). Per 100	.80
27121.	**Maze Test, Beta,** Complex. From Form O of the No. 37090 U. S. A. Beta Test. (55:148-149). Per 100	.80

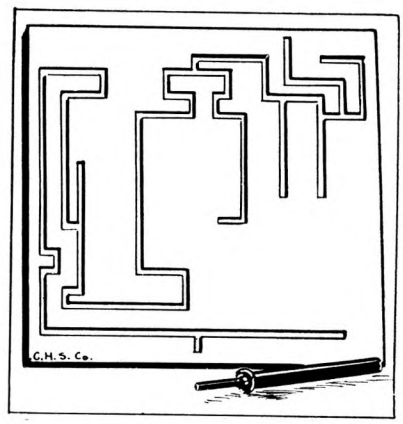


Nos. 27127, 27128, 27129, 27130, 27131, 27133.

Number		Price
27122.	**Maze Test,** Porteus'; 3 Year (Diamond). The simplest of a series of 13 mazes, devised by S. D. Porteus and described at the meeting of the British Association for the Advancement of Science in 1914, published in the Journal of Psycho-asthenics (U. S.) and the Journal of Experimental Pedagogy (Eng.) in June, 1915; revised at Vineland in 1919. The tests were designed to examine the individual's ability or tendency to use planning capacity, prudence, and mental alertness in a new situation of a concrete nature. Though they are primarily tests of a form of mental ability, yet because impulsiveness, irresolution, suggestibility, nervousness, and excitability interfere with the subject's success, they are to be regarded as being to a large extent tests of temperamental capacities as well. (11:90-94; 23:T93; 125:62-65; 167; 285:129-130). Per 100..	$ 0.80
27123.	**Maze Test,** Porteus'; 4 Year (Cross). The original 5 Year Test; the old 4 Year Test has been eliminated from the revised series. (11:90-94; 285:129-130). Per 100.....	.80
27124.	**Maze Test,** Porteus'; 5 Year (Comb). Formerly the 6 Year Test. (285:129-130. Per 100..	.80
27125.	**Maze Test,** Porteus'; 6 Year (Rectangle). One of the two new tests in the revised series. The old 6 Year Test is given the place of the 5 Year Test in this revision. Per 100	.80
27126.	**Maze Test,** Porteus'; 7 Year (Rectangle). A little more difficult than the 6 Year Test. The old 7 Year Test has been eliminated from the revision. Per 100.....	.80
27127.	**Maze Test,** Porteus'; 8 Year. (285:129-130). Per 100.....	.80
27128.	**Maze Test,** Porteus'; 9 Year. Per 100.....	.80
27129.	**Maze Test,** Porteus'; 10 Year. (287:T8). Per 100.....	.80
27130.	**Maze Test,** Porteus'; 11 Year. (287:T8). Per 100.....	.80
27131.	**Maze Test,** Porteus'; 12 Year. (287:T8). Per 100.....	.80
27133.	**Maze Test,** Porteus'; 14 Year. The former 13 Year Test in the original series. (287:-T8). Per 100.....	.80
27134.	**Maze Test,** Porteus'; Adult I and II. Per 100 sets.....	1.60
46513.	**"Guide to Porteus' Mazes,"** by S. D. Porteus, Prof. of Clinical Psychology, University of Hawaii; former Dir. of Research, Psychological Laboratory, The Training School, Vineland, N. J.	1.15
27135.	**Maze Test,** Kent and Franz; Simple. (57:140). Per 100.....	.80
27136.	**Maze Test,** Franz's; Complex. (57:141; P.M. June 1913:50-52). Per 100.....	.80
27137.	**Maze, Slot, A,** Young's. The popularity of this type of test, like a number of other performance tests such as form boards, puzzles, designs, etc., is no doubt due to the fact that the examiner readily obtains the subject's co-operation because, as one writer stated, tests of this kind possess an appeal which touches the root of some of the very fundamental original tendencies. This test readily secures the co-operation of young	



No. 27137.



No. 27139.

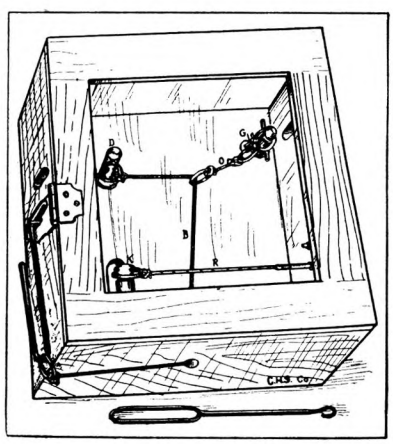
Number | Price

children. A miniature boy-clown is used as the goal and a toy shoe is employed instead of a pencil or stylus. The subject is told that the shoe belongs to the clown and is asked to take it to him. A continuous slot cut in the metal, with numerous blind alleys, extends from the starting point to the goal. The shoe is mechanically held in the slot and while it can be pushed along quite easily, it cannot be removed. Resourcefulness, foresight, persistence, poise, mental control, and stability are involved in this test. It is useful for children from four to nine years of age. 1304 children within the above range of ages were tested in establishing standards. (P.C. 14, Nos. 3-4; 23:T94).. **$ 22.50**

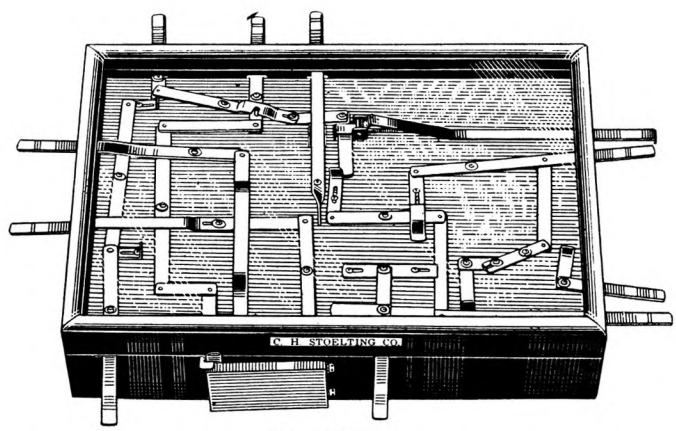
46875. **"Slot Maze A,"** by Herman H. Young, Ph.D. Reprint from Psychological Clinic; giving complete data, including instructions, norms and curves for the No. 27137 slot maze A.. **.75**

27139. **Maze, Hunter's.** A heavy aluminum maze, approximately 11x11½ in., with carefully machined channels. Metal stylus with wood handle included..... **20.00**

27141. **Puzzle Box,** Healy, Fernald, and Hayes. A box with a glazed lid, through which the subject can observe the different steps necessary to remove the fastenings on the inside and outside which keep the box closed. The box has a number of holes to permit the introduction of a button-hook as an aid to removing the fastenings. This test brings out abilities or defects in manipulative powers, in the ability to analyze a slightly complicated physical situation, in powers of attention and continuity of effort. (7:X6; 23:T66; 79:92; 85:T5; 125:28-31; 279:141-144)..... **26.50**



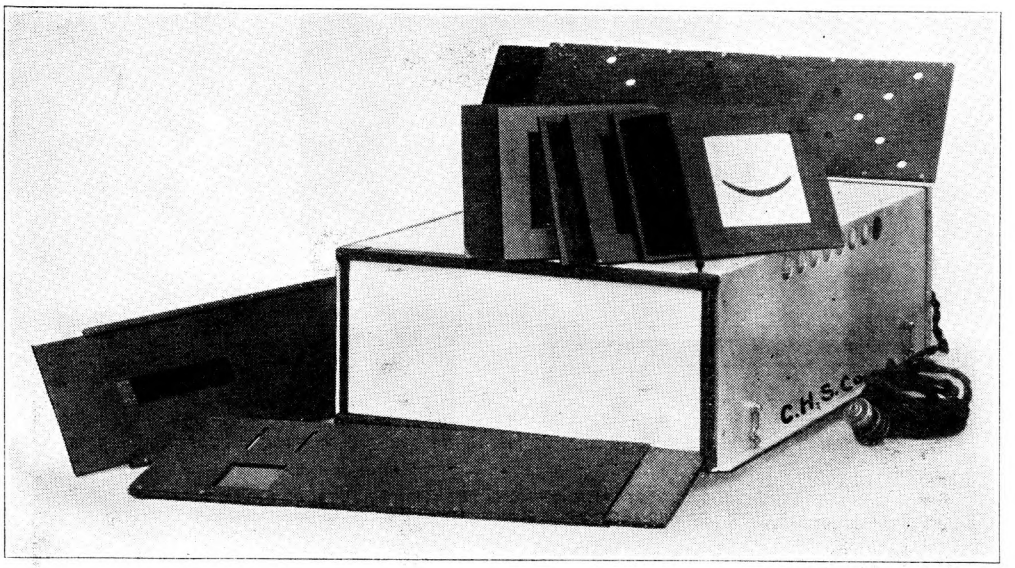
No. 27141.



No. 27147.

27142. **Puzzle Box,** Healy, Fernald, and Hayes; Woolley's modification. The inside of this model is painted black, whereas in the No. 27141 the inside is coated with an aluminum paint. (281:S15) **26.50**

27144. **Apparent Movement Apparatus,** Carmichael's. An exposition of this phenomenon is difficult without the apparatus for giving a visual demonstration. The apparatus illustrated above consists of a light-tight aluminum case, in the inside of which are mounted



No. 27144.

Number | Price

a number of incandescent bulbs and a rheostat for controlling the intensity of the illumination of the slides used in the slide-stage attached to the front of the case. Accompanying the apparatus is a series of movable slides, made of Bakelite, with holders of the same material; a blank rectangle, three frames with colored gelatin, a blank frame, and a translucent frame with a black crescent. The apparatus is furnished complete with connecting cord for connecting to the 110V. AC. or D.C. The case is ventilated in such a way that virtually no light escapes at the sides, and as the slides are made of Bakelite, the apparatus may be used for a long period at a time without very much danger from overheating. With this apparatus, a demonstration of apparent movement becomes possible to a large class in a normally lighted room. (A.J.o.P. July 1925:446-448; Jan. 1927:130-133) $147.50

27147. **Puzzle Box,** Freeman's. Devised for learning of the problem-solving type. The door shown on the front of the box is kept closed by a series of fastenings. The box should be opened as quickly as possible without breaking or unduly straining any of the levers. If all the levers are correctly moved, the little door in front springs open of its own accord. (7:X6; 23:T65; 59:X3; 279:146-147) 62.50

27148. **Form Relations Test.** Devised by the National Institute of Industrial Psychology, London, England, for the recognition of form relations. An 8x10¼ in. booklet of 10 pages, printed on one side. At the top of each page are five drawings, out of each of which a piece has been cut. The cut out portions have been placed below the line, along with other pieces which do not belong to the drawings and which do not fit. All are numbered, and the object of the test is to find the five numbered pieces, which, if moved up, would complete the drawings in the top row. Instructions and a scoring key accompany each package of tests. Per 25 ..... 5.30

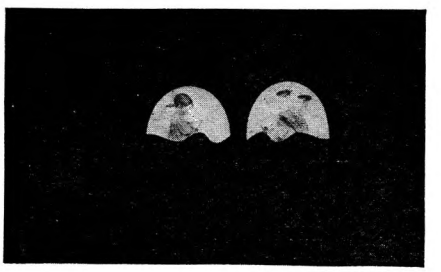
Per 100 ..... 15.90

27149. **Spatial Perception Test,** Link's. A set of 2 form boards with one set of changeable forms. The use of two boards, each with a different arrangement, makes it possible to give the same test in two ways. It also makes it possible to have the pieces arranged in exactly the same position for each subject by inserting them in one of the boards and pushing them out on the table from the rear in the same relative position which they occupied in the board. See illustration on page 57. (121:57, 74, 124, 152, 165, 167, 395, 433-434) 35.00

27149A. **Spatial Perception Test,** Minnesota. A modification and amplification of the No. 27149 Link Spatial Perception Test. The insets have been increased from 19 to 50 and made to fit the boards loosely. The bottom of the board has been omitted so that the board can be raised to permit the insets to be left on the table in standard order for the second board. Using the boards in this way, the insets are not inverted. This is one of the Minnesota series of mechanical aptitude tests. (P.J. Apr. 1928:473-478) 35.00

27150. **Perception Material.** Consists of a number of words and pictures used for illustrating filled-in perception. (32:403; 111:X68; 134:145-149; 209:135-153; 255:143-144) 2.50

27151. **Color-Form Test,** Dearborn's. Patterned after the material used for training defectives in the Seguin Room of the Masachusetts State Institution for Feeble-Minded, at Waverley. The test consists of 16 blocks, 4 of which are square, 4 triangular, 4 diamond-shaped, and 4 circular. In each of the four shapes there is one block each red, blue, green, and yellow. (33:445-458; 35) 5.50



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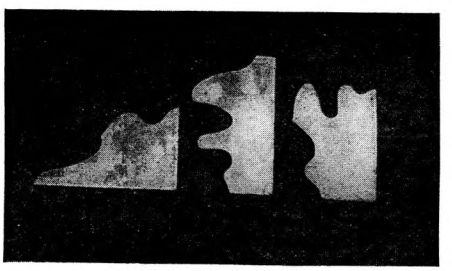

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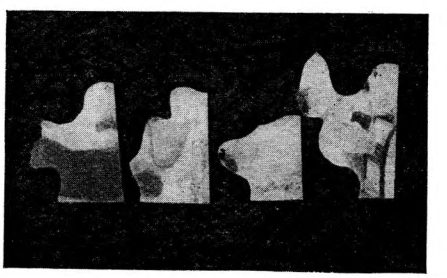
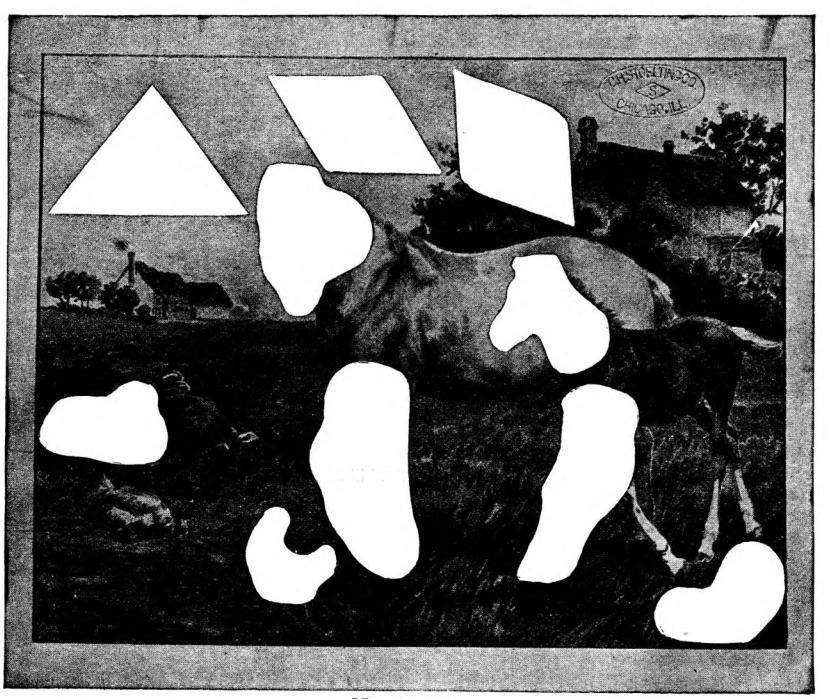


No. 27165.

Number		Price
27152.	**Picture Form Board,** No. 1, Stutsman's; "Mother's Own." This picture is cut into two irregular pieces and mounted on well-seasoned three-ply wood. Furnished with a brightly colored cardboard box. (219:37-38)	**$ 3.50**



No. 27153.

27153.	**Picture Form Board, Mare and Foal,** Healy and Fernald. This test enables the investigator to get a rough estimate of the subject's whereabouts in the scale of mental ability, and furnishes the latter with a task in which he is interested and in which, unless he falls low in the grade of the feeble-minded, he always has at least some measure of success. The test brings out perception of differences in form, powers of co-ordination in handling pieces, the ability to learn by the experience of trial and success, and beyond this, it may afford some gauge of the perception of the relationship of object to object, of parts to the whole—a most valuable faculty in life. (79:86; 85:T1; 189)	**4.75**

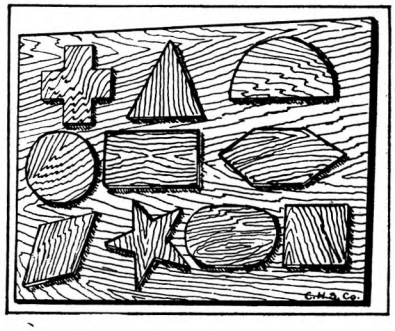
Number | Price

27154. **Picture Form Board, Mare and Foal,** Healy and Fernald; Pintner and Paterson modification. Similar to No. 27153, with the exception that the three geometrical forms shown in the upper left have not been cut out of the picture. See illustration on page 135. (5:390-416; 11:82-83; 23:T87; 163:26-29, 99-102, 188) ..... $ 4.50

27154A. **Form Board,** Maxfield's. The mare and foal board without the picture 4.25

27154S. **Picture Form Board, Mare and Foal.** The same as No. 27154 but put up in a brightly colored cardboard box for the Merrill-Palmer performance tests for children of pre-school age. (219:49-50) 4.75

27155. **Form Board,** Seguin, Witmer, and Sylvester. A modification of the No. 27156 illustrated below. Materially reduced in size and constructed with a tray for holding the insets. The insets, like those of the No. 27156, project above the base board. (23:T85) 25.00



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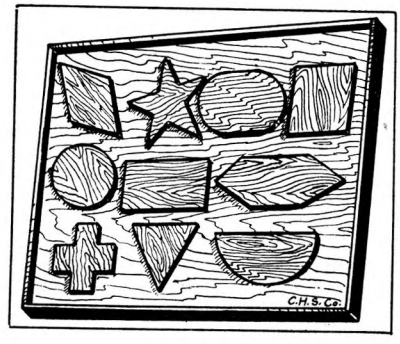
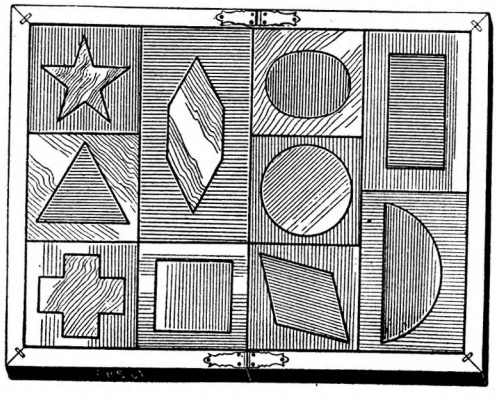
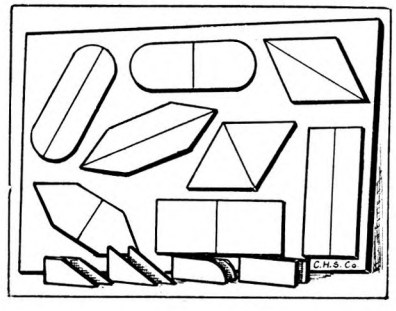


No. 27158.



No. 27160.



No. 27162.

27156. **Form Board,** Seguin and Goddard. This is the large board used at Vineland. It is approximately 13½x18½ in., recessed to hold 10 insets of different geometrical designs. The insets fit into recesses ranging from 3¼ to 6½ in., and project above the base board. (5:390-416; 11:80-81; 23:T84; 71:49-51; 145:T1; 245:511-513; 252; 267:T25B) .. 12.50

27158. **Form Board,** Seguin, Goddard, and Sylvester. An inverted form of the No. 27156, with a rim. (163:30-33; 274:264) 15.00

27159A. **Form Board,** Goddard's. The Drever and Collins modification of the Pintner and Paterson model. (42:C5) 15.00

27159S. **Form Board,** Seguin and Goddard. The Pintner and Paterson "flush" model, with cloth backing, in which the insets when placed in the recesses are flush with the top of the base board. Abandoned by Pintner and Paterson for the Sylvester model but used and standardized by Dr. Stutsman for the Merrill-Palmer performance tests for children of pre-school age. This form board is made of well-seasoned three-ply wood and put up especially for the series of tests referred to above in a brightly colored cardboard box. See illustration on page 135. (219:30-37) 10.25

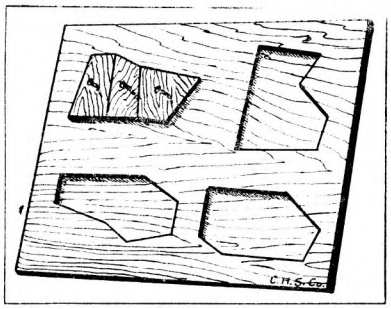
27160. **Form Board.** Cornell. Whipple's modification of the Goddard form board, in which the ten geometrical figures fit into a series of removable blocks, the position of which may be changed at will. The blocks fit into a hinged case which when closed makes an excellent carrying case. (267:T25B) 17.00

27161. **Record Sheet,** Whipple's. For the Nos. 27156 and 27160 form boards. (267:T25B) Per 100 ..... 1.50

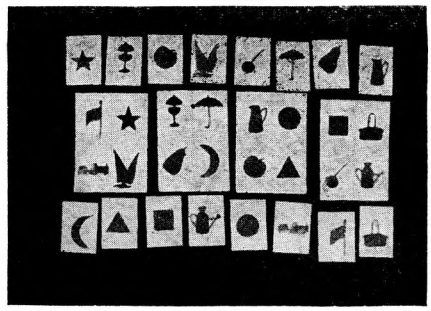
Number — Price

27162. **Form Board,** Dearborn and Anderson. This is a modification of the No. 27156 Seguin and Goddard board, and a combination of the 1A and 1C, using a single base board for both. The insets are cut in half lengthwise; there is a supplementary set of 8 blocks in which these halves are cut crosswise. Base board and insets are stained a dark green and the insets project above the base board. Base and insets are lighter than the No. 27156. (23:T79-80; 33:445-458; 35) ..... **$ 16.50**

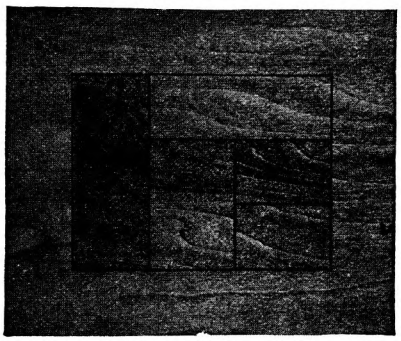
27163. **Picture Form Board,** No. 2. Stutsman's; "Playing Mother." This picture is cut into three irregular pieces and mounted on well-seasoned three-ply wood. Furnished in a brightly colored cardboard box. (219:38-39) **3.50**



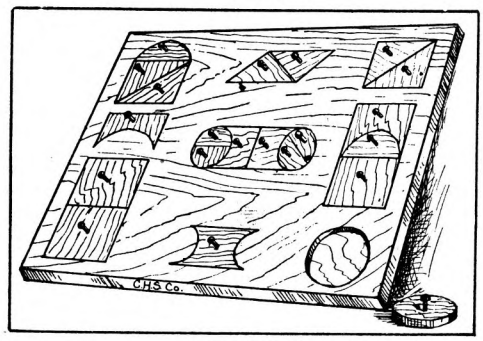
No. 27164.



No. 27171.



No. 27176.



No. 27179.

27164. **Form Board,** Dearborn and Anderson. This is the Reconstruction Puzzle or Form Board 2 of the Dearborn series of form board and performance tests of intelligence used in the Psycho-Educational Clinic of Harvard University. This board contains irregular recesses and is supplied with three insets. The insets are unequally-sided trapeziums which will fill any of the depressions. (23:T105; 33:445-458;35) **6.50**

27165. **Picture Form Board,** No. 3, Stutsman's; "Off to Play." This picture is cut into four irregular pieces and mounted on well-seasoned three-ply wood. Furnished in a brightly colored cardboard box. (219:39-41) **4.00**

27166. **Form Board, Five-Figure,** Pintner and Paterson. A board with five insets. This board, like all of the Pintner and Paterson boards except the No. 27158, is of the "flush" type, with cloth backing to prevent the insets from falling through and at the same time enabling the examiner to easily remove misplaced insets. The insets consist of an oval, a circle, a square, a hexagon, and a cross. The first four are divided into two and the cross into three pieces. See illustration on page 135. (23:T78; 163:34-35) .. **6.50**

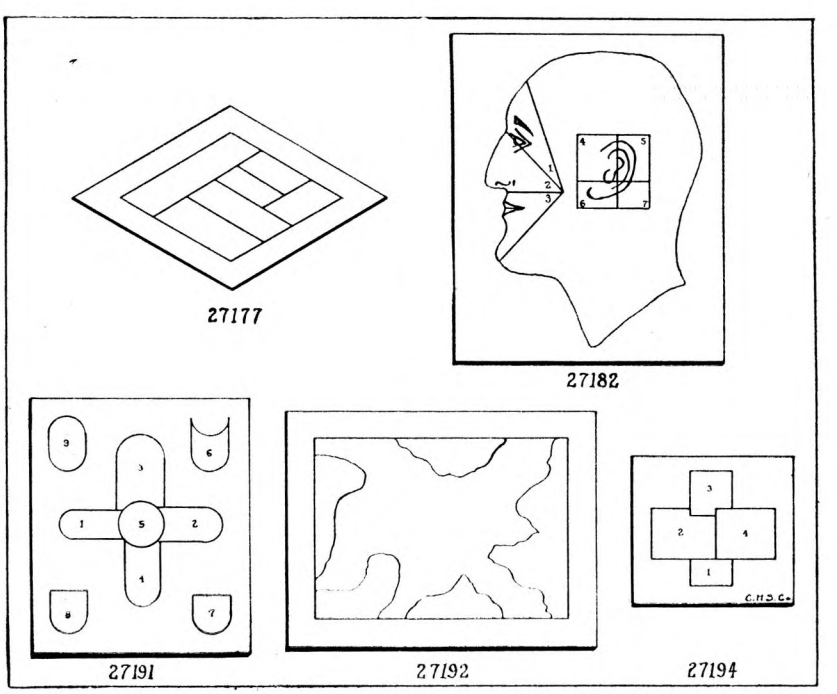
27167. **Form Board, Two-Figure,** Pintner and Paterson. This form board is of the "flush" type, with two insets: a square and a cross. The former is divided into five and the latter into four pieces. Made of well-seasoned three-ply wood with cloth backing. See illustration on page 135. (5:390-416; 23:T90; 163:35-37) **5.00**

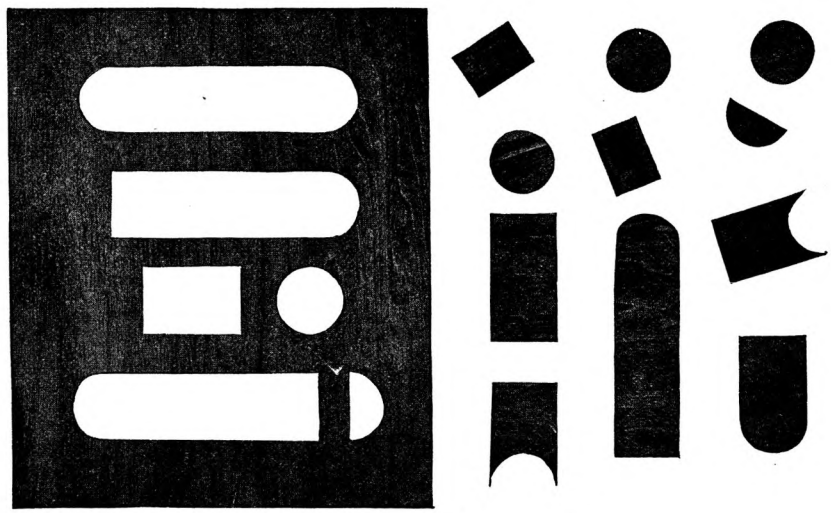
27167A. **Form Board, Two-Figure,** Pintner and Paterson; modified by Drever and Collins. (42:C2) **5.00**

27168. **Form Board, Casuist,** Sprague, and Knox; Pintner and Paterson modification of the No. 27169. There are three circles of different sizes and an elongated oval with sides parallel part of the way. The two larger circles are cut into three and the small circle is cut into two equal segments; the elongated oval is cut into four pieces. "Flush" type, made of well-seasoned three-ply wood with cloth backing. See illustration on page 135. (5:390-416; 23:T71; 163-40) **6.50**

27169. **Form Board,** Sprague and Knox. This is the original model, used as the Twelve Year Test in the Knox series devised for the U. S. P. H. S., Ellis Island, N. Y. It is smaller than the No. 27168 and the twelve sections are numbered to facilitate scoring. Made of well-seasoned three-ply wood with cloth backing. (113) **6.50**

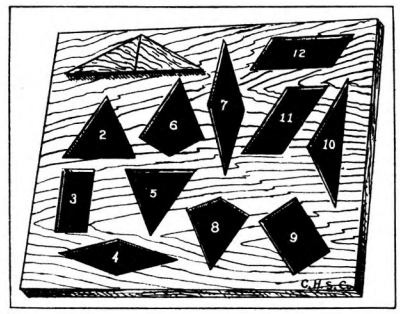
Number		Price
27170.	**Manikin Test, Pintner's.** A conventional figure of a man, such as drawn by children; i.e., a body, two arms, two legs, and a head. The figure is cut out of well-seasoned three-ply wood. Eyes, nose, mouth, cuffs, shoes, coat, collar, and buttons are represented by suitable lines and dots. See illustration on page 135. (5:390-416; 11:115-119; 23:T86; 163:45, 53-55; 287:T2)	$ 3.60
27170S.	**Manikin Test.** The same as No. 27170 but put up in a brightly colored cardboard box for the Merrill-Palmer performance tests for children of pre-school age. (219:50-51)	3.75
27171.	**Matching Game,** Decroly's; Educative Games, Series I, No. 3. A lotto game consisting of four large cards containing sixteen silhouette pictures, four to each card, and a duplicate set of pictures on sixteen small cards one-fourth the size of the large ones. Used by Dr. Stutsman in the Merrill-Palmer performance tests for children of pre-school age. See illustration on page 130. (219:51-54)	1.50
27172.	**Triangle Test,** Gwyn's. A form board with four triangular insets. Made of well-seasoned three-ply wood with cloth backing. This is one of the original tests of the Knox series devised for the U.S.P.H.S., Ellis Island, N. Y. See illustration on page 135. (23:T89; 113; 163:40-41)	2.75
27173.	**Triangle Performance Test,** Dearborn's. A chart and two right triangle blocks. The figures in the chart are smaller than the blocks, which makes direct superimposing impossible and increases the difficulty of the test. (33:445-458)	1.50
27174.	**Form Board, Diagonal,** Kempf's. One of the adult tests of the Knox series devised for the U.S.P.H.S. at Ellis Island, N.Y. A frame with five insets; two right angle triangles, one small right angle triangle, one rectangle, and one large quadrilateral, from the top part of which the small triangle has been cut. Made of well-seasoned three-ply wood with cloth backing. See illustration on page 135. (23:T76; 113; 163:41-43)	2.75
27175.	**Cross Frame Test,** Loughran's. A form board with six beveled insets forming a cross. The board is made of well-seasoned three-ply wood with cloth backing. The ease of solution compares approximately with the No. 27176 Healy and Fernald Construction Puzzle A. (135)	3.50
27176.	**Construction Puzzle A,** Healy and Fernald. A rectangular form board with a rectangular inset of five sections. Made of well-seasoned three-ply wood with cloth backing. Brings out perception of relationships of form, also the individual's method of mental procedure for the given task—particularly his ability to profit by the experience of repeated trials, in contradistinction to the peculiar repetition of impossibilities characteristic of the subnormal or feeble-minded groups. See illustration on page 130. (23:T72; 79:88; 85:T3; 145:T2; 163:44-53; 189; 221:T10,A1.3; 261:214-221)	2.50
27176A.	**Construction Puzzle A,** Healy and Fernald; modified by Drever and Collins. (42:C2)	2.50
27177.	**Diagonal Frame Test.** Something on the order of the No. 27176 Construction Puzzle A, but with six sections instead of five. Made of well-seasoned three-ply wood with cloth backing. The 9 Year Test of the Knox series devised for the U.S.P.H.S. at Ellis Island, N. Y. (113)	3.25





No. 27178.

Number		Price
27178.	**Construction Puzzle B,** Healy and Fernald. A form board devised to show the individual's perception of relationships of form, and also to bring out his power to plan a bit of work; i.e., to show his ability to see the possibility or impossibility of situations before they are actually attempted. The ability to profit by the experiences of trial and success or failure is so important that for its estimation it is distinctly worth while to use a somewhat harder task than that presented by the No. 27176 Construction Puzzle A. (23:T73; 79:89; 85:T4; 145:T3; 189; 261:214-221)	$ 6.50
44065.	**Record Blanks,** O.P.D., Form 1. Devised for recording the time and moves in doing the No. 27178 Healy and Fernald Construction Puzzle B. (23:T73; 85:T4) Per 100	1.50
27179.	**Construction Puzzle,** Dearborn's. This is the Form Board 3 of the Dearborn series of form boards and performance tests of intelligence used in the Psycho-Educational Clinic of Harvard University. Arranged to present four problems of increasing difficulty while at the same time minimizing the possibility of chance placements. See illustration on page 130. (33:445-458; 35:26-29; 265:C2; 287:T5)	10.00
27181.	**Perception Test,** Averill's. A set of 2 cards, each having a different figure. (7:X13)	.25
27182.	**Feature Profile Test,** Knox and Kempf. A form board with insets representing the profile of a head. There are seven pieces exclusive of the main piece. The eyes, nose, and mouth comprise one section; the ear is made up of four sections, all of which can be put in place on the remainder of the head. This is the 13 Year Test of the Knox series devised for the U.S.P.H.S. at Ellis Island, N.Y. See illustration on page 131. (113)	5.00
27183.	**Feature Profile Test.** Knox and Kempf: Pintner and Paterson modification. The basic section of a head with seven small pieces which when fitted together complete the profile. See illustration on page 135. (5:390-416; 23:T77; 163:55-58; 287:T2)	3.75
27185.	**Picture Form Board, Ship,** Glueck's. This is the 13 Year Test of the Knox series devised for the U.S.P.H.S. at Ellis Island, N. Y. A form board with ten rectangular pieces of the same shape, which when correctly fitted into the frame form a four-funneled ship at sea. Made of well-seasoned three-ply wood with cloth backing. See illustration on page 135. (11:122-123; 23:T88; 113; 163:58-61; 287:T1)	5.00
27188.	**Form Board, Triangle,** Dearborn's. A modification of the original test (No. 27173), in which a base board is used. The recesses in the base board are twelve in number and of such shape that both of the triangular insets can be inserted to fill them. The base board has a wood backing and the insets project above the surface. (23:T82; 35:29-32)	15.00
27188A.	**Form Board, Triangle,** Dearborn's; modified by Drever and Collins. (42:C5)	15.00
27189.	**Form Board, Hollow Square,** Lincoln's. This test consists of a rectangular board with eleven pieces, inconspicuously numbered, which provide a number of different problems. (23:T109; 35:32-33)	7.00
27191.	**Imbecile Test,** Knox's. A form board with nine insets of different shapes, each numbered to facilitate scoring. The board is made of well-seasoned three-ply wood with a cloth backing. One of the 6 Year Tests of the Knox series devised for the U.S.P.H.S. at Ellis Island, N. Y. See illustration on page 131. (113)	4.50
27192.	**Geographical or Jig-Saw Test,** Knox's A form board with six insets having irregular margins. Each of the insets is inconspicuously numbered in order to facilitate scoring. Made of well-seasoned three-ply wood with cloth backing. One of the 7 Year Tests of the Knox series devised for the U.S.P.H.S. at Ellis Island, N. Y. See illustration on page 131. (113)	4.50



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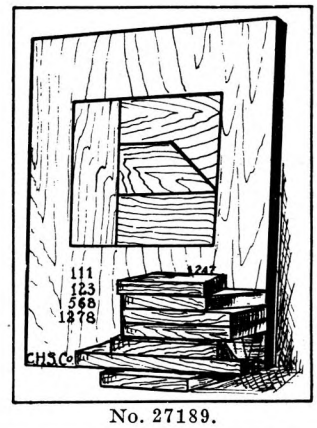

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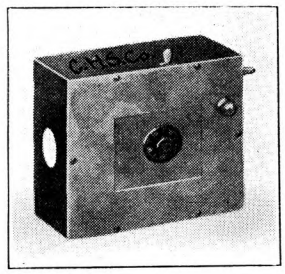

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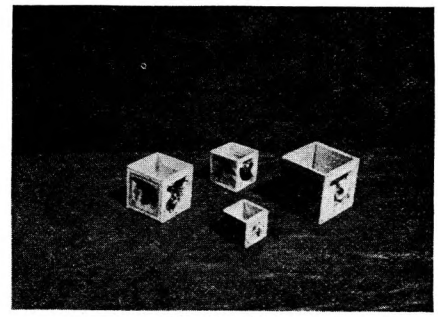


No. 27241.

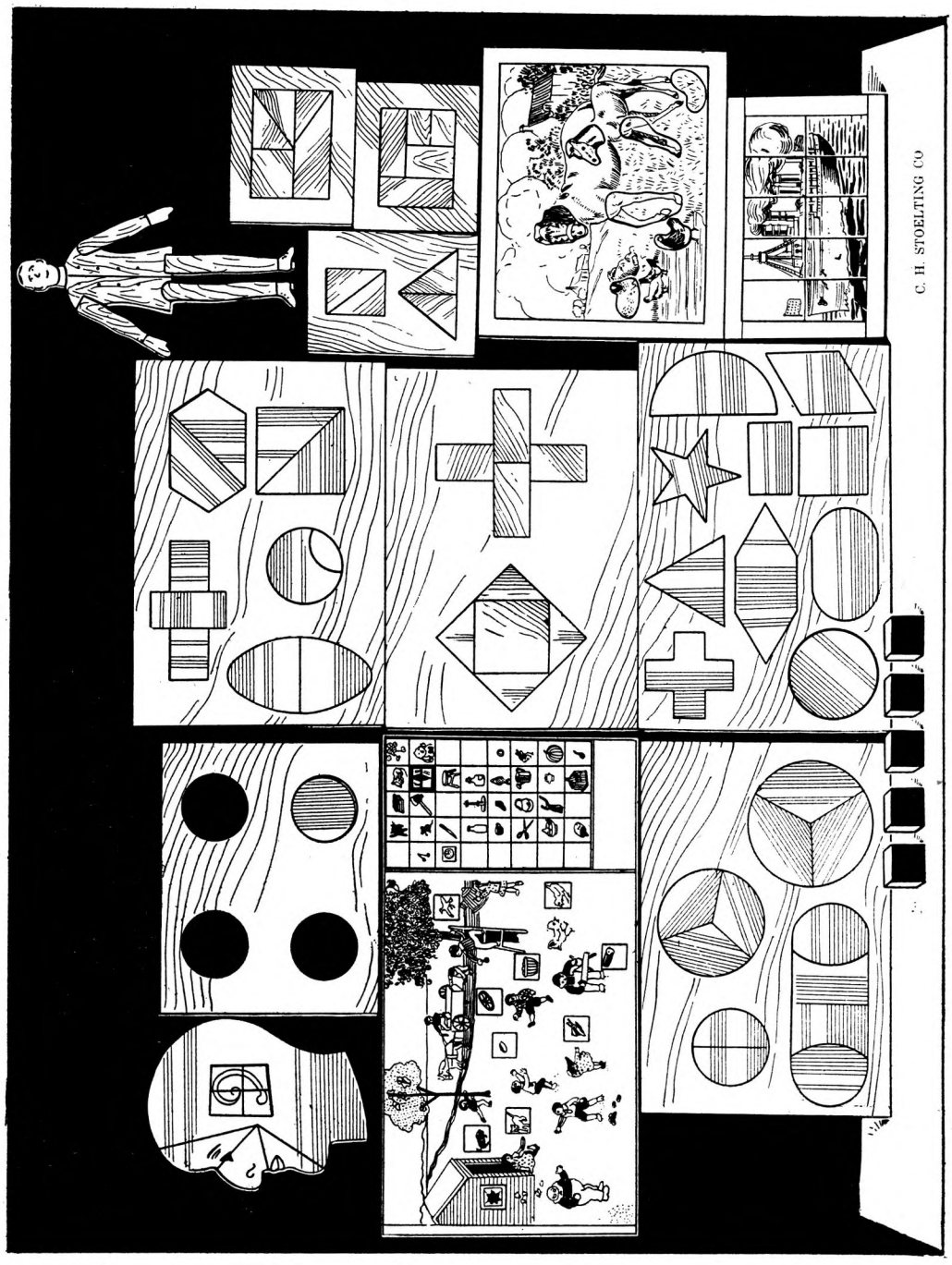
Number		Price
27194.	**Moron Test,** Knox's. This form board has four insets, each numbered to facilitate scoring. Made of well-seasoned three-ply lumber with cloth backing. One of the 10 Year Tests of the Knox series devised for the U.S.P.H.S. at Ellis Island, N. Y. See illustration on page 131. (113)	$ 2.50
27195.	**Maze Test,** Porteus'; original 4 Year (Four-Pointed Star). (11:90-94; 169:200-213; 285:129). Per 100	.80
27196.	**Maze Test,** Porteus'; original 7 Year (Circle with peripheral "Y" paths). (169:200-213; 285;129). Per 100	.80
27198.	**Mirror Script Test,** Forms A and B, Downey's. Per 100 sets	4.50
27199.	**Sticks, Colored.**. Set of 3: red, violet, and blue. (273:X29A). Per set	.15
27205.	**Test Card, Goddard's.** Contains the questions for the Comprehension Test, 4-10 Years; the sentences with absurdities for the Judgment Test, 1-11 Years; and facts for the Problem Test, 5-12 Years. (69)	.15
27207.	**Card Test.** Two heavy Bristol-board cards, 44 x 74 mm., one of which is cut diagonally. (69; 173; 222:T5,5)	.10
27208.	**Card Test,** Yerkes and Foster. A geometrical construction test of six pieces. (285:113)	.20
27209.	**Test Card,** Knox's. A card containing absurdities, a syllogram, and a story solution. One of the 12 Year Tests of the Knox series devised for the U.S.P.H.S. at Ellis Island, N. Y. (113)	.10
27211.	**Picture Interpretation Test,** "The Colonial Home." Used in conjunction with the No. 32117 Cognizing Test as No. 5 of the 12 Year Porteus and Hill modified Binet and Simon scale for measuring intelligence; also used as No. 7 of the 12 Year Terman or Stanford revision. (173; 221:T12, 7)	.10
27217.	**Directions Test, Oral, Easy,** Link's. A card containing instructions and ten questions for use of the examiner. (121:394, 410-411)	.10
27222.	**Directions Test, Easy,** Woodworth and Wells. This is the A Test of the two easy forms. The subject is required, with the aid of his pencil, to do whatever is successively directed in the blank. (261:21, 172, 175-200; 277:C8.) Per 100	.80
27223.	**Directions Test, Easy,** Woodworth and Wells. This is the B Test of the two easy forms. (277:C8). Per 100	.80
27225.	**Directions Test, Hard,** Woodworth and Wells. (261:21, 172, 175-200; 277: C8). Per 100	.80

Number		Price
27228.	**Directions Test,** Pintner and Toops. This is a modification and combination of the Woodworth and Wells Easy and Hard Directions Tests. (J.O.E.P. 1918:123-142; 23:T24). Per 100	$ 1.65
27235.	**Directions Test,** Verbal, Form B, Weidensall's. Consists of ten small metal objects and a printed list of directions. (23:T122; 165:X17; 261:173-175)	.75
27237.	**Directions Test, Verbal,** Form A, Weidensall's. A metal doll's bed, approximately 16 x 30 in., with bedding and directions. (165:X17; 261:173-175)	20.00
27239.	**Instruction Box,** Hayes and Healy. Designed to bring out the capacity which a subject might or might not have for following instructions. Sometimes such information seems very desirable for estimating the subject's probable capacity for holding a position. Such a test is a distinct step toward vocational diagnosis—often a most desirable part of psychopathic work in connection with the court. See illustration on page 133. (23:T104; 79:100; 85:T14)	35.00
27241.	**Nested Cubes, Stutsman's.** Four nested hollow cubes, 2½, 2, 1¾ and 1¼ in. in size. These cubes are made of thin wood, over which brightly colored pictures are pasted. See illustration on page 133. (219:17-19)	.45
27243.	**Detroit Route-Chart,** Cunliffe's. This chart for self-guidance developed out of the need of a counselor for some objective guide for the vocational counseling process. It is intended to furnish very definite and objective suggestions for the thinking of the student who is attempting to solve his problem of vocational choice, and it brings to his attention and demands a record of the factors that influence his decision. Five parts comprise the route-chart: I, Occupational Opportunities; II, Life Motives; III, Direct Influences; IV, Opportunity; and V, Program—What Are You Going to Do? (Preparation—Entrance—Adjustment and Progress). Part I (Occupational Opportunities) is based on Lippman's classification of occupations. It consists of a large chart in which the student's abilities and interests and the occupations demanding those characteristics may be located. The chart itself gives a general occupational description. The other sections of the route-chart are made clear by their headings. (V.G.M. Jan. 1929). Per 25	1.75
	Per 100	5.25
	Knowledge and Comprehension Charts, Emschwiller's. This chart was devised for giving the student an idea of how knowledge and comprehension were acquired from external sources. It is a tabulation of the places of the major senses in obtaining information. It demonstrates the functions of the senses in class-room work, the importance of laboratory work, the fruitlessness of unsystematized study, and the value of using as many senses as fully as possible. Very useful to teachers and students. The chart is put up in three styles: Style A for carrying by individuals; Style B for wall use by small groups; and Style C for wall use by large groups.	
27245A.	**Style A,** 9 x 12 in. White paper with black lettering. Per doz.	.50
	Per 100	3.33
27245B.	**Style B,** 18 x 24 in. Blue-print, with white lettering. Per doz.	2.90
	Per 100	23.33
27245C.	**Style C,** 46 x 60 in. On flexible cardboard. Each	2.37
	Per doz.	15.00
27305.	**Stimulus Cards,** Whipple's. For use with the No. 21210 portable and the No. 21233 disk tachistoscopes. A set of 20 cards, 9 cm. sq., comprising 20 spot patterns: 5 each of 7, 8, 9, and 10 spots. (267:T25A)	.40
27306.	**"Domino" Test,** Drever and Collins. (42:C2)	5.50
27307.	**Scattered "A" Test.** C. U. form. Per 100	.80
27309.	**Apprehension Test,** Tinker's. A set of 30 cards, 11 x 28 in., for studying the span of visual apprehension. Used with the No. 21015 exposure frame. (51A:X21)	16.50
27311.	**Apprehension Test,** Franz's. A set of 41 cards, 2½ x 3 in., containing digits, words, and figures. This set of cards enables the examiner to test the ability of a subject to "take in" or apprehend. (55:81-82; 57:73-75)	.50
27315.	**Labyrinth,** Tait's. A card containing a unicursal labyrinth as a problem for drawing by continuous lines without retracing. (7:X7; 59:X3)	.15

DESCRIPTION—REPORT

29003.	**Description Test,** Whipple's. A large lithograph entitled "Hindoos." (268:T31)	2.75
29103.	**Object Card,** Binet's. For the "aussage" test. A rectangular card to which are attached photographs, label, etc. (268:T32)	3.75
29105.	**Report or "Aussage" Test,** Whipple's. Originally consisting of four large lithographs: "Australians," "A Disputed Case," "Washington and Sally," and "The Orphan's Prayer." A few of these lithographs are no longer obtainable so Dr. Whipple selected the following set of four: "Australians," "Washington and Sally" (hand-colored and larger than the original), "The Orphan's Prayer," and "With a Grain of Salt." (55:145; 57:137; 268:T32)	8.75
29106.	**Report or "Aussage" Test.** "Australians" from No. 29105. (51:X13; 51A:X12)	3.00

Number		Price
29111.	**"Aussage" or Testimony Test,** Healy and Bronner. The butcher shop picture of the No. 32109 Cognizing Test of Goddard's, mounted on cardboard. Used in the Healy and Fernald series of tests to discover the power of a subject to report faithfully what he has seen. (23:T33; 79:84-85; 85:T6; 145:T8).....	$ 0.35
29112.	**Question Blank** for No. 29111 "Aussage" or Testimony Test. (23:T33). Per 100.....	1.50



No. 37046. Pintner and Paterson "Long" Scale.

See page 172 for details.

ASSOCIATION

Number		Price
30003.	**Association Test, Spontaneous,** Wallin's. Consisting of six record blanks (B1, B2, B3, B4, B5, and B6), each containing 30 words with writing space at the right of the words. (D.C. April and May, 1912; 248; 249:257, 275, 313; 251). Per 25 sets	$ 2.00
30005.	**Record Blank.** A form containing numbered spaces for 100 words. To be used with the Uncontrolled Association Test. (268:T33) . Per 100	1.50
30007.	**Association Test, Uncontrolled,** Kent and Rosanoff. For the discrete method. A form printed on both sides, containing a list of 100 stimulus words with spaces for recording responses, their time, and their indices. (51:X19; 51A:X28; 55:124; 57:116; 75:435-436; 107; 183:547-620; 268:T33A). Per 100	2.50
30011.	**Association Test, Uncontrolled,** Kent and Rosanoff. A printed form with 100 stimulus words. (183:547-620; 277:C9). Per 100	1.50
30013.	**Association Test, Uncontrolled,** Rosanoff, Martin, and Rosanoff. An association test devised for subjects with an education beyond the elementary school. (185). Per 100	1.75
30016.	**Objects.** Leach and Washburn. Five, with two boxes. (A.J.o.P. 21, 1910:162-167; 51:X20; 51A:X29)	4.00
30017.	**Stimulus Card.** A list of stimulus words for use in connection with the No. 30016 objects. (A.J.o.P. 21, 1910:162-167; 51:X20; 51A:X29)	.15
30020.	**Association Test,** Averill's. A blank with ten words and spaces for inserting responses. (7:X3). Per 100	.80
30021.	**Association Blanks,** Averill's. A blank form with 100 ruled and numbered spaces arranged in four columns of 25 each. (7:X4). Per 100	1.50
30061.	**Speaking Tube,** Tin, 1 in. diameter. For experimenting with the "train of ideas." The tube is used for connecting a dark room in which the subject is located with the experimenter in an adjoining room. (225:X37). Per 5 ft. lengths	.45
30063.	**Elbow** for No. 30061 speaking tube	.15
30065.	**Association Test,** Freud's. A printed list with space for responses. Per 100	2.00
30070.	**Association Test,** Jung's. A printed form with space for responses. Per 100	2.00
30071.	**Association Test,** Jung's; Eder's modification. A printed form with space for responses. Per 100	2.00
30100.	**Association Test, Controlled,** Whipple's. Consisting of a set of 4 printed forms containing the stimulus words used in the part-whole, genus-species, and the easy and difficult opposites cards. (268:T34). Per 100 sets	3.20
30101.	**Instructional Material No. I,** Woodworth and Wells. A blank providing samples for instructing the subject in the various Woodworth and Wells association tests. (277:C2). Per 100	.80
30102.	**Instructional Material No. II,** Woodworth and Wells. Per 100	.80
30103.	**Association Test, Part-Whole,** Whipple's. Beginning "door, pillow." (268:T34). Per 100	.80
30104.	**Association Test, Genus-Species,** Whipple. Beginning "book, tree." (268:T34). Per 100	.80
30105.	**Association Test, Opposites,** Whipple's. Beginning "bad, inside." (261:142-158; 268:T34). Per 100	.80
30106.	**Association Test, Opposites,** Thorndike's. Beginning "good, outside." (261:142-158; 268:T34; 279:S14). Per 100	.80
30107.	**Association Test, Opposites,** Difficult. Beginning "stupid, hard-working." (268:T34). Per 100	.80
30108.	**Association Test, Opposites,** Burt's. A printed form with 50 words, beginning "old, poor, big." (23:T15). Per 100	.80
30109.	**Association Test, Opposites,** Woolley and Fischer. A set of 8 printed forms with 20 words each, with space opposite the words for recording responses. (268:T34; 279:S14). Per 100 sets	6.40
30110.	**Association Test, Opposites,** Weidensall's. A printed form of 20 words, with spaces opposite the words for recording responses. (261:142-158; 268:T34). Per 100	.80
30111.	**Association Test, Opposites,** King and Gold. A printed form with two lists of 20 words. (23-T16). Per 100	.80
30112.	**Association Test, Opposites,** Whipple's. Consisting of 45 cards: 3 sample cards, a blank cover card, and a set of 20 cards with words comprising the easy list; and a blank cover card with a set of 20 cards with the words comprising the difficult list. (268:T34)	1.50

Number		Price
30113.	**Association Test, Opposites,** Pyle's. A printed form with 20 words, beginning "good, outside," and provided with spaces at the right for recording an equal number of associates. The form is supplied with space for name, age, grade, and sex. (23:T14; 159:T5; 175:28). Per 100	$ 0.80
30114.	**Association Test, Opposites,** Pyle's; Supplementary I. Beginning "long, soft." Per 100	.80
30115.	**Association Test, Opposites,** Pyle's; Supplementary II. Beginning "north, out." Per 100	.80
30116.	**Association Test, Opposites,** Pyle's; Supplementary III. Beginning "best, weary." Per 100	.80
30117.	**Association Test, Opposites,** Pyle's. A printed form of 50 words, provided with spaces at the right for recording an equal number of associations. The form is supplied with space for name, age, grade, and sex. (178:C6; 178A:C6). Per 100	1.50
30118.	**Association Test, Opposites,** Averill's. Two printed forms with spaces opposite each word for recording responses. (7:X18). Per 100 sets	1.60
30119.	**Association Test, Antonyms,** Wallin's. Six record blanks (D1, D2, D3, D4, D5, and D6), each containing 25 words with writing space at the right for recording responses. (D.C. April and May, 1912; 248; 249:257, 275, 313; 251). Per 25 sets	2.00
30121.	**Association Test, Opposites, Hard,** Hackl-Means'. A printed list of 68 words, beginning "full, negative." (23:T17; P.M. 1, 1921). Per 100	1.50
30122.	**Association Test, Opposites,** Tinker's. A list of 50 words with space for writing opposites. (51A:X1). Per 100	1.50
30124.	**Association Test, Opposites, Easy,** Woodworth and Wells. Beginning "high." Twenty of the easiest stimuli that could be found. (268:T34; 277:C7). Per 100	.80
30125.	**Association Test, Opposites, Easy,** Woodworth and Wells; List II. Beginning "north, sour." (268:T34; 277:C7). Per 100	.80
30126.	**Association Test, Opposites, Easy,** Woodworth and Wells; List I. Beginning "long, soft." (23-T18; 268:T34; 277:C7). Per 100	.80
30127.	**Association Test, Opposites,** Rogers'. A printed form of 25 words, constituting part of the No. 42000 Rogers Stenographic and Typing Test listed on page 182. (J.o.A.P.I. 1917:213-216; Ar.o.P. 1922). Per 100	.80
30129.	**Association Test, Opposites,** Healy and Fernald. A printed blank containing 20 words in one column, with sufficient space at the side of each for the response. The sheet is so arranged that the stimulus words may be turned under. (79:87; 85:T15; 145:T11; 189). Per 100	1.50
30131.	**Association Test,** Woodworth and Wells. An attribute—substance or adjective—noun-test. The subject is to supply a noun for each adjective. The list begins "sharp, hot." (277:C7). Per 100	.80
30137.	**Association Test,** Woodworth and Wells. An action—agent test, in which a suitable subject is to be supplied for each verb. The list begins "gallops, fights." (277:C7). Per 100	.80
30138.	**Association Test,** Woodworth and Wells. An action—agent test; revised by Dr. Stutsman for the Merrill-Palmer performance tests for children of pre-school age. A card with 20 verbs arranged in the order of difficulty. (219:41-47)	.20
30143.	**Association Test,** Woodworth and Wells. An agent—action test, in which the subject has to append a verb to each noun. The list begins "baby, fire." (277:C7). Per 100	.80
30149.	**Association Test,** Pyle's. A genus—species test, consisting of a form with 20 words. Provided with space at the right for recording an equal number of words in the same class or species. Supplied with space for name, age, grade, and sex. (23:T7; 175:29-30). Per 100	.80
30150.	**Association Test,** Woodworth and Wells; Pyle's Supplementary Test I. The same as No. 30157 with the exception that the form is supplied with space for name, age, grade, and sex. (175:30-31). Per 100	.80
30155.	**Association Test,** Whipple's. A genus—species test, consisting of 24 cards: 3 cards with sample words, a blank cover card, and 20 cards with words. (268:T34)	.75
30157.	**Association Test,** Woodworth and Wells. A subordinate concept or genus—species test. The subject has to name some object belonging to each class. The list begins "color, holiday." (277:C7). Per 100	.80
30161.	**Association Test,** Woodworth and Wells. A supraordinate concept or species—genus test, in which the subject is to name the class to which each object belongs. The list begins "oak, measles." (277:C7). Per 100	.80
30163.	**Association Test,** Baldwin and Stecher. A picture genus test devised for the study of the pre-school child. Consisting of 40 small pictures of common objects pasted on 1½ in. square cards. The child is required to classify the various objects in terms of their species. The test is on the order of the Woodworth and Wells Subordinate—Supra-ordinate. (11:133-134). Per set	2.00

Number		Price
30164.	**Sorting Box,** Baldwin and Stecher. With 8 compartments. For the No. 30163 Picture Genus Test. (11:133-134)	$ 2.00
30165.	**Association Test, Analogies,** Whipple's. Four sets of cards; a 7-card sample set and 3 additional sets each consisting of a blank cover card and 20 cards with graded stimuli (70 cards in all). (268:T34A)	2.50
30166.	**Recording Blank,** Whipple's. For registering time and incorrect answers for the No. 30165 Analogies Test. (268:T34A). Per 100	1.50
30169.	**Association Test,** Woodworth and Wells. A mixed relations or analogy test. The first two words indicate the relations required, and the subject supplies the word standing in the same relation to the third word as the second stands to the first. List I begins "Eye—see : : ear—.... (23:T116; 277:C7). Per 100	.80
30170.	**Association Test,** Woodworth and Wells. A mixed relations or analogy test. List II begins "Good—bad : : long—.... (23:T116; 277:C7.) Per 100	.80
30171.	**Association Test, Pyle's.** A part—whole test consisting of a form with 20 words and provided with spaces at the right for recording an equal number of words which name parts of the things. The form is supplied with space for name, age, grade, and sex. (23:T19; 175:31-32). Per 100	.80
30172.	**Association Test,** Woodworth and Wells, Pyle's Supplementary Test I. Like the No. 30177 except that the blank has space for name, age, grade, and sex. (175:32-33; 277:C7). Per 100	.80
30175.	**Association Test,** Whipple's. A part—whole test consisting of 24 cards; 3 cards with sample words, a blank cover card, and 20 cards with words. (268:T34)	.75
30177.	**Association Test,** Woodworth and Wells. A part—whole test in which the subject has to name the whole object of which a part is given. The list begins "elbow, hinge." (175:32-33; 277:C7). Per 100	.80
30179.	**Association Test** Woodworth and Wells. A whole—part test in which the subject has to name a part of each object named. The list begins "apple, clock." (277:C7). Per 100	.80
30183.	**Association Test,** Woodworth and Wells. A verb—object test in which the subject has to respond with a suitable object for each verb. This is the easiest of the series of 3 and the revised list begins "read, bake." (277:C7). Per 100	.80
30184.	**Association Test,** Woodworth and Wells. A verb—object test beginning "sing, build." (277:C7). Per 100	.80
30185.	**Association Test,** Woodworth and Wells. A verb—object test beginning "read, tear." (277:C7). Per 100	.80
30189.	**Association Test,** Wallins. Immediate reproduction of determinate sequents associated with determinate antecedents. Six stimulus sheets of paired associates: G1, G2, G3, G4, G5, and G6. (D.C. April and May, 1912; 248: 249:257, 275, 313; 251). Per 25 sets	1.25
30197.	**Association Test, Speech—Object,** Franz's. A box with common objects, colors, and pictures; a 2½ x 3 in. card with name of each object, color, and picture and a number of simple sentences. This box of material will be found very convenient for testing patients with aphasia. The neurologist will appreciate the advantage of having in one box all the necessary material for the careful testing of visual aphasia, apraxias, and asteriognosis. (55:59-69; 57:53-62)	10.00
30198.	**Association Test, Cause and Effect,** Woolley's; Series I. A card containing pairs of words in which the first word is the cause and the second the effect. (23:T2; 279:131-138)	.10
30203.	**Association Test, Calculation,** Franz's. A set of 6 forms, consisting of the following: 10 single digits, 2 single digits in series, 2 digit figures in series, 3 digit figures, 5 digit figures in series, and a simple arithmetical test for addition, substraction, multiplication, and division. (55:127-130; 57:119-122). Per set of 25	1.25
30207.	**Association Test, Mental Arithmetic,** Franz's. A series of problems on a card. (55:130; 57:122)	.12
30209.	**Association Test (A), Addition,** Whipple's. This is the first of a series of 5 association tests. This one is a booklet of 14 pages, 7½ x 10½ in., containing several thousand one-place digits in vertical columns with a line separating each ten digits. (268:T35)	.30
30210.	**Association Test (B), Addition,** Whipple's. A printed form containing 20 columns of 15 two-place digits. (268:T35). Per 100	.80
30211.	**Association Test (C), Addition,** Whipple's. A printed form containing 10 columns of 20 two-place digits. (268:T35). Per 100	1.50
30212.	**Association Test (D), Addition,** Whipple's. A printed form containing 20 columns of 20 two-place digits. (268:T35). Per 100	1.50
30213.	**Association Test (E), Addition,** Whipple's. A printed form containing 20 examples in multiplication. The multiplicand has 20 figures and the multiplier, 1. (268:T35)	1.50

Number		Price
30215.	**Association Test, Addition,** Wallin's. Six record blanks (C1, C2, C3, C4, C5, and C6), each containing 32 columns of 10 one-place digits. (D.C. April and May, 1912; 248; 249:257, 275, 313; 251). Per 25 sets	$ 2.00
30216.	**Number—Checking Test,** Form A, Woodworth and Wells. This is a cancellation test but the authors prefer that the test be known by an individually descriptive title rather than a somewhat vaguely defined mental function with which it may be related. (47:542; 165:X4; 277:C3). Per 100	.80
30217.	**Number—Group Checking Test,** Form B, Woodworth and Wells. A variant of the No. 30216 Form A. In this test the subject is required to mark each group containing a specified digit or a specified pair of digits, etc. (277:C3). Per 100	1.50
30219.	**Association Test, Addition,** Kraepelin's. The subject has to go down the columns adding each digit with the next following digit, doing 25 sums for each column. A group of four columns makes a suitable test. (277:C4). Per 100	.80
30220.	**Key** for the No. 30219 Kraepelin Addition Test. To be used by the experimenter in checking the work done and noting errors. (277:C4). Per 100	.80
30223.	**Constant Increment Test,** Kraepelin's. An addition test of 100 two-place digits, in which the subject is required to add 4 to each number. (23:T100; 277:C4). Per 100	.80
30224.	**Association Test, Arithmetical,** Shakow and Kent. The problem is to find out how the numbers are made up in each row and then to write the two numbers which come next. (23:T1). Per 100	.80
30491.	**Glasses, Colored,** 50 x 70 cm. Set of 4; red, green, blue, and yellow. (273:X13B)	* 12.00
30492.	**Disks,** Metal. Set of 3; size of half-dollar. (273:X19A)	.25

LEARNING—HABIT FORMATION

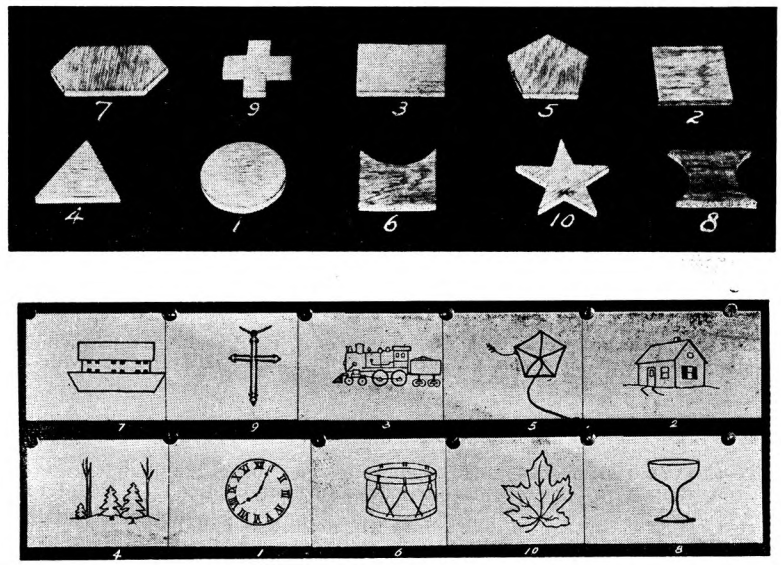
31006.	**Substitution Test, Digit—Symbol,** Averill's. A blank sheet with the digits 1 2 3 4 5 6 7 8 9 0 at the top. Used with a code such as the No. 31036 Cross Line Test B. (7:X1). Per 100	.80
31007.	**Substitution Test,** Thurstone's. A learning test of slightly different design from those in common use. It consists of a double sheet containing 30 columns of letters followed by a digit. The words of which the letters are the initials are placed at the top of the sheet. The examinee's problem is to put the last letter of the proper word after the digit which follows the initial letter. The sooner the examinee is able to refrain from referring to the words at the top of the list, the more rapid of course his progress in completeing the test. (23:T121.) Per 100	5.00
31012.	**Cover Board,** 7x14 in., with a key at the bottom. The key consists of nine circles, each with a digit and symbol such as a square, asterisk, etc. (268:T37.) Each	.15
31014.	**Substitution Test,** Whipple's. A printed form with 40 five-place series of symbols, in one column, in groups of five. (268:T37.) Per 100	1.50
31015.	**Substitution Test,** Whipple's. A form with nine circles at the top, each circle containing a symbol and a digit. Underneath are two columns of digits, five in a group, with five squares at the right of each group. (268:T37.) Per 100	1.50
31018.	**Key,** Pyle's. For use with the No. 31028 Digit—Symbol Test. (176:X6.) Per 100	3.35
31018A.	**Key,** Pyle's. With additional combinations; for use with the No. 31028 Digit—Symbol Test. (176:X6.) Per 100	3.35
31019.	**Key,** Whipple's. Ten cardboard slips with nine geometrical forms on each. Used in connection with the No. 31021 Substitution Test. (261:107-118; 268:T37; 279:79-87, 253; 281:S12)	.40
31021.	**Substitution Test,** Woolley and Fischer. Four printed forms, each containing a different arrangement of nine geometrical forms. Each of the four forms contains ten rows of five of the forms. (261:107-118; 268:T37; 279:79-87, 253; 281:S12.) Per 100 sets	3.20
31025.	**Substitution Test, Symbol—Digit,** Pyle's. A modification of the No. 31014 Whipple Substitution Test. A form with nine circles at the top, each circle containing a symbol and a digit. Underneath are two rows of symbols, five in a group, with five squares at the right of each group. The form is supplied with space for name, age, grade and sex. (159:T3; 175:18-22; 268:T37.) Per 100	1.50
31026.	**Substitution Test, Digit—Alphabet,** Pyle's. A modification of the Whipple Substitution Tests. Consisting of a form with nine circles at the top, each circle containing a symbol and a letter. Underneath are two columns of digits, five in a group, with five squares at the right of each group. (178:C2.) Per 100	1.50
31027.	**Substitution Test, Digit—Symbol,** Pyle's. A modificaton of the No. 31015 Whipple Substitution Test. Supplied with space for name, age, grade, and sex. (7:X21; 23:T38; 159:T2; 175:18-22; 268:T37.) Per 100	1.50

Number		Price
31028.	**Substitution Test,** Digit—Symbol Test, Pyle's. A test in which symbols are to be substituted for digits. Used in connection with the Nos. 31018 and 31018A Keys. (176:X6.) Per 100	$ 1.50
31029.	**Substitution Test, Digit-Symbol,** Army. (265:C1-2; 287:T4) Per 100	.80
31032.	**Learning Test, Arbitrary Association,** Healy and Fernald. Used to get a gauge of the powers of attention and the ability of a subject to establish a comparatively easy set of associates. (85:T8; 189.) Per 100	.80
31033.	**Substitution Test, Letters,** Link's. A learning test designed to discover the potential ability of a subject to learn typewriting, etc. (121:91, 394, 413-414.) Per 100	2.50
31034.	**Substitution Test,** Link's. A form with mixed letters and numbers. Designed to test individual innate or natural ability. (121:79, 177, 394, 414-415.) Per 100	1.50
31035.	**Cross Line Test A,** Macmillan's. A card on which is printed an X, with figures between the lines forming the four angles. The subject is required to transpose the different parts of the form into required figures. One of the Healy and Fernald series of tests for practical mental classification. (85:T9; 189.)	.10
31036.	**Cross Line Test B,** Healy and Fernald. A modification of the No. 31037 Code Test, in which figures are used in place of letters. (23:T4; 85:T10.)	.10
31037.	**Code Test,** Healy and Fernald. A Civil War code made up of cross lines. Like the No. 31036 but using letters instead of digits. (85:T11.)	.10
31038.	**Code Test,** Yerkes'. A modification of the No. 31037 Civil War Code Test. (285:112.)	.20
31039.	**Substitution Test, Numbers,** Link's. A test similar to Nos. 31033 and 31034, except that it is made up entirely of numbers. (121:394, 423.) Per 100	1.50
31040.	**Learning Test,** Strong's. A form containing a Spanish vocabulary of 25 words. (217:L10, 12.) Per 100	.80
31041.	**Tally Sheet,** Strong's. For recording the subject's responses to No. 31040. (217:L10,12.) Per 100	1.50
31042.	**Learning Test,** Strong's. A form containing a Japanese vocabulary of 25 words. (217:L10, 12.) Per 100	.80
31043.	**Tally Sheet,** Strong's. For recording the subject's responses to No. 31042. (217:L10, 12.) Per 100	1.50
31044.	**Learning Test, Arithmetical,** Strong's. Two forms: B and BX. Used for learning simple combinations. (217:L22.) Per 100	3.00
31045.	**Substitution Test,** Woodworth and Wells. One of the two "naming" tests of the association series. A form with geometrical figures. (165:X5; 277:C5.) Per 100	1.50
31047.	**Substitution Test,** Pintner and Paterson. The upper half of the No. 31045 Woodworth and Wells Form Naming or Substitution Test. (163:63-65.) Per 100	.80
31048.	**Learning Test, Rational,** Peterson's. A sheet with seven sets of tests I and II. (51A:X18.) Per 100	1.50
31050.	**Learning Test, Ideational,** Pyle's. Six forms with graded stories. A and B are used for high school grades; C and D for Grades 6, 7, and 8; E and F for Grades 4 and 5. (23:T41; 177:C7.) Any story per 100	.80
31052.	**Learning Test, Auditory,** Pyle's. A card containing the story of "The Fabled Island of Labdamon." (178:C6.)	.10
31053.	**Question Blank,** Pyle's. A series of questions concerning the No. 31052 Learning Test. (178:C6.) Per 100	.80
31055.	**Learning Test, Visual,** Pyle's; Form A. A selection to be read by the student. (178:C6.) Per 100	1.50
31056.	**Question Blank,** Pyle's. A series of questions designed to discover how much has been retained of No. 31055. (178:C6.) Per 100	.80
31057.	**Learning Test, Visual,** Pyle's; Form B. Another selection to be read by the student. (178:C6.) Per 100	1.50
31058.	**Question Blank,** Pyle's. A series of questions designed to discover how much has been retained of No. 31057. (178:C6.) Per 100	.80
31060.	**Substitution Test,** Letter—Digit, Tinker's. A blank with two sets of stimulus material. (51A:X13.) Per 100	1.50
31061.	**Substitution Test, Letter,** Poffenberger's. In this test a series of letters is to be given another letter value. (165:X5.) Per 100	1.50

Number		Price
31062.	**Learning Material,** Poffenberger's. Two forms with 4, 8, 12, and 16 nonsense syllables. (165:X7.) Per 100 sets	$ 1.50
31063.	**Nonsense Syllables,** Poffenberger's. A form with two sets of four columns of nonsense syllables. (165:X9.) Per 100	1.50
31064.	**Learning Material,** Poffenberger's. A series of 12 forms, each containing 12 lines of poetry, all of equal difficulty. (165:X13.) Per 100 sets	4.50
31066.	**Nonsense Syllables,** Averill's. A card with 15 syllables. (7:X17.) Per 25	4.50
31072.	**Poetry and Nonsense Verses,** Foster's. A form devised for memory investigation. (51:X17-18; 51A:X16-17.) Per 100	1.50
31073.	**Turkish—English Vocabulary,** Foster's. Another form devised for memory investigation. (51:X17-18; 51A:X16-17.) Per 100	1.50
31074.	**Chinese—English Vocabulary,** Foster's. A set of 4 cards with 24 Chinese words and their English equivalents on each. To be shown to the class at the rate of one pair per 3 seconds. (51:X17-18; 51A:X16-17.)	.80
31075.	**Poetic Selections,** Foster's. Two forms: "Alice Brand" and "John Gilpin's Ride." (51:X17-18; 51A:X16-17.) Per 100 sets	1.00
31076.	**Learning Test, Verbatim,** Pyle's. For use with the No. 21233 disk tachistoscope. A set of 10 cards, each with a different four-line stanza of poetry. (176:X11.)	2.75
31077.	**Learning Test,** Pyle's. A set of 5 cards with nonsense syllables. For use with the No. 21105 memory apparatus. (176X12.)	5.00
31078.	**Word Cards,** Pyle's. A set of 5 cards with words of one syllable. For use with the No. 21105 memory apparatus. (176:X13.)	7.00
31079.	**Learning Cards, Associative,** Pyle's. A set of 48 cards comprising four different series of couples. For hand exposure. (176:X14.)	8.00
31080.	**Learning Test, Verbatim,** Pyle's. A set of 4 poems. (176:X15.) Per 25 sets	1.00
31081.	**Learning Test, Auditory, Verbatim,** Pyle's. A card on which is printed a poem of nine stanzas of four lines each. For auditory presentation. (176:X16.)	.25
31082.	**Learning Test, Ideational,** Pyle's. A set of 4 prose selections. For visual presentation. (176:X17.) Per 25 sets	1.00
31083.	**Questionnaire,** Pyle's. Four printed forms covering the No. 31082 prose selections. (176:X17.) Per 25 sets	.80
31084.	**Learning Test, Auditory, Ideational,** Pyle's. An article, "Painless Thinking," printed on cardboard. For use of the instructor. (176:X18.)	.25
31085.	**Questionnaire,** Pyle's. A form of questions on No. 31084. (176:X18.) Per 100	.80
31086.	**Learning Test,** Averill's. A set of 2 forms containing prose selections. For studying free and forced attention. (7:X20.) Per 25 sets	1.00
31087.	**Learning Test,** Averill's. A form consisting of 36 problems for multiplication, with sufficient space under each for performing the operation. Designed for studying the effect of fatigue on concentration. (7:X24.) Per 100	1.00
31088.	**Nonsense Syllables,** Averill's. A learning test consisting of 2 cards with a column of nonsense syllables on each. (7:X24.) Per 25 sets	2.50
31089.	**Monosyllabic Word Lists,** Averill's. A set of 2 cards with a column of monosyllables on each. (7:X25.) Per 25 sets	2.25
31090.	**Nonsense Syllables,** Averill's. Two forms of 10 syllables each. (7:X26.) Per 100 sets	1.60
31091.	**Meaningful Words,** Averill's. Two forms of 10 syllables each. For studying meaningful versus nonsense material. (7:X26.) Per 100 sets	1.60

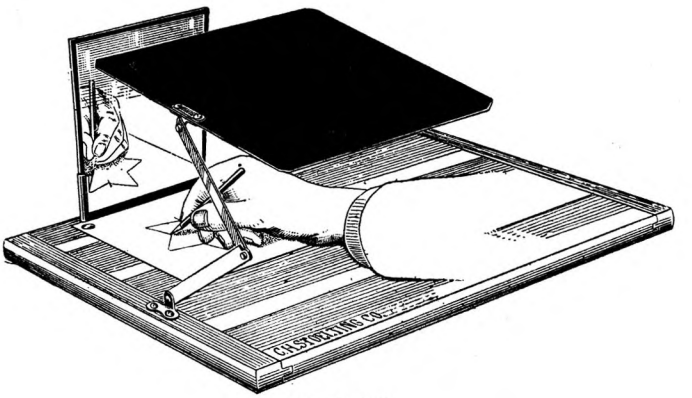
31092. **Learning Test, Association,** Kirkwood's. One of the few tests devised to study how young children learn. Comparatively little has been done along this line, and under the circumstances investigators will find this test a very desirable addition to their equipment.

The material for this experimental study of learning through the process of association reaction consists of a series of 20 blocks and a series of 20 simple outline pictures, 3x5 in. With one exception, possibly, the pictures are of objects with which every child is familiar. Each picture suggests the block with which it is to be associated in the experiment, and this facilitates the formation of associations. The plan of having a certain similarity between block and picture was decided upon in order that the learning involved would not be too difficult for pre-school children. The approach to the study of the problem was made through blocks and pictures because of the universal appeal that these have for young children.



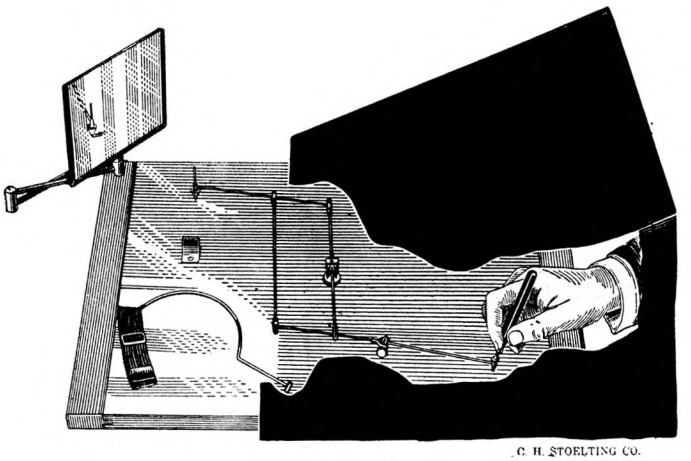
No. 31092.

Number		Price
	Data have been gathered on learning the material according to various forms of presentation; on learning it on successive days as compared with learning it on alternate days; and on re-learning the material after an interval of one year. The study referred to below gives complete description of the material; directions for administering; data on each of the phases of the problem stated above; an analysis of the associations as shown by correct and incorrect responses of the children; order of difficulty in forming the associations; types of learning curves; correlations between general intelligence and learning; correlations between the Association Learning Test and other psychological tests; and a study of the reactions to the material of a selected group of adults as compared with the reactions of pre-school children. It contains also suggestions for using the material in ways that have not as yet been tried. (109)..	$ 5.00
14024.	**Record Blanks,** Kirkwood's. For the No. 31092 Association Learning Test. Per 100...	1.70
14025.	**Record Cards, Cumulative,** Kirkwood's. For the No. 31092 Association Learning Test. Per 25	1.25
31093.	**Learning Test B,** Healy and Bronner. A card with a key and six rows of five symbols arranged in varying order. (23:T43.).....	.20
31094.	**Learning Test C,** Healy and Bronner. A key and a set of 7 designs mounted on 1 in. wooden cubes. (23:T44).....	.80
31095.	**Learning Test D,** Healy and Bronner. A set of 2 pictures: A and B. (23:T45.).....	.40
31096.	**Learning Test Z,** Healy and Bronner. A form with a detachable key and six rows of eighteen symbols in varying order. (23:T46.) Per 100.....	1.70
31203.	**Mirror-Drawing Test,** Whipple's. A six-pointed star printed in red, on cardboard. For use with the No. 31213 mirror—drawing apparatus. (7:X5; 165:X1; 261:222-227; 268:T36.) Per 100.....	2.25
31204.	**Mirror-Drawing Test,** Strong's. A double-ruled, six-pointed star printed in red, on paper. For use with the No. 31213 mirror—drawing apparatus. (217:L6.) Per 100..	1.00
31205.	**Mirror-Drawing Test,** Whipple's. A six-pointed star printed in red, on paper. For use with the No. 31213 mirror—drawing apparatus. (268:T36.) Per 100.....	1.00
31206.	**Scoring Stencil,** Israel's. Made of celluloid. For the Nos. 31203 and 31205 Mirror—Drawing Tests. This stencil gives a quick and uniform method of counting errors, and makes scoring possible at any convenient time after completion of the tracings. The stencil is fitted over the star by means of the guide line at the points. (J.o.E.P. Nov. 1925.)	1.00
31207.	**Scoring Stencil,** Israel's. Made of celluloid. Devised for the Nos. 31204 and 31211 Strong and Foster Mirror—Drawing Tests. (J.o.E.P. Nov. 1925.).....	1.00
31208.	**Mirror-Drawing Test,** Pyle's. A special form, printed in black, on paper. For use with the No. 31213 mirror—drawing apparatus. (176:X2.) Per 100.....	1.00
31209.	**Mirror-Drawing Test,** Whipple's. A series of 6 cardboard forms with figures of graded degrees of difficulty. The figures are made up of broken lines, printed in red. For use with the No. 31213 mirror—drawing apparatus. (268:T36.) Per 50 sets.....	6.00



No. 31213.

Number		Price
31210.	**Mirror-Drawing Test,** Whipple's. The same as No. 31209, but printed on paper. (268:T36.) Per 50 sets	$ 3.00
31211.	**Mirror-Drawing Test,** Foster's. A form with two double-ruled, six-pointed stars printed in black. For use with the No. 31213 mirror—drawing apparatus. (51:X8; 51A:X15.) Per 100	2.00
31213.	**Mirror-Drawing Apparatus,** Whipple's. A large wood base, on which is mounted a mirror and an adjustable bracket carrying a three-ply wood screen which may be inclined at any angle necessary to prevent the subject from observing any of the hand movements outside of those seen in the mirror. This is a well made piece of apparatus, compact, inexpensive, and convenient. The mirror is readily removable, and the adjustable bracket with the screen may be placed horizontally to facilitate storage. The tests are attached to the base by means of thumb-tacks. (7:X5; 51:X8; 99:322; 165:X1; 176:X2; 217:L6; 261:222-227; 268:T36.)	6.25
31214.	**Mirror-Drawing Test, Electric,** Wells'. A cement base with two concentric six-pointed stars made of brass, leaving a non-conducting cement path between the two forms. The concentric forms are connected electrically so that the moment the subject establishes contact by means of the stylus with either the inside or the outside form, the number of contacts may be recorded by means of a counter, or signalled by means of a bell, buzzer, or sounder	60.00



No. 31215.

31215. Mirror-Drawing Apparatus, Freeman's. For stylus and hand-tracing. The learning process in this experiment consists in adapting simple hand movements to the drawing of a series of lines to connect a group of dots, when the relation between the direction of the hand movements and the direction of the movement of the hand which produces the line is different from that to which one is accustomed. The modification in the relationship between the hand movement and the resulting pen movements is made by means of a mechanism, the study of which is left to the subject. In addition to the modification produced by this mechanism, the apparent direction of the pen movement is changed, not by mechanical adjustments but by the use of a mirror. By varying the position of the mirror, this apparent direction may be changed at will.

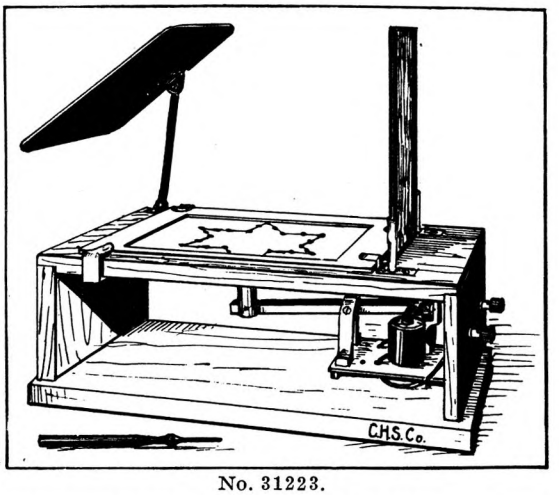
Number | Price

The illustration shows the hand using the stylus attachment. There is also supplied an attachment with a hand-band which can be readily substituted. This attachment is shown on the lower left of the base. The apparatus should be placed so that the long side of the base is parallel to the edge of the table, with the subject facing the opposite edge, and the handle in convenient position for manipulation by the right hand. (59:X12, 47) ..... $ 45.00

31216. **Stimulus Card No. I,** Freeman's. For use with the No. 31215 mirror—drawing apparatus. (59:X12, 47.) Per 100 ..... 1.00

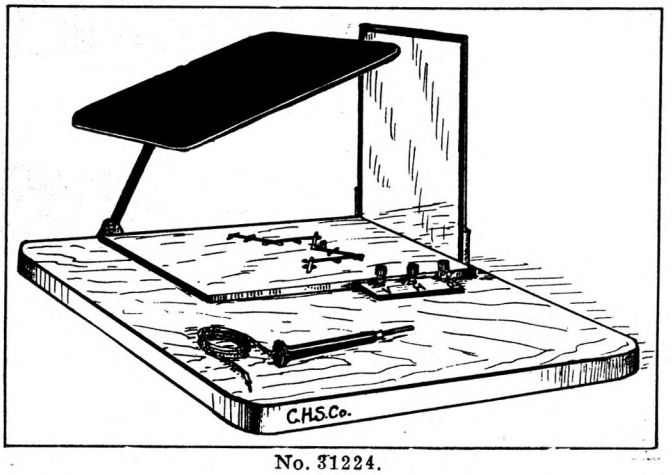
31217. **Stimulus Card No. II,** Freeman's. For use with the No. 31215 mirror—drawing apparatus. (59:X12, 47). Per 100 ..... 1.00

31221. **Sorting Test, Card,** Averill's. A set of 9 boxes and a pack of 54 numbered cards. (7:X2) 10.00



No. 31223.

31223. **Mirror-Drawing Apparatus,** Gopaleswami's. A modification of the Snoddy apparatus. Devised to verify experimentally such important theories as those advanced in recent years by Watson, Perrin, Snoddy, and others, as to the general nature of motor learning. The apparatus consists of a box-like base, open at the sides, supporting on the top a mirror, an adjustable screen, and a frame with a star pattern on a piece of tracing cloth, held tightly over a series of electrical contacts, over which the subject's stylus must pass in drawing the star. Inside the base is an electric hammer which, when put in circuit with a metronome, makes an electric contact every second. At each contact the hammer hits the plate. Between the plate and the star pattern a sheet of paper and a sheet of carbon are inserted. By this means a record is made of all the movements of the stylus over the pattern. Furthermore, the various positions at which the stylus rests at the end of every second may be seen on the carbon tracing as thick dots. (B.J.o.P. Jan. 1924: 274-282; P.M. 124, 1920; 27:221-223) 82.00

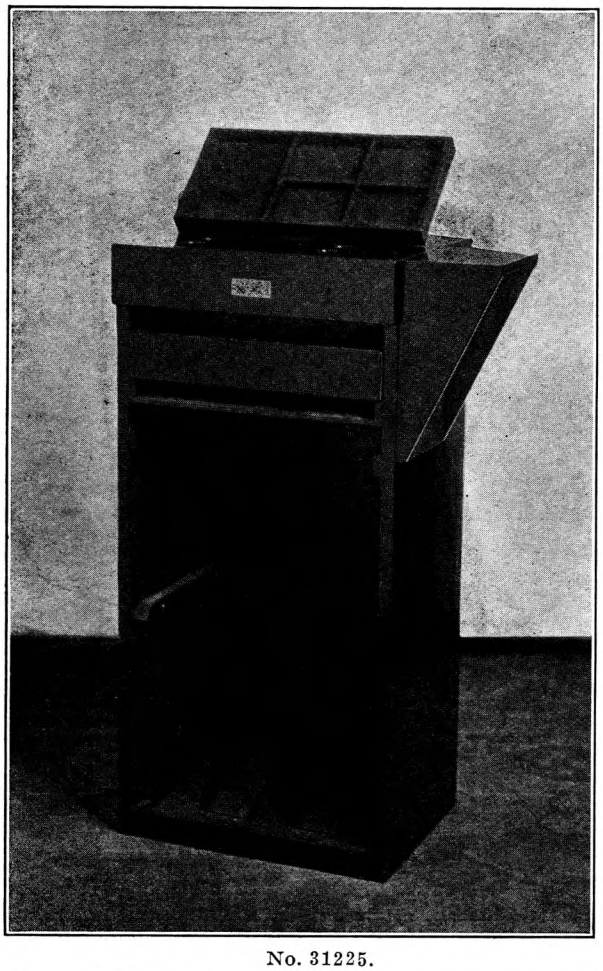


No. 31224.

31224. **Mirror-Groove Apparatus,** Gopaleswami's. This apparatus was devised to observe the effect of reducing to a minimum all the opportunities of the subject to change

Number Price

the nature of an erroneous response. The apparatus, of the general form of the No. 31213, has the upper section of a star pattern with electrical contacts located where the star blank is usually placed. The star pattern has a narrow groove cut into it, and along the side of the groove a number of blind alleys at various critical points and turnings. The blind alleys are intended to catch those subjects who simply react on the basis of normal and habitual co-ordination between hand and eye. These blind alleys are 26 in number: 10 Habits, 8 Opposites, and 8 Variables. See illustration on page 144. (B.J.o.P. Jan. 1924:282-285) ..... **$ 76.00**



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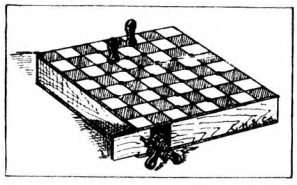

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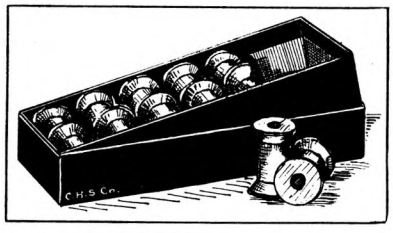

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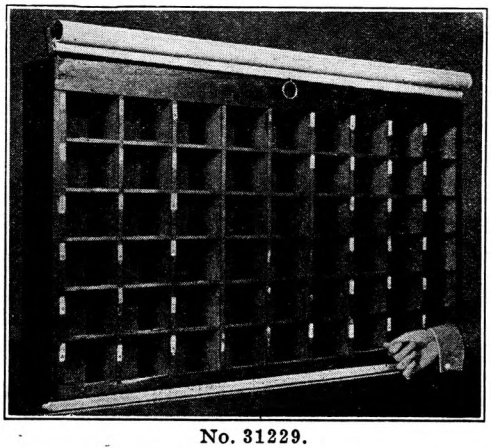


No. 31229.

31225. **Manthanometer,** Pyle's. This apparatus was devised for studying a complicated form of motor learning involving a high degree of concentration. It involves the movements of both hands and both feet in the sorting of balls of different colors and sizes. A set of 96 balls, 12 each red, green, blue, and yellow, and 24 each large and small white balls, is furnished with each machine. For the required accessories see the No. 21151 Ranschburg memory apparatus, the No. 21154 stimulus disk, and the No. 25511 telegraph key. (176:X5; 178:C9) **90.00**

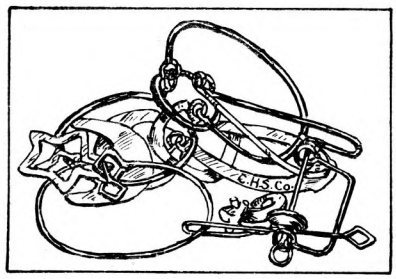
31226. **Manthanometer,** Boynton's **150.00**

31229. **Distributing Case,** Kline's. For studying the growth of place—memory of positions in a vertical plane. This case is approximately 52x92x11 cm., with 54 pigeonholes in nine columns of six. The bottom of the pigeonholes is slightly inclined to prevent rebound of the cards. The front of the case is furnished with a curtain of the spring-roller type. Each pigeonhole is furnished with a clip for holding a label. (111:X85-86) **108.00**

31231. **Spool-Packing Test,** Weidensall's. A factory rate of learning test, consisting of 8 spool boxes, each box containing 12 enameled empty spools in two rows. Four extra spools for replacements are furnished with each set. Directions for administering accompany each test **9.50**

31232. **Block-Packing Test, Minnesota.** A test on the order of the No. 31231 Spool-Packing Test. It consists of 100 cubes and a heavy wooden tray or box. One of the Minnesota series of mechanical aptitude tests. (P.J. Apr. 1928:473-478) **8.25**

Number		Price
31233.	**Mirror.** For use with the rectangular base and rod of the No. 19517 knee jerk register, the No. 25659 burette clamp, and the No. 31260 cardboard screen as Foster's mirror—drawing apparatus. (51:X8; 51A:X15, 23)	$ 0.75
31234.	**Puzzle, Ring, Chinese;** 6 in. diameter. (156:249)	2.30
31235.	**Peg Design Board,** N.Y.S.B.o.C. A box with a checker-board top in which are 33 holes in the form of a Greek cross for the insertion of pegs. (23:T119; 147:T5)	1.25
31236.	**Puzzle, Cross.** A six piece puzzle for experiments in puzzle-solving. (32:518-521)	.50



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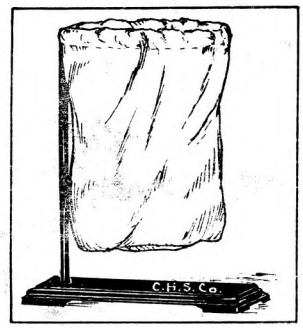

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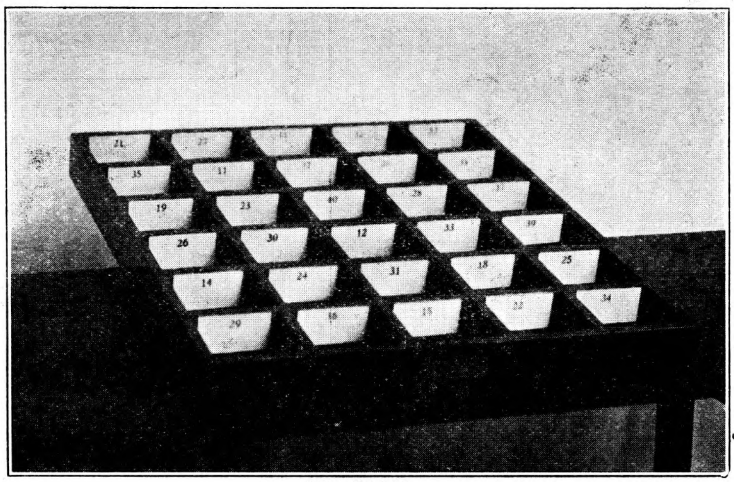
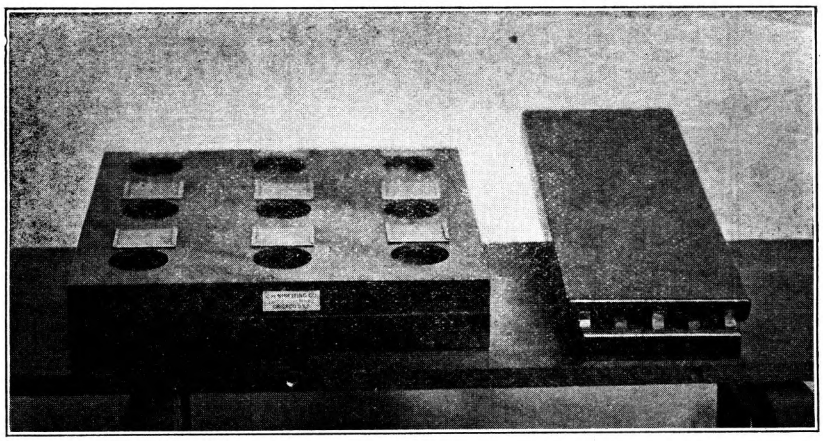


No. 31240.

31237.	**Puzzles, Mechanical,** Ruger's. Set of 6. (32:519; 156:248-252; 165:X2; 239:X33)	2.00
31238.	**Learning Test,** Poffenberger's. Devised for learning to recognize objects. It consists of two sets of 10 small boxes, each containing a different kind of object. The boxes are all alike in appearance. (165:X3)	2.00
31239.	**Ball—Tossing Apparatus,** Pyle's. A motor learning test of the trial and error type, consisting of a support from which is suspended a bag of approximately 6 in. in diameter. Complete as illustrated, with 50 rubber balls approximately 15/16 in. in diameter. (176:X1)	11.00
31239A.	**Balls,** Rubber, Solid. Approximately 15/16 in. in diameter. For use with the No. 31239 ball—tossing apparatus. (176:X1.) Per 50	4.50
31240.	**Sorting Apparatus, Card.** A set of 2 reversible trays, each having three rows of five compartments on both top and bottom. The compartments are numbered from 11 to 40. A set of 150 sorting cards, numbered in the same way, accompanies each set of trays. (176:X3; 178:C2)	52.00
31240A.	**Sorting Tray, Card,** Pyle's. One section of No. 31240, with 75 cards. (176:X3)	26.50
31241.	**Sorting Cards.** Set of 150. For use with No. 31240	3.35
31241A.	**Sorting Cards.** Set of 75. For use with No. 31240A	1.70
31242.	**Learning Apparatus,** Pyle's. Consisting of a marble—container and a sorting box having nine compartments. The sorting box is made in three parts, lid, center, and bottom, in order to facilitate the determination of errors and the mixing of the colored marbles. The lid contains nine holes with a picture of an animal at each hole. See illustration on page 147. Complete with a set of 90 colored marbles and a set of 9 colored stimulus cards. (23:T48; 176:X4; 178:C9)	26.50



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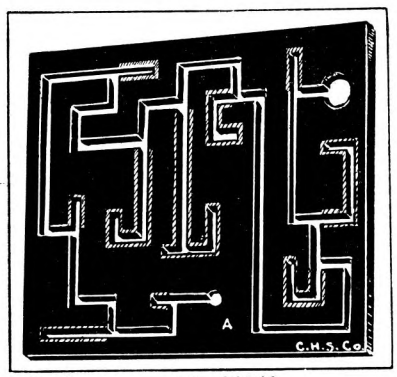

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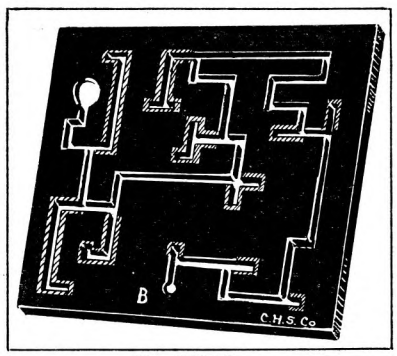
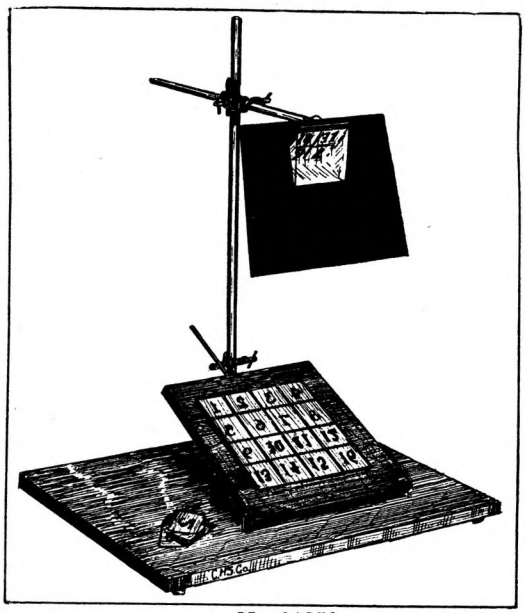


No. 31249.

Number		Price
31243.	**Label Cards,** Pyle's. Outline pictures of the No. 31244 stimulus card. Used for labeling the No. 31242 learning apparatus	$ 0.30
31244.	**Stimulus Card.** A card with nine colored pictures. For use with the No. 31242 learning apparatus	2.50
31245	**Sorting Placard,** Tinker's. For the study of learning and interference in card sorting. Used with No. 23007A cards. (51A:X20)	2.25
31246.	**Maze, MN,** Boring's. Made of fiber and removably mounted on a wood base in which are inserted pins that pass through corresponding holes in the maze. Placed on the base with the exit at the right, it is Maze M; turned bottom-side up, from right to left, and rotated through 90° in a counter—clockwise direction, it becomes Maze N. In order to secure a record of the subject's performance, a sheet of paper is inserted between base and maze and a pencil used as a stylus. (P.M. June 1913:50-84)	15.00
31248.	**Maze A,** Foster's; fiber board. Designed for use with a stylus or lead pencil. (51:X7; 51A:X14.)	8.75
31249.	**Maze B,** Foster's; fiber board. Designed for use with a stylus or lead pencil. (51:X7; 51A:X14.)	8.75
25843.	**Folder, Manila.** For use as covers and tracing surfaces for the Nos. 31248 and 31249 mazes. (51:X7.)	.10
25657.	**Clamp, Standard,** 3 in. For use with the Nos. 31248 and 31249 mazes	.30
31250.	**Mazes, Finger,** Meyer's. A set of 3 cast-iron mazes. (129:D2)	9.50
31253.	**Reversing Apparatus,** Meyer's. The apparatus consists of a wood base with a vertical rod supporting a large total reflection prism at the top and a hinged platform, with 16 recesses, at the bottom. While a mirror could be used instead of a prism, it would force the subject to acquire simultaneously a complexity of other habits in addition to the one he is trying to acquire by reversing one of the visual localizing reflexes. The total reflection prism does not require the subject to look at the object handled in one direction, and at the object seen in an entirely different direction; in other words, it does not break the angular line of sight. One sample card with 16 digits is supplied with the outfit and a similar card, cut up into 16 squares, intended for distribution in the recesses of the platform. (129:D6; 131:183-184)	105.00



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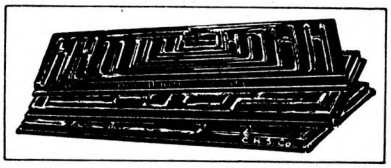

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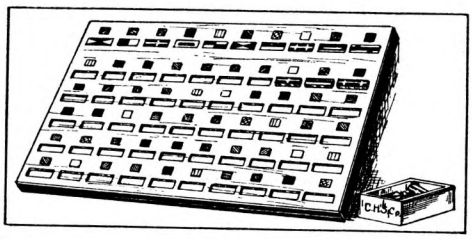

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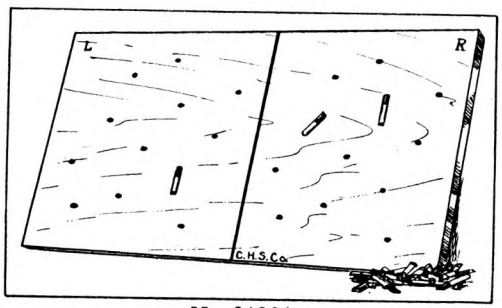

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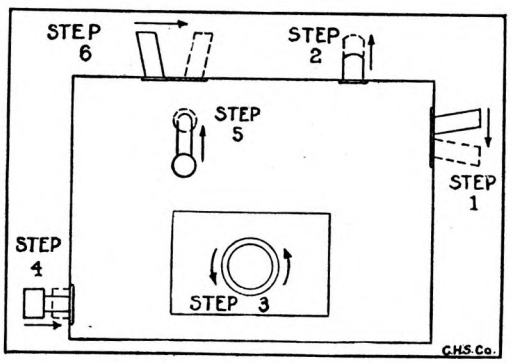
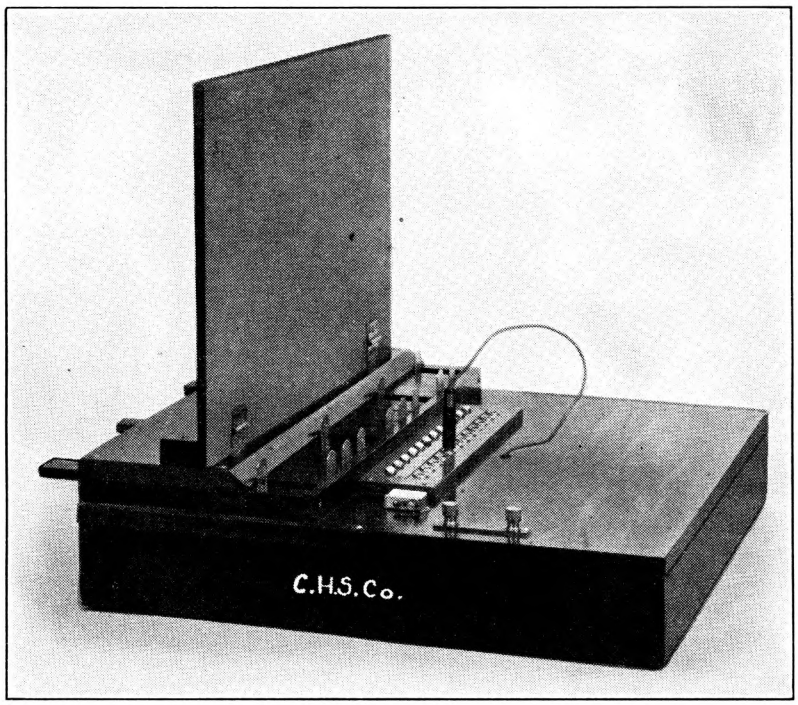


No. 31266.

Number		Price
31254.	**Cards,** Meyer's. One uncut card with 16 digits and another of the same type cut up into 16 squares. For use with the No. 31253 reversing apparatus. 129:D6; 131:183-184)..	$ 1.60
31257.	**Puzzle, Tri-Trix.** Used for illustrating trial-and-error learning where the desired response is not set off by the situation. (217:L18).....	.25
31258.	**Puzzles.** A set of 5 very baffling puzzles. Three of the puzzles—"Dad's Puzzler," "Ma's Puzzle," and "The Flying Puzzle"—are composed of wood blocks fitted in wooden frames. The other two of the set are of an entirely different character; one, "The Clown Ring," consists of four irregular, circular links making a ring; and the other, "The Bally Puzzle," consists of a glazed box containing a number of differently colored small metal spheres to be rolled into depressions at the corners. This set is not broken.	5.50
31260.	**Screen,** Cardboard, Foster's. (51:X8; 51A:X15).....	.10
31263.	**Form Board, Substitution,** Kirkwood's. Devised for use with young children with whom the paper and pencil symbol—digit type of substitution test would not be feasible. This is a walnut form board, approximately 29½ x 14¼ in., with a "key" at the top consisting of 10 small rectangles, each of a different color. The colors in the order named are blue, red, green, black, yellow, purple, rose, orange, gray, and brown. Below each colored rectangle is a design in white enamel on a small simulated block that is to be substituted for the color each time the color appears on the board. Below the "key" is the test. This consists of five rows of 10 colored rectangles arranged in a different order in each row. Each of the 10 colors appears five times on the board. Below each color is a rectangular depression into which the child is to place one of the 50 blocks carrying a design that corresponds with the color as shown in the "key." In the "key" a simulated block is used so that at no time may the designs be removed from the colors with which they are to be associated.....	90.00
31263A.	**Record Blank,** Kirkwood's. For the No. 31263 substitution form board. Per 100.....	1.50
31263B.	**Record Card, Cumulative,** Kirkwood's. For the No. 31263 substitution form board. Per 25.....	1.25

Number Price

31264. **Demonstration Board,** Farnsworth and Roberts. For the study of ideational learning and inductive reasoning. The experimenter arranges colored pegs with reference to a selected "key." The subject guesses whether a "prize" is concealed behind the right or left side and tries to ascertain the "key." Hypotheses are developed and tested until the problem is solved. The board is made of six-ply wood, with a support so that it can be set on a table, and supplied with 45 pointers in various colors. Directions and suggestions accompany each board..... **$ 16.50**



No. 31265.

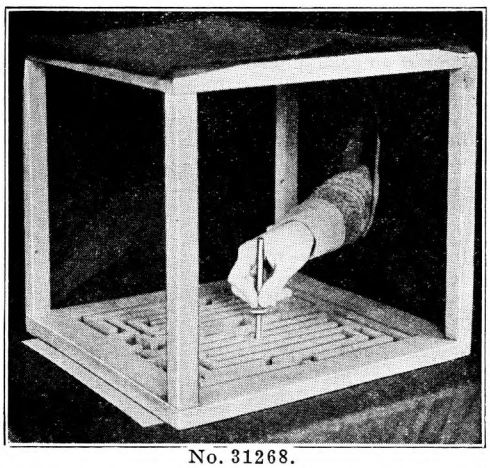
31265. **Multiple Choice Apparatus,** Yerkes'. This improved form is made with a bank of 12 keys, mounted on top of a case containing the necessary electrical equipment, and operable from either the experimenter's or the subject's side of the apparatus. The hinged vertical screen serves to prevent the subject from seeing the movements of the experimenter's hands. The subject's ends of the keys are plain, while the experimenter's ends carry metal tabs with numbers. In front of the keys, on the experimenter's side, is a row of 12 miniature lamps, paralleled by a row of 12 sockets which take a plug attached to a flexible connecter. The lamps and keys are numbered consecutively, 1 to 12 inclusive, from right to left. A lamp-flash indicates the number of the wrong key pushed by the subject, while the sound of the buzzer located at the left of the lamp and socket panel indicates the right key. Any or all of the keys may be presented to the subject in a given trial. The keys composing the problem are pushed out toward the subject, who then proceeds to tap them in an effort to ascertain the proper sequence. A 6V. battery connected to the two binding posts at the left of the experimenter is required for operation. (J.o.C.P. Oct. 1921:369-394; 23:T117; 32:514-516)..... **167.50**

31266. **Instruction Box,** Hayes'. Somewhat on the order of the Freeman puzzle box and the Hayes and Healy instruction box, wherein the subject is required to operate a number of knobs and levers in order to open the box. In this box, the subject is required to carry out six operations. See illustration on page 148. (23:T42; 279:145-146)..... **48.75**

31267. **Motor Co-ordination Test,** Perrin's. Essentially a test of ability to perform disparate activities simultaneously with both hands. This is the improved form, and consists of an aluminum base with two hard-rubber-lined recesses in which are mounted two slightly elevated aluminum forms, a triangle and a quadrilateral. Two styli are furnished, one for the right and one for the left hand. Either stylus coming in contact with the aluminum sides completes an electrical circuit in which should be placed a sounder, buzzer, or recording device which will register the closing of the circuit. (J.o.Ex.P. Feb. 1921:31-32)..... **27.00**

31268. **Maze, Right-Hand,** Kline's. Devised to learn forms and patterns by movements. Made of five-ply wood and mounted on a base supporting a screen at the top and three sides. The rear curtain is arranged to permit insertion of the arm. The maze is supplied with a stylus and a rubber finger guide. (111:X87)..... **32.50**

31269. **Maze, Left-Hand,** Kline's. Similar in construction to No. 31268. (111:X87)..... **32.50**



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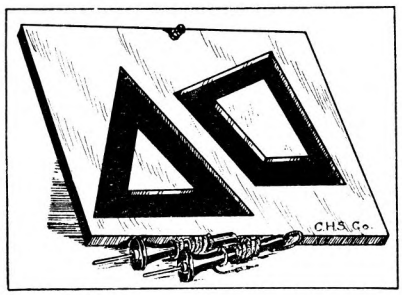

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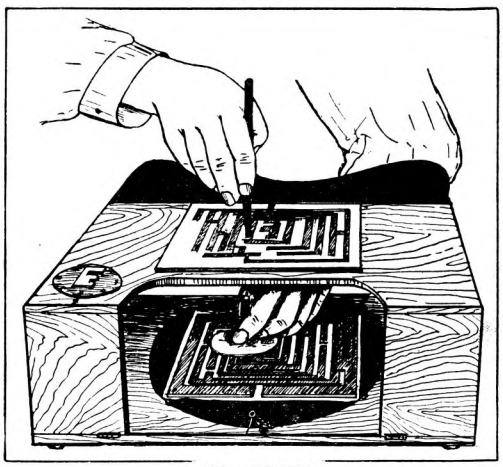
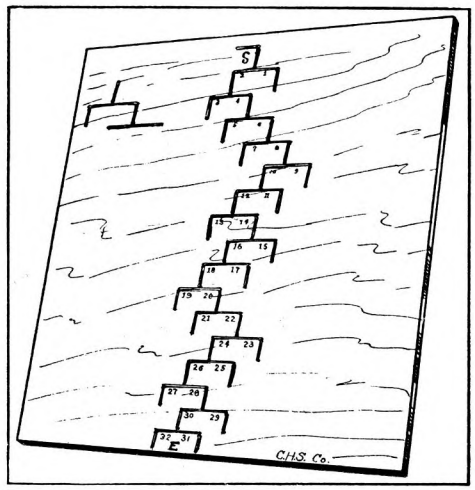
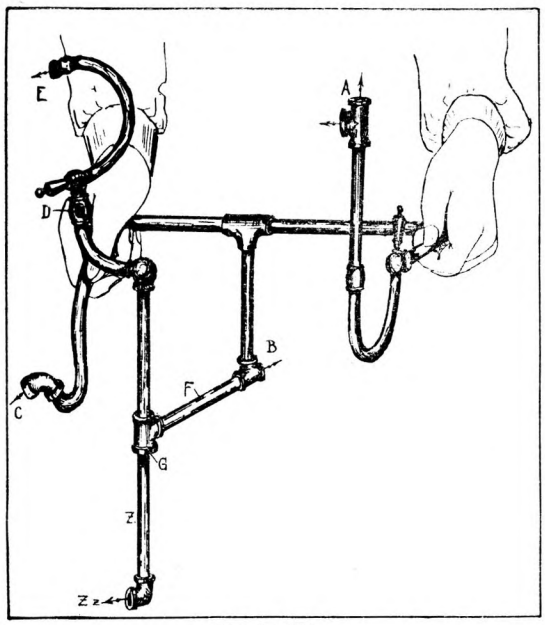


No. 31272.

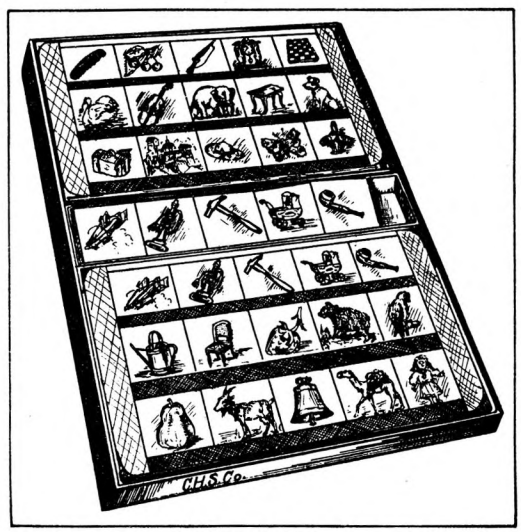


No. 31274.

Number		Price
31270.	**Stylus** for use with Nos. 31268 and 31269 mazes. (111:X87)	$ **0.75**
31272.	**Maze, Two-story, Duplicate,** Miles'. Found to be peculiarly adapted to the investigation of motor space procedure. The apparatus consists of two identical mazes mounted one above the other. The lower maze is reversible and mounted on a rotating platform which permits setting it with the starting point at any desired angle. A "key" on the top of the base at the left of the experimenter's side serves as an indicator of the direction in which the subject is to make the first move. The "key," like the lower maze, revolves and can be set at any desired angle to conform with the setting of the maze. A dull-pointed stylus is used by one hand for tracing the upper maze, and a pencil with a rubber guard by the other hand for tracing the lower one. The guard prevents the subject's fingers from touching the maze walls and so eliminates any assistance that might thus be secured. In order to secure a record of the subject's movements in the lower maze, a sheet of paper is placed between the maze and the platform. The lower maze is completely hidden from the subject's view before and while being traced. In tracing the upper maze, the hand is assisted by vision. (J.o.Ex.P. June 1928:202-218; A.J.o.P. Oct. 1928:542-561)	**55.00**
31274.	**Maze, High-relief, Finger,** Miles'. The paths are formed by wire staples of the requisite size and shape, inserted in well-seasoned three-ply wood base. There is a right- and a left-hand maze, one on each side. In the lower right corner of each is a small practice section. The subject is blindfolded by means of an especially prepared pair of goggles, and traces the maze paths with the index finger. Complete as illustrated, with a supply of "Kleenex" tissue paper for rendering the goggles sanitary. (J.o.G.P. Jan. 1928:3-14)	**27.50**
31280.	**Mirror-Drawing Apparatus I,** Snoddy's. Without recording apparatus. (P.M. 124, 1920)	**80.00**
31281.	**Mirror-Drawing Apparatus II,** Snoddy's. Without recording apparatus. (P.M. 124, 1920)	**85.00**
31282.	**Mirror-Drawing Apparatus III,** Snoddy's. Without recording apparatus. (P.M. 124, 1920)	**45.00**



No. 31284.



No. 32108.

Number		Price
31284.	**Tri-dimensional Maze,** Boder's. This apparatus was devised as a learning problem in motor co-ordination accompanied by a degree of attention generally involved in maze problems. A number of small brass pipes are screwed and soldered together as shown in the illustration; A, B, C, D, E, and Zz are holes which are substitutes for "culs-de-sac." The subject is instructed to drop a small ball-bearing into hole "A" and make it come out through hole "Zz" by proper manipulation of the apparatus. It is not allowable to cover by any means holes "B," "C," or others, and the exit of the ball from any of these holes counts as failure. By unscrewing tube "Z" and adjusting it to hole "E," a new and more difficult problem is presented, which generally is learned (considering fifteen correct trials out of twenty given, as a criterion) only over a period of several days. Any change of position of hole "D" increases the difficulty of the problem and may be used with this purpose in mind. (A.J.o.P. Jan. 1930)	$ 16.50
31290.	**Maze, Animal,** Bill's. A vertical maze, 34½ x 4½ x 20 in., devised to study animal learning with the use of white rats as subjects. Substantially constructed of wood, metal, and heavy wire screening. (51A:X19)	25.00
31295.	**Blind Puzzle Box,** Garth's. This rectangular box, 25 x 30 x 75 mm., made of heavy brass, is a modification of an old wooden snuff-box which required solving before the contents became available. Valuable for the study of trial and error learning by human beings, monkeys, and racoons	5.75

MEMORY—RECOGNITION

32003.	**Memory Test, Immediate,** Wallin's. For three-place digits. Six stimulus cards (A1, A2, A3, A4, A5, and A6), about 6 x 24 in., each having a column of 10 three-place digits. (D.C. April and May, 1912; 248; 249:257, 275, 313; 251)	2.00
32005.	**Memory Test A, Immediate,** Whipple's. Consisting of 42 printed cards arranged in 3 sets of 14 each. For presentation by the auditory-visual, auditory-visual, articulatory, and auditory-visual-hand-motor methods. (268:T38)	2.50
32013.	**Memory Test, Immediate,** Woolley and Fischer. A set of 7, selected from No. 32003: one with 5 digits, two with 7 digits, two with 8 digits, and two with 9 digits. (279:88-94, 264; 281:S11)	.70
32014.	**Memory Test, Immediate,** Weidensall's. A set of 14 cards: two each with 4, 5, 6, 7, 8, 9, and 10 digits. (261:96-107)	.40
32017.	**Figures and Letters,** Black, Gummed. Size 5, 15/16 in. high. Used for making memory cards. (268:T38) Box of 1,000	5.35
32019.	**Memory Test B, Immediate,** Whipple's; (Letter Square Test). Consisting of 10 printed test cards, each having 12 consonants, 3 lines of 4 each. (268:T38)	1.50
32021.	**Record Blanks,** Whipple's. For use with the No. 32019 Immediate Memory Test B. (268:T38) Per 100	1.50
32023.	**Letters,** Black, Gummed. Size 10, 1 11/16 in. high. Used for making memory cards. 268:T38) Box of 1,000	8.25

Number		Price
32025.	**Memory Test, Sentence,** Whipple's. Two printed cards, each containing 21 test sentences for visual presentation. (23:T115; 268:T38)	$ 0.30
32033.	**Memory Test, Rote,** Pyle's. A card with two lists of words, concrete and abstract, with six groups in each list; also a set of supplementary words similarly arranged. (23:T51; 175:14-17)	.10
32034.	**Record Blanks,** Pyle's. For use with the No. 32033 Rote Memory Test. (23:T51; 175:15) Per 100	1.50
32036.	**Memory Cards, Rote,** Freeman's. A set of 90 cards with a nonsense syllable on each. (59:X5)	2.50
32038.	**Memory Test, Immediate,** Freeman's. A set of 18 cards, 2 with a series of numbers and used for Part I of the test, and 16 with words to be used in the construction of grammatical and logical sentences. (59:X15)	.75
32039.	**Nonsense Syllables,** Averill's. A form with 25 syllables. Designed to study the rate of forgetting. (7:X31) Per 100	.80
32040.	**Retention Test,** Strong's. A set of 39 cards, 6x10 in., prepared according to instructions in the Instructor's Manual. (217:X12-13)	6.00
32041.	**Memory Material,** Mulhall's Presentation Series A. Consisting of 3 cards, one containing a column of 25 nouns, another a set of 25 nonsense syllables, and the third a set of 25 proverbs. Compiled for experimental studies in recall and recognition memory. (1; 165:X11)	.30
32042.	**Memory Material,** Mulhall's; Presentation Series B. Consisting of a set of 3 cards similar to No. 32041. (1; 165:X11)	.30
32045.	**Memory Material,** Mulhall's; Recognition Series A. Consisting of a form with a list of 50 nouns. (1) Per 100	.80
32045A.	**Memory Material,** Mulhall's; Recognition Series B. Consisting of a list of 50 nouns. (1) Per 100	.80
32046.	**Memory Material,** Mulhall's; Recognition Series A. Consisting of a form with 50 nonsense syllables. (1) Per 100	.80
32046A.	**Memory Material,** Mulhall's; Recognition Series B. Consisting of a list of 50 nonsense syllables. (1) Per 100	.80
32047.	**Memory Material,** Mulhall's; Recognition Series A. Consisting of a form with 50 proverbs. (1; 165:X11) Per 100	1.50
32047A.	**Memory Material,** Mulhall's; Recognition Series B. Consisting of a list of 50 proverbs. (1; 165:X11) Per 100	1.50
32050.	**Form Recognition Test,** Whitley's. A series of 4 forms comprising 2 presentation blanks, each with a different series of forms, and 2 recognition blanks for checking the forms recognized. (165:X11; 271:53-56) Per 100 sets	3.20
32051.	**Memory Test, Rote,** Averill's. A set of 4 Spanish-English vocabulary cards. (7:X286) Per 25 sets	5.00
32052.	**Memory Test,** Averill's. Two forms of equal difficulty. For studying the whole and part methods of memorizing. (7:X29) Per 100 sets	2.50
32055.	**Memory Span Test,** Poffenberger's. Set No. 1 consisting of numbers. (165:X6) Per 100	.80
32056.	**Memory Span Test,** Poffenberger's. Set. No. 2, consisting of numbers. (165:X6) Per 100	.80
32057.	**Memory Span Test,** Poffenberger's. Set No. 1, consisting of letters. (165:X6) Per 100	.80
32058.	**Memory Span Test,** Poffenberger's. Set No. 2, consisting of letters. (165:X6) Per 100	.80
32059.	**Memory Span Test,** Poffenberger's. Sets Nos. 1 and 2, consisting of nonsense syllables. (165:X6.) Per 100	1.50
32065.	**Recognition Test,** Taylor's. A form with scattered numbers. Per 100	3.75
32068.	**Memory Cards,** Kline's. For use with the No. 21105 memory apparatus. Set of 6, 3 with digits and 3 with common objects. (111:X54)	7.50
32070.	**Rubber Type,** Digits and Letters; 2 cm. high, 4 mm. wide. (111:X54)	5.75
32103.	**Recognition Memory Test,** Fernald's (G. G.). A set of 20 post cards, in black, in two groups, no duplicates, but so selected that a striking feature of a picture in one group is represented by something similar in the other. In one group the stamp space is underlined for identification. (47:543)	3.00

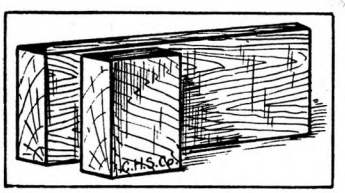
Number		Price
32104.	**Recognition Test,** N.Y.S.B.o.C. Two sets of post cards, 10 in a set. The sets used include two Angora cats looking in different directions; two dogs, one a Bulldog and the other a Terrier; two similar water scenes, etc. In one group the stamp space is underlined for identification. (145:T7)	$ 3.50
32105.	**Memory Test, Picture,** Goddard's. Used in the 1905 revision of the Binet and Simon test. A set of 2 test cards, A and B, each containing 12 pictures of familiar objects. (266:T53)	.45
32106.	**Memory Test, Picture.** The B card of No. 32105. (285:131-132)	.25
32107.	**Memory Test, Picture,** Goddard's. Devised as a substitute for No. 32105. It is a large card on which are arranged 13 colored pictures of familiar objects. The pictures are approximately 3 in. in size	3.00
32108.	**Memory Test, Picture,** Town's. A set of 6 cards, each having 15 colored pictures of familiar objects, such as a horse, cat, kite, doll, table, etc.; and 90 small cards, each duplicating one picture shown on the larger cards. (234)	2.00
32109.	**Cognizing Test,** Goddard's. Used in the 1905 revision of the Binet and Simon test. A set of 8 colored pictures, selected as being especially adapted for the testing of defective children. (69)	1.00
32110.	**Recognition of Forms, Visual,** Jones' (E. S.). Two packs of cards with geometrical designs, one of 15 cards and the other of 20 cards; and a sample card. Ten cards out of the 20-card set are identical with those of the 15-card set. (23:T53; 279:147-151)	11.25
32111.	**Cognizing Test,** Binet's. The three original Binet and Simon pictures used by the devisers for the third test in the 3 Year series and the second test in the 7 Year series of the original scale. It is also Test 7 of the 1923 Yerkes and Foster revision of the Yerkes, Bridges, and Hardwick Point Scale. (233; 283:T7)	.30
32112.	**Memory Test, Picture,** Baldwin and Stecher. A practice card, 5 stimulus cards, and a memory chart. (11:113-115)	3.75
32113.	**Picture Book, Children's.** One of the 3 Year Tests of the Knox series devised for the U.S.P.H.S. at Ellis Island, N. Y. (113)	1.00
32115.	**Action Picture,** Knox's. A mounted picture showing a man driving a team of horses. One of the 7 Year Tests of the Knox series devised for the U.S.P.H.S. at Ellis Island, N. Y. (113)	.50
32117.	**Cognizing Test,** Terman's. The 3 pictures, "Dutch Homestead," "Canoe," and "Post Office," used in the Terman or Stanford and the Porteus and Hill revisions of the Binet and Simon test. (173; 221:T3, 3; 7, 2; 12, 7)	.30
32118.	**Cognizing Test,** Yerkes and Foster. Three pictures: "Saved," "A Music Lesson," and "The Child Händel." (285:103-104)	.90
32132.	**Recall Test,** Ellis'. A set of 10 small familiar objects, including a shoe, dog, hat, etc., the primary objective of which is to test visual memory. (23:T49; 37:42-44; 147:T3-4)	1.20
32135.	**Photographs,** Hollingworth and Poffenberger. Two different groups of 20 photographs, each of unknown persons. Used for testing memory for names and faces. The experimenter assigns to each photograph a number and a fictitious name and enters the name and number on a properly prepared record sheet. The photographs are approximately 3¼x4¼ in. (87:X37; 165:X15)	6.00
32140.	**Object Charts.** Kline's. A set of 2, 16x20 in. Each chart has 16 different objects. (111:X59)	4.50
32205.	**Memory Test, Logical,** Pyle's. Consists of 4 printed cards: "The Marble Statue," "The Boy Who Would Not Drink," "The Golden Goose," and "The Two Ways." (175:8-14)	.40
32209.	**Memory Test,** Franz's. A card with 7 stories for testing memory for connected trains of thought. (55:108-110; 57:100-102)	.30
32212.	**Memory Test, Logical,** Whipple's. A printed form: "The Marble Statue." (268:T39.) Per 100	.80
32213.	**Memory Test, Logical,** Whipple's. A printed form: "Cicero." (268:T39.) Per 100	.80
32214.	**Memory Test, Logical,** Whipple's. A printed form: "The Dutch Homestead." (268:T39.) Per 100	.80
32217.	**Memory Test,** Knox's. A card with a story consisting of five details, of which the subject is to remember at least three. One of the 11 Year tests of the Knox series devised for the U.S.P.H.S. at Ellis Island, N. Y. (113)	.10
32219.	**Memory Test,** N.Y.S.B.o.C. A printed card with the fable of "The Hares and the Frogs." (147:T6)	.25
32221.	**Memory Test,** Weidensall's; Reading and Recall. A card with the story of "A Big Flood." (261:166-173)	.10
32222.	**Scoring Card** for No. 32221	.10

Number		Price
32227.	**Memory Test,** Healy and Fernald. Visual-verbal presentation. A card containing a passage about a fire. (79:109; 85:T12; 189)	$ 0.10
32229.	**Scoring Blank** for No. 32227. Per 100	1.50
32231.	**Memory Test,** Healy and Fernald. Auditory-verbal presentation. A form containing a theme so arranged that it can be used for reading and scoring. (79:110; 85:T13; 189.) Per 100	1.50
32303.	**Memory Test, Visual,** Binet and Simon. A card containing 2 figures to be copied by the subject. The figures are the size recommended by Goddard and Whipple and shown in Town's translation of Binet and Simon's "A Method of Measuring the Development of the Intelligence of Young Children." (69; 85:T7; 173; 221:T10, 3; 233)	.10
32305.	**Memory Test, Visual,** Yerkes'. A card with an equilateral triangle whose two legs are each extended above the apex. This is Test 22 of the Infant Point Scale. (285:135-136).	.20
32306.	**Memory Test, Visual,** Yerkes and Foster. A card with 2 figures, A and B, for reproduction by the subject. This is Test 20 of the Adolescent-Adult Point Scale. (285:102-103, 114)	.20
32307.	**Memory Test, Visual,** Goddard's. A card containing a square, with blank space above it for the subject's reproduction. No. 2 of the 4 Year Tests of the Goddard revision of the Binet and Simon scale. (69)	.10
32308.	**Memory Test, Visual,** Ellis'. Ten graded geometrical designs, each of which is printed on a separate card. The subject is to draw from memory what was seen. (23:T123)	1.00
32309.	**Memory Test, Visual,** Goddard's. A card containing a diamond, with blank space above it for the subject's reproduction. No. 4 of the 7 Year Tests of the Goddard revision of the Binet and Simon scale. (69)	.10
32311.	**Memory Test, Visual,** Binet and Simon; Yerkes' modification. Consisting of a card with a heavy square on one side and a diamond on the other, with room below each figure for drawing. (283:T2)	.20
32313.	**Memory Test, Visual,** Binet and Simon. Yerkes' modification of No. 32303. The figures are heavier and are the same as those used in the original and revised Point Scale for Measuring Mental Ability. (283:T16; 285:46, 205)	.10
32315.	**Memory Test, Visual,** Knox's. A square and a circle printed on a piece of heavy cardboard. To be copied by the subject. One of the 5 Year Tests of the Knox series devised for the U.S.P.H.S. at Ellis Island, N. Y. (113)	.10
32317.	**Memory Test, Visual,** U.S.A. A set of 5 cards with a different design on each. (265:C1; 287:T6)	1.00
32324.	**Memory Test, Visual,** Healy's. A card, 2x4 in., with a design to be drawn by the subject. (23:T52)	.10
32325.	**Design Test,** Baldwin and Stecher. A collection of 72 round, square, and cylindrical beads in red, orange, yellow, green, blue, and purple. Used to determine children's conception of rhythm and symmetry in the visual field. (11:145-146)	.50
32326.	**Copying Test,** Baldwin and Stecher. A set of 2 chains of 9 beads each, one with rhythmic units and the other lacking the element of design or order. (11:147-149)	.20
32327.	**Beads, Kindergarten,** Baldwin and Stecher. A collection of 108 beads for copying the No. 32326 sample chains. (11:147-149)	.50
32329.	**Memory Test, Visual,** Healy's. Consisting of a form with two views of the same house, from opposite exposures. The subject's problem is to draw a floor plan of the house. (23:T104.) Per 100	1.50
32329A.	**Scoring Card** for use of the examiner in scoring No. 32329	.30
32330.	**Memory Test, Visual,** Ellis'. A series of 3 cards with geometrical drawings. Better known as the Inverted Figures Test. (23:T113)	.30

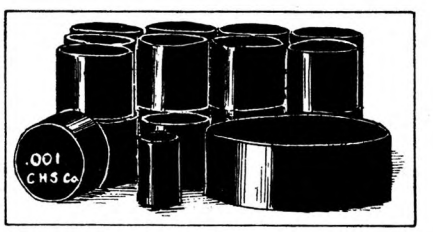
SUGGESTION—HYPNOTISM—IMITATION

33003.	**Suggestion Test, Line,** Binet and Simon. Goddard's set of 6 cards, 3 of which contain lines of different lengths and 3 lines of the same length. No. 4 of the 12 Year Tests of the Goddard revision of the Binet and Simon scale. (69)	.60
33009.	**Suggestion Test, Line,** Binet and Simon; Yerkes' modification. Consisting of 6 cards with lines similar to those of No. 33003, but much heavier. (283:T11; 285:40-41)	.60
33010.	**Suggestibility Test,** Otis' (Margaret); Form A. The material in this test is taken from several sources, some of it being original. The procedure in the test is modeled on the army tests, especially the first page of the Alpha. There are two forms, A and B; each consists of 20 directions to be carried out in a manner similar to the army tests. In addition to the test forms, the experimenter requires the set of 8 suggestion cards and small manual which are listed below. Directions are given orally. The suggestion is sometimes direct and sometimes indirect. In order that the children will not suspect the purpose of the test, it is called a "Directions Test." This test is the result of a	

Number		Price
	great deal of careful and patient work on the part of the author, and to date is the only test of this type available for use with children in groups. (151) Per 25	$ 1.00
	Per 100	3.00
33011.	**Suggestibility Test,** Otis' (Margaret); Form B. An alternative test. (151.) Per 25	1.00
	Per 100	3.00
33012.	**Suggestion Cards,** Otis' (Margaret). A set of 8 cards, 12x15 in., with the figures to be shown to the subjects. (151)	6.50
16473.	**Manual,** Otis' (Margaret). A condensed guide for giving and scoring the Nos. 33010 and 33011 Suggestibility Tests	.40

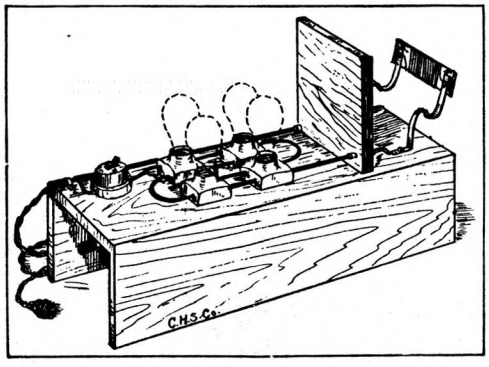


No. 33101.



No. 33107.

33101.	**Weight Illusion Blocks,** DeMoor's. Set of 2. Used by Goddard while at The Training School, Vineland, N. J. (T.S.B. Feb. 1913)	7.00
33102.	**Weight Illusion Cylinders,** Meyer's. Two wooden cylinders, a little over 3 in. in diameter; one 7¼ in. high and the other 2¼ in. high, both drilled out from one end. In the short weight the hole is 2 in. deep and below, where it is not readily seen, somewhat enlarged. In the long weight the hole is 3 in. deep. (129:D3)	7.50
33103.	**Suggestion Blocks,** Gilbert's. A series of 16 weights: a large and small comparison weight and 14 weights all alike in appearance, but differing in weight. The comparison weights each weigh 55 grams and the series of 14 ranges from 15-80 grams. (194:272-274)	18.00
33105.	**Suggestion Weights,** Seashore's. Two sets of cylindrical weights, 31 mm. in height, each consisting of 17 blocks. Set A varies in size and has a uniform weight of 80 grams, while Set B varies in weight and has a uniform diameter of 42.9 mm. (194:274-282)	68.00
33107.	**Suggestion Weights,** Gilbert's; Whipple's modification. This set consists of 2 standard weights and 20 comparison weights. Both standards weigh 55 grams; both are 28 mm. thick, but the larger is 82 and the smaller 22 mm. in diameter. The 20 comparison blocks are all 28 mm. thick and 35 mm. in diameter, but their weights range from 5 to 100 grams by 5 gram increments. All are painted dead black. (195:272-282; 268:T40)	31.00
33109.	**Suggestion Weights,** Whipple's. Set of 15 weights of identical size and appearance, numbered conspicuously from 1 to 15. The first 4 weigh 20, 40, 60, and 80 grams respectively; the remaining 11 weigh 100 grams each. (268:T41)	14.00
33110.	**Cardboard Box, Round.** Approximately ½ in. high and 3 in. in diameter. Used for suggesting to the subject that he may put this on top of the wooden weights and add more lead than there is room for in the hollow centers of No. 33102. (129:D3)	.50
33111.	**Pellets, Lead.** Sufficiently irregular to keep them from rolling about. (129:D3.) Per lb.	.75
33121.	**Warmth Tester,** Whipple's. Consisting of a box-like structure, open at the end facing the experimenter, and provided on the top with porcelain sockets for four electric lamps, wired in multiple, and with a snap-switch by which the current (110V.) may be turned on or off. The wiring is purposely left visible, and leads conspicuously from the lamps to a coil which is wound, apparently without covering, about a flat piece of hard rubber. This coil is fastened on top of the structure in such a manner that it may be easily reached without exposing the fingers to the warmth of the lamps. A concealed circuit leads to a noiseless switch underneath the structure, which can be operated by the experimenter without the subject's knowledge. By means of this switch the experimenter may shunt the current through the coil or cut the coil out entirely without affecting the illumination of the lamps. (268:T44)	51.50
33123.	**Warmth Tester,** Guidi's. A wooden box with a chimney-like metal top, a circular hole for introducing the finger on one side, and a hinged door at the back for introducing the lamp. (268:T44)	20.75
33125.	**Size-Weight Illusion,** Kline's. A set of 3 weighted canisters of the same weight but unequal size. For demonstrating DeMoor's illusion. See illustration on page 156. (111:X80; 139:X102)	8.25
33203.	**Hypnotism Apparatus.** A head-band with a flexible wire support carrying a bright polished sphere. (195:101-102, 265; 255:321)	10.00



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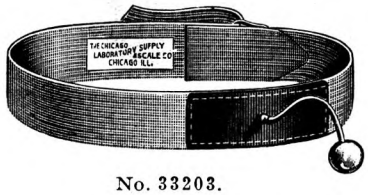

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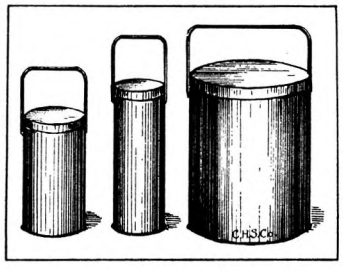

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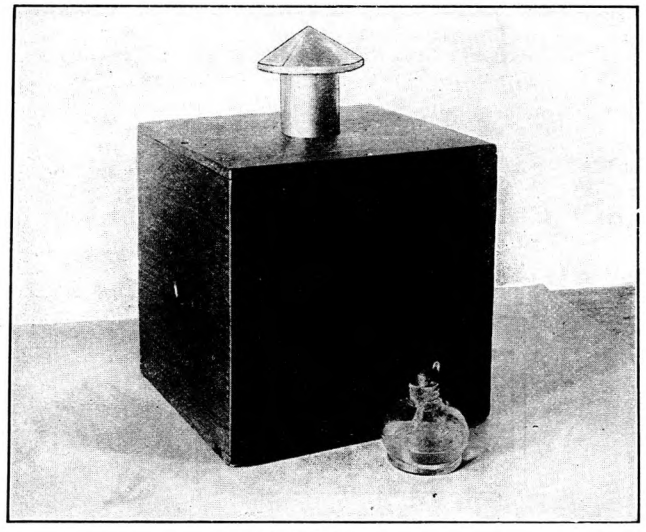

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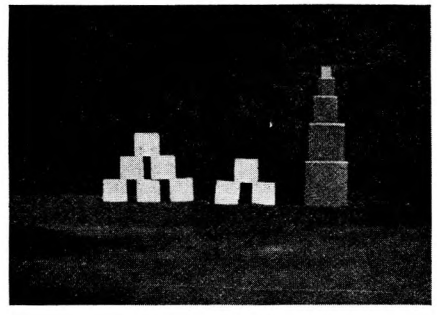


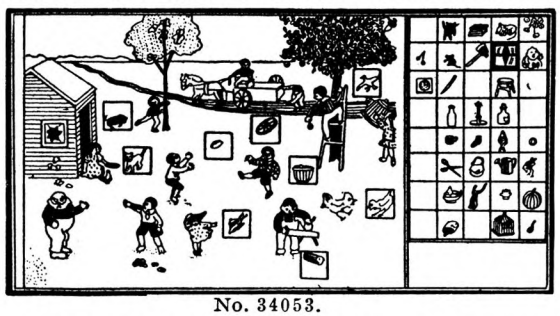
Nos. 33308, 33309.

Number		Price
33303.	**Cube Imitation Test,** Knox's. Consisting of a hinged board carrying 4 colored 1 in. cubes (red, blue, green, and yellow), fastened 4 in. apart, and a small black cube for tapping. The complexity of this test may be varied to suit all ages and degrees of education among the insane and mentally deficient. One of the 5 Year Tests of the Knox series devised for the U.S.P.H.S. at Ellis Island, N. Y. (113; 147:T1; 263:138; 287:T3)	$ 4.50
33304.	**Cube Imitation Test.** Pintner's modification of the No. 33303, consisting of five 3.5 mm. black cubes. (163:67-69, 94, 136-138)	1.25
33305.	**Imitation Test,** Knox's. Five 3 in. wooden cubes for imitating structures built by the examiner. One of the 6 Year Tests of the Knox series devised for the U.S.P.H.S. at Ellis Island, N. Y. (113)	4.00
33308.	**Pyramid Test,** Stutsman's. A set of twelve 1 in. plain wooden cubes for performing the Three-Cube and Six-Cube Pyramid Tests. (219:28-30)	.50
33309.	**Little Pink Tower Test,** Stutsman's. Five small blocks similar to the small blocks used in building the Montessori pink tower. (219:47-48)	2.25
33310.	**Tower,** Montessori's. A set of 10 cubes, varying in size from 1-10 cm. (11:86-88)	5.60

APPERCEPTION—IMAGINATION—INGENUITY—INVENTION

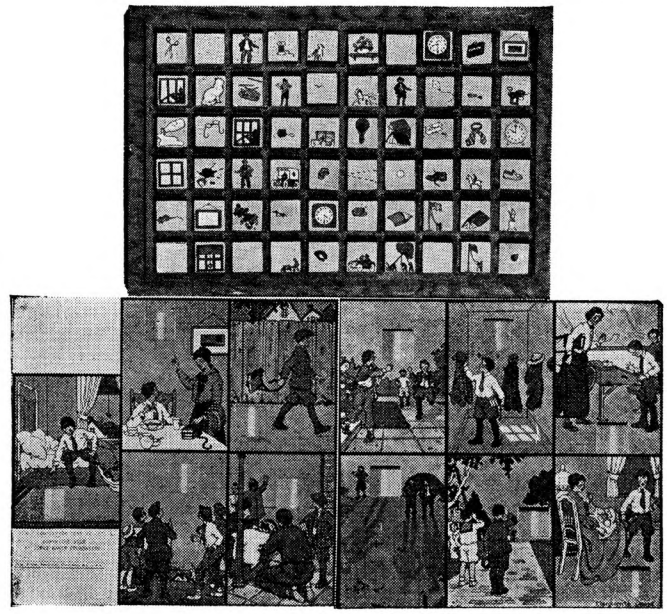
34005.	**Puzzle Pictures,** Titchener's. A set of 12 newspaper pictures mounted on cardboard. The problem is to find the concealed figures in the pictures. Used to demonstrate that when the concealed figures are once found they force themselves persistently upon the attention to such an extent that the "sense" of the picture recedes into the background. (225:X25)	2.25
34007.	**Brain Photograph.** This left hemisphere of the brain under close observation is found to be made up of a number of infants in various positions. The moment this is perceived, the picture of the brain drops away from the upper level of consciousness. (181:169-177; 209:135; 224:277-278)	1.25

Number		Price
34009.	**Monitor "Lehigh," Photograph,** Titchener's. This photograph shows the hits and rivets on the turret of the Monitor "Lehigh" as dents or protuberances, depending upon the way it is viewed. (32:385-375)	$ 1.25
34015.	**Imagination Test,** Knox's. A card with a series of ink blots. Designed for the purpose of a comparative study of the associative and constructive imaginative powers of normals and defectives among aliens. The blots vaguely resemble a number of common objects. (1) might cause one to recall a snake, a pennant, a rope, or a river (depending upon experience); (2) an animal or a map; (3) a lizard, mouse, or rat; (4) a leaf, flower, or cloud; (5) a house or a haystack; (6) a strawberry, butterfly, or an umbrella. One of the Adult Tests of the Knox series devised for the U.S.P.H.S. at Ellis Island, N. Y. (113)	.15
34017.	**Imagination Test,** Dearborn and Whipple. A standard series of 20 cards with ink blots, numbered from 1-20. (23:T111; 77:84; 165:X24; 209:135-153; 268:T45)	.55
34019.	**Imagery Blank,** Poffenberger's. A form on which are printed 200 words and phrases for evoking a variety of images. (165:X23.) Per 100	2.50
34020.	**Imagination Test,** Griffitts'. These three tests (A, B, and C) are of particular value in testing special capacities in such work as engineering, landscape designing, geometry, etc. (77:262-282.) Per 25 sets	2.50
	Per 100 sets	7.50
34021.	**Questionnaire.** A card containing the four questions on the No. 34022 enclosed box problem. (173)	.15
34022.	**Boxes,** Terman's. Set of 4. (173; 221:T Adult, 4)	.40
34025.	**Apperception Test,** Heilbronner's. This test consists of a series of 70 cards, 2½x3 in., each card containing a more or less complete outline of different figures. The pictures are designed to determine how much detail must be presented to the individual so that the picture will be apperceived in the way in which it should be. The figures included are a windmill, lamp, telephone, pencil, graphophone, book, butterfly, broom, thermometer, fireplace, bicycle, watch, and fountain pen. (23:T118; 55:86-91; 57:79-84; 245:261-262)	2.00
34027.	**Anagram Cards,** Foster's. Set of 6. (51:X6; 51A:X4)	.35
34028.	**Anagram Key Cards,** Foster's. Set of 6. (51:X6; 51A:X4)	.35
34029.	**Skeleton Word Cards,** Foster's. Set of 6. (51:X6; 51A:X4)	.35
34030.	**Skeleton Word Key Cards,** Foster's. Set of 6. (51:X66; 51A:X4)	.35
34032.	**Letter Squares,** Foster's. Set of 9 cards, 7x8 in. (51:X13; 51A:X14)	1.25
34235.	**Fable Chart,** Whipple's. Eight fables taken from Terman and Childs' paper, "A Tentative Revision and Extension of the Binet and Simon Measuring Scale of Intelligence." (268:T49)	.25
34036.	**Fable Test,** Terman's. A card containing the five fables used for Test 5 of Year 12 of the Terman or Stanford revision of the Binet and Simon Test. (173; 221:T5, 12)	.25
34051.	**Picture Form Board,** Healy and Fernald. This test represents a school-room, and was designed to show primarily the apperception of the relationships of well-defined and easily recognized parts to a given whole. Beyond this it of course roughly demonstrates sensory discriminations of form and color. (79:107; 85:T2; 189)	5.50
34052.	**Wheels Test,** Thurstone's. A form with a diagram of a worm and wheel, presenting six problems. (23:T124.) Per 100	2.50



No. 34053.

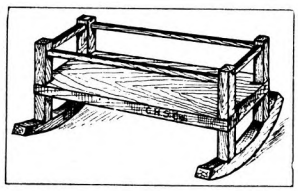
34053.	**Pictorial Completion Test I,** Healy's. A brightly colored picture, about 10x14 in., representing an outdoor scene with ten discrete activities. The picture is mounted on well-seasoned three-ply wood with cloth backing. Ten objects have been removed from the picture and mounted on blocks to be replaced by the subject in order to complete the meaning of the separate activities. Besides these ten pieces there are forty additional insets, thirty of them bearing different objects and ten being blank. The picture and insets are furnished in a well made wooden case. (23:T20; 79:96-97, 111; 161; 145:T9; 163:61-63; 245:262-263)	13.25



No. 34054.

Number		Price
34054.	**Pictorial Completion Test II,** Healy's. On the order of No. 34053, but more difficult. This test depicts the successive scenes from the day's activities of a school boy. The test is made up in two sections and mounted on well-seasoned three-ply wood with cloth backing. The first section contains a demonstration picture and four test pictures. The remaining six pictures are in the other section. There are 60 insets, each numbered and placed in a definite location in the bottom of the wooden case. (23:T21; 17; 19; 32:312; 81; 83; 157; 263:127-129; 278:T10)	**$ 15.50**
34055.	**Little Bo-Peep and Her Sheep Test,** Drever and Collins. A picture form board with 12 star-shaped sections cut from it. The sections are to be inserted in their proper places by the subject. (42:C2)	**5.50**
34056.	**Picture Form Board,** Shaw's. Depicting 10 situations, each of which involves an action which is peculiar to a drug store. The depressions and insets are circular and all of the same diameter. Ten of the insets complete the picture correctly, while there are ten additional insets which show articles that have little or no connection with a drug store, and ten blanks. (J.o.A.P. 2, 4:355-365; 35:33-35)	**15.00**
34057.	**Checker Board** with checkers. For gauging powers of analysis and foresight. (79:110; 85:T20)	**.60**
34058.	**Completion Test, Language,** Kelley and Trabue. Two equivalent forms (Alpha and Beta) of 40 incomplete sentences each, in which the subject is to supply the words elided. (23:T11.) Per 100 sets	**3.00**
34058A.	**Manual** for No. 34058	**.25**
34059.	**Completion Test, Language,** Trabue, Kelley, and Spivak. A form with 20 incomplete sentences arranged in order of difficulty, each with spaces for supplying the missing word or words. (23:T12.) Per 100	**1.50**
34059A.	**Manual** with directions for administering and scoring No. 34059. (23:T12)	**.25**
34061.	**Completion Test B, Language,** Trabue's. A form similar to No. 34058, with a series of sentences from which words have been elided. This test, also the following Tests C, D, E, and F, are equivalent and may be used to test language ability in Grades 2—12. Test B is used to check results or to measure improvement over a period of time. (23:T10; 159:26, 66-69, 90, 98.) Per 100	**1.50**
34062.	**Completion Test C, Language,** Trabue's. (23:T10.) Per 100	**1.50**
34063.	**Completion Test D, Language,** Trabue's. (23:T10.) Per 100	**1.50**
34064.	**Completion Test E, Language,** Trabue's. (23:T10.) Per 100	**1.50**
34065.	**Completion Test F, Language,** Trabue's. (23:T10.) Per 100	**1.50**
34066.	**Completion Test J, Language,** Trabue's. Intended primarily for adults; used in high school and college classes. (23:T10.) Per 100	**1.50**

Number		Price
34067.	**Completion Test K, Language,** Trabue's. Equivalent to Test J. (23:T10.) Per 100...	$ 1.50
34068.	**Completion Test L, Language,** Trabue's. Especially adapted to measurement of high school students. (23:T10.) Per 100	1.50
34069.	**Completion Test M, Language,** Trabue's. Equivalent to Test L. (23:T10.) Per 100...	1.50
34069A.	**Manual** for Nos. 34061-69	1.35
34071.	**Completion Test,** Ebbinghaus'. A form containing seven stories with omissions from the text. Dotted lines between words show approximately the length of the word or portion of the word to be supplied in order to make sense. (55:85-86; 57:77-79.) Per 100	1.50
34073.	**Completion Test, Language,** Ebbinghaus'. Whipple's set of 4 forms with omissions from the text. Dotted lines indicate the words or portion of the word to be supplied in order to make sense. (178:C6; 268:T48.) Per 100 sets	6.00
34079.	**Completion Test,** Hartford Curative Workshop. This form is a compilation of some of the Trabue tests. Per 100	1.50
34089.	**Context Test,** Link's. A completion test in which the subject supplies the missing words. Devised for testing clerks. (121:92-93, 144-145, 394, 411, 413.) Per 100	1.50
34091.	**Cardboard.** Two sheets of thin white cardboard. (273:X8)	.25
34098.	**Completion Test,** Pyle's. A printed form entitled "Dr. Goldsmith's Medicine," with omissions from the text. (178:C6.) Per 100	1.50
34305.	**Word Construction Test,** Wallin's. Six printed forms, each containing six digit letters (I1, I2, I3, I4, I5, and I6). (D.C. April and May, 1912; 248; 249:257, 275, 313; 251.) Per 25 sets	1.25
34306.	**Word Building Test,** Kent's. A set of 11 cards, about 1x4 in., with one of the following letters printed on each card: C A T D O G B Y I R L. (23:T126)	1.10
34310.	**Word Building Test,** Whipple's. A form which calls for a combination of words from the letters B M T A E O. (268:T47.) Per 100	.80
34311.	**Word Building Test,** Whipple's. A form which calls for a combination of words from the letters E A I R L P. (23:T31; 175:22-24; 268:T47.) Per 100	.80
34321.	**Sentence Building Test,** Wallin's. Six record blanks (J1, J2, J3, J4, J5, and J6), three with a set of 3 nouns and three with a set of 3 verbs. (D.C. April and May, 1912; 248; 249:257, 275, 313; 251.) Per 25 sets	1.25
34323.	**Sentence Test,** Binet and Simon. Goddard's card containing 3 sets of words which when put in the proper order make sense. (69)	.10
34327.	**Sentence Test,** Yerkes and Bridges. A card with 3 series of words which when put in the proper order make sense. (283:T18; 285:43-44)	.10
34328.	**Sentence Test,** Winch's. A form with 10 words printed at the top of the page which the subject is to use in composing a story. (23:T99.) Per 100	1.50
34335.	**Linguistic Test.** Two printed forms, A and B, for the composition of sentences. One sheet has the beginning of thirteen sentences and the other the beginning of twelve. The sentences are numbered from the bottom of the page up. (268:T46.) Per 100 sets.	3.00
34338.	**Linguistic Test,** Woolley and Fischer. A set of 5 forms with thirteen incomplete sentences. (281:S13.) Per 100 sets	7.50
34341.	**Linguistic Test,** Woolley and Fischer. Form A of Nos. 34335 and 34338. (261:127-142.) Per 100	1.50
34342.	**Cradle Test,** Shaw's. This test consists of a cradle made up of 15 sections. The different sections fit tightly so that pegs or other devices are not required in the process of assembling. (23:T107; 33:445-458; 35:35-37, 62-63)	13.50
34343.	**Wheelbarrow Test,** McFarlane's. An assembly test devised for boys; consisting of 8 sections made of ½ in. thick wood. The different sections are held together by wooden pags inserted in tongues running through slots. The wheelbarrow is approximately 8x9x20 in. (23:T68; 125:21)	13.50
34344.	**Cradle Test,** McFarlane's. An assembly test devised for girls; consisting of 8 sections made of ½ in. thick wood and put together in the same manner as the No. 34343 wheelbarrow. The cradle is also approximately the same size. (23:T68; 125:21)	13.50
34345.	**Chair Construction Test.** A chair composed of 12 sections. These, like the sections of the No. 34342 cradle, fit tightly and require no pegs or staples for fastening. (33:445-458; 35:35-37)	5.50
34346.	**Manual Dexterity Test,** Whitman's. This material consists of three peg boards, a metal tray with five sections (one adjustable for length), 100 wooden pegs of different colors, 200 brass pins, and 20 bolts with nuts. (23:T62; J.o.E.P. 1925:118-123)	11.50



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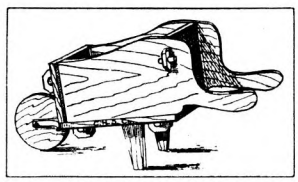

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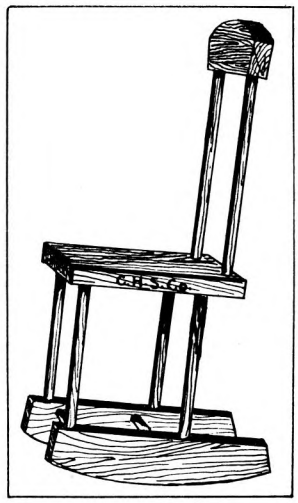

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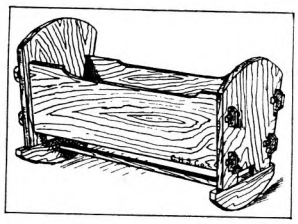

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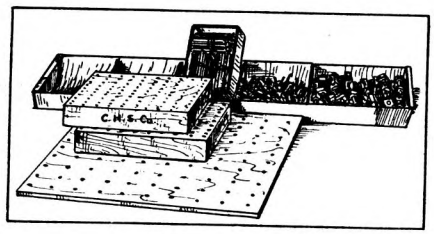
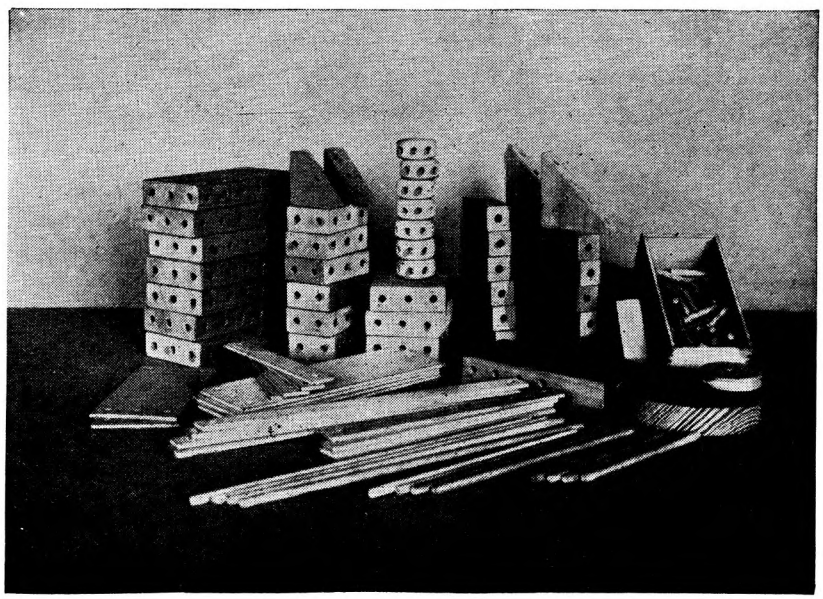


No. 34346.

Number

Price

34347. **Constructive Ability Test,** Kelley's. This test was devised as an attempt to measure the ability to initiate as well as to execute a task. With such an object in view, the end cannot be set for the subject. Another requirement of a useful test of this kind is that it shall be capable of accurate grading and standardization. It has therefore been attempted to devise a test which (1) is free from dependence upon language, (2) free from preceding formal training, (3) tests initiative as well as manipulative ability, and (4) is capable of objective grading and standardization.



No. 34347.

It may seem that the condition permitting objective grading and the one allowing for individual initiative are mutually contradictory. This has been the point of greatest difficulty in devising the present test and the means of grading it. The test and procedure finally evolved aim to meet both conditions.

The aim has been to have material that would test a wide range of mental ages; that would give the minimum of familiarity, yet ample opportunity for building; and finally, that would be so limited in amount that the time necessary to give the test would not be prohibitive.

In addition to differences in merit of structures built, the test reveals material qualitative differences. Any number of problems are suggested by the test—the determination of sex differences; the correlation expressed in terms of coefficients of correlation between the function here tested and other mental tests; the correlation between

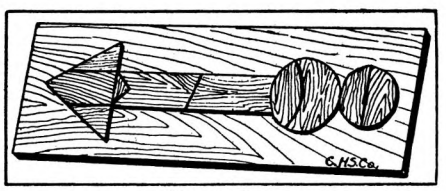
Number Price

success and vocational fitness, etc., etc. The test is particularly applicable in examining children of very different environments, for the trait measured is a creative and executive one but slightly influenced by the ordinary past training of an individual.

All of the material shown in the illustration, in accordance with Dr. Kelley's specifications. (23:T60; J.o.E.P. Jan. 1916; 125:74-75) ..... $ 15.00

34348. **Record Sheets,** Kelley's. For No. 34347. Per 100 ..... .80

34349. **Photographs, Stereoscopic,** Kelley's. A set of 39 for evaluating the subject's performance; directions for administering the test; and a copy of the January, 1916, Journal of Educational Psychology. (23:T60; 125:74-75) 15.00



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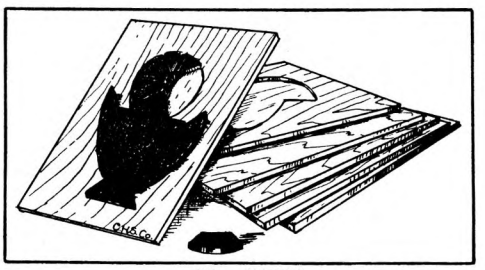
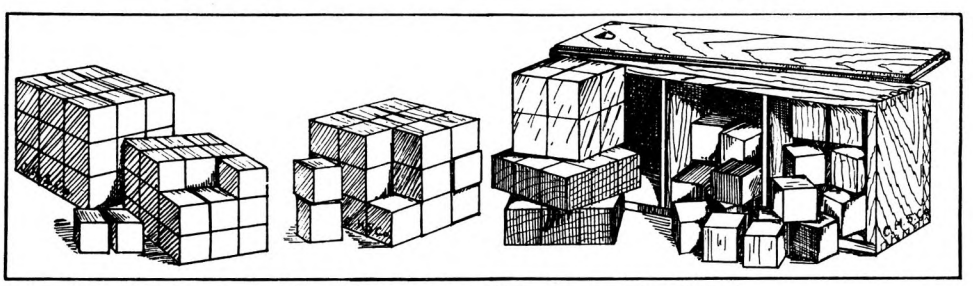


No. 34354.



No. 34361. No. 34362. No. 34364.

34352. **Arrow Board Test,** Dunham's. A form board test with 10 insets which project beyond the recesses. (23:T70) 12.75

34353. **Automobile Construction Test,** Hayes and Dewey; originally called the "Cart Construction Test." The material used is so obviously an automobile that the liberty was taken of changing the name of the test. This dissectable, wooden toy automobile consists of 16 parts and provides material for two different problems. (23:T58; 37:21-23) 1.75

34354. **Construction Puzzle Test,** Woolley's. Six frames with heavy cloth backing, cut out in the center to represent the following shapes: egg, flower-pot, chick, ship, cradle, and seal. Accompanying the frames is a set of 9 small stone blocks from the "egg of Columbus," to fill out the recesses in the frames. (23:T74; 279:138-141.) 7.50

34360. **Cube Test,** Drever and Collins. A modification of the Gaw test; painted gray. (42:C2). 8.50

34361. **Painted Cube Test,** McFarlane's. A model 3 in. cube, painted red, and grooved to represent twenty-seven 1 in. cubes; and twenty-seven 1 in. cubes, 8 of which are painted red on three sides, 12 on two sides, 6 on one side, and 1 left unpainted. (23:T64; 125:35-36) 4.75

34362. **Cube Construction Test,** Link's. Twenty-seven 1 in. cubes painted in such a manner that when put together they will make a 3 in. cube painted green on the outside. (121:124, 395, 429) 2.70

34363. **Record Blanks,** Link's. For recording the subject's performance of the No. 34362 Cube Construction Test. Per 100 ..... 1.50

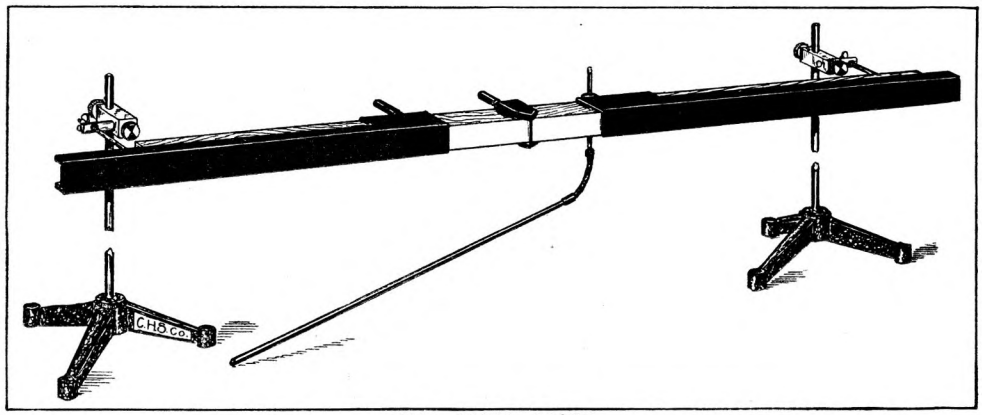
34364. **Cube Construction Test,** U.S.A. This test consists of a block of wood (Model 1) painted a dark red on four sides, but not on the upper and lower surfaces, and cut to a depth of 2 mm. so that it closely resembles a composite of nine 1 in. cubes; 9 cubes necessary for the construction of Model 1, 4 painted on two sides, 4 painted on one side, and 1 left unpainted; a second block of wood (Model 2), the same size as Model 1, but painted on the top as well as on the four sides; 9 cubes necessary for the construction of Model 2; a third block of wood (Model 3), unpainted and cut on the six surfaces so that it looks like a composite of 8 small cubes; 8 cubes painted on three sides for the construction of this model. (287:T4) 8.50

34365. **Boat Test,** N.Y.S.B.o.C. An invention test consisting of a cardboard boat and three men, one large and two small. The four pieces are supplied in a strong envelope. (147:T13.) ..... .80

Number		Price
34366.	**Frock Test,** McFarlane's. This is an assembly test for girls and consists of seven pieces put together by means of snaps. (23:T61; 125:21-25.)	**$ 11.50**
34366A.	**Coat Test,** McFarlane's. This is an assembly test for boys and consists of seven pieces put together by means of snaps. (23:T61; 125:21-25.)	**23.00**
34367.	**Ingenuity Test,** Gwinn and Thurstone. Ingenuity in attacking and solving the problems which confront us is a valuable asset in life; the individual who possesses this valuable trait in even a fair degree will always be in demand. Trying to discover this trait is a new venture in mental tests and to date the work carried on gives promise of being useful in a number of different ways.	
	The test consists of an 8-page pamphlet containing 25 short problems designed to test the individual's ingenuity from a number of different angles. The time limit is 60 minutes. (23:T9.) Per 25	**6.25**
	Per 100	**18.75**
46645.	**Manual** for No. 34367. Contains instructions for administering and scoring, also norms. (23:T9)	**.50**
34370.	**Scientific Ingenuity and Juristic Aptitude Test,** Roback's. Consists of a series of 4 tests—Problem, Category, Discrimination, and Refutation Tests—each of which may be used separately.	
	The problem test contains twenty hypothetical problems (covering phenomena in various sciences) which require considerable ingenuity to answer, though little technical knowledge is needed for that purpose as the average educated person is conversant with the fields they cover.	
	The category test prognosticates ability for rigid and methodical classification.	
	The discrimination test contains twenty pairs of words (both abstract and concrete) which the examinee is to differentiate by explaining the basis of the difference.	
	The refutation test includes ten statements or arguments which are to be controverted in detail.	
	The material in these tests has been carefully prepared with a view to giving the examiner a novel situation. It is very unlikely that the student would be familiar with more than one or two items. Each of the tests is preceded by instructions and at least one illustration fully worked out.	
	These tests are designed primarily to discover students capable of doing graduate work, with promise particularly in the cultural (non-physical) sciences. Juristic aptitude makes use of much the same processes, hence the tests overlap.	
	Among the functions tested by this series are (1) clear-headedness; (2) ability to pick out significant cues; (3) knack of relating seemingly unrelated factors; (4) discrimination of differences by noting basis of difference; (5) methodical procedure in placing facts; (6) ability to detect a flaw in a plausible position; (7) ability to set down a point clinchingly. Per 25 sets (36 pages)	**18.00**
	Per 100 sets	**54.00**
34370A.	Problem Test only, (16 pages). Per 25	**8.00**
	Per 100	**24.00**
34370B.	Category Test only, (4 pages) Per 25	**2.00**
	Per 100	**6.00**
34370C.	Discrimination Test only, (8 pages). Per 25	**4.00**
	Per 100	**12.00**
34370D.	Refutation Test only, (8 pages). Per 25	**4.00**
	Per 100	**12.00**
46538.	**Manual,** Roback's. For complete No. 34370 Scientific Ingenuity and Juristic Aptitude Test	**2.25**

DISCRIMINATION—REASONING—JUDGMENT

36005.	**Comparison Test, Knox's.** A card with five groups of figures. One of the 10 Year Tests of the Knox series devised for the U.S.P.H.S. at Ellis Island, New York. (113)	**.25**
36007.	**Comparison Test, Line,** Binet and Simon. Goddard's) version, consisting of a set of 33 cards with lines of various lengths and different degrees of separation. (T.S.B. Nov. and Dec. 1908; 266:474-475)	**1.65**
36009.	**Comparison Test, Line,** Binet and Simon. Goddard's card, containing two light parallel lines of different lengths. (69; 173; 221:T4, 1; 233)	**.10**
36011.	**Comparison Test, Line,** Yerkes and Bridges. The No. 36009 Binet and Simon card with heavy parallel lines. (283:T3)	**.10**

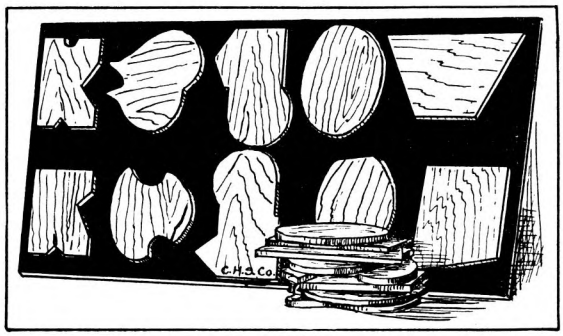


Nos. 36021, 36022.

Number		Price
36021.	**Galton Bar,** Titchener's. For the equating of visual extents. The bar consists of an extra heavy, well-seasoned wooden meter rod graduated on the rear side in millimeters and numbered every centimeter. The front of the meter rod is faced with white xylonite; a groove at the top and bottom of the rod serves to guide the two end screens and the central index wire. The right-hand screen and the index are adjustable by hand and fastened with set-screws. The screen at the left (the one used by the subject) is actuated by means of a rack and pinion, the rack being countersunk in the rear left half of the meter rod. The rack and pinion is operated by means of a flexible shaft at the end of a wooden handle about 44 in. long. (165:X37; 227:X15; 228:152-187)	**$ 90.00**
36022.	**Support** for No. 36021	**18.75**
36026.	**Cylinder Test,** Montessori's. Three sets of 10 cylinders each, the first set varying in diameter, the second in both diameter and height, and the third in height only. (11:83-86)	**32.00**
36027.	**Adaptation Board,** Vineland. A board with four holes and a thick, round block. The holes in the board appear to be all of the same diameter, but the block will fit into only one of them. See illustration on page 135. (T.S.B. Feb. 1915)	**4.50**
36028.	**Cylinder Test,** Witmer's. A circular board with 18 recesses on the outside margin, into which cylinders of different lengths and diameters are fitted. The center of the board is used as a tray for the cylinders. (P.C. 1918:54-59; 23:T75)	**35.00**
36029.	**Rods,** Martius'. A set of standard rods, 20, 50, and 100 cm. long. Made of 5 mm. sq. hard wood left in their natural colors; and a set of variable rods with differences of .5 cm. for the 20 cm. rod, and 1 cm. for the 50 and 100 cm. rods. The rods are supplied with pins so that they may be readily attached to a screen. (228:261-263)	**10.00**
36030.	**Screens,** Martius'. A set of 2 for No. 36029. Arranged for hanging on the wall. (228:261-263)	**15.00**
36034.	**Sorting Test,** Baldwin and Stecher. A combination color discrimination and motor coordination test, consisting of a set of 5 cardboard boxes, about 1 x 2 in., and a package of 100 small cards on which are mounted small squares of yellow, black, green, red, and blue paper. (11:126-128)	**2.75**
36035.	**Ethical Discrimination Test, Fernald's** (G. G.). This test consists of a large card, numbered 1-10 on the margin; and 10 strips of cardboard, each bearing a proposition expressing an offence and a letter of the key word "Epicanthus." The subject's problem is to arrange these different strips of cardboard on the large card in the order of their gravity. The proper sequence is the one corresponding to the order of the letters in the word referred to above. (47:545-548)	**.40**
36036.	**Reaction Test,** Sharp's. Reactions to moral questions. A card with two texts designed to gauge somewhat the powers of intellectual comprehension of a moral situation, as expressed in language. (79:110-111; 85:T21)	**.15**
36037.	**Ethical Discrimination Test. Kohs'.** Our ability to live in peace and happiness with our fellow-beings, or free from restraint, depends to a great extent upon our ethical perception. In order to properly protect society from the mentally-deficient, who are more or less morally deficient, it is of the greatest importance that these endividuals be discovered early in their careers, preferably in the school-room, so that corrective training may be early administered; or when this holds out no hope of success, that other steps may be taken to protect society from their activities. This test furnishes an easily applied diagnostic instrument that gives an adequate insight into a subject's ability to make proper ethical discriminations. The test consists of a ten-page booklet, containing carefully selected questions on social relations, material for making moral judgments, proverbs for interpretation, moral terms to be defined, conduct to be evaluated, and moral problems for decisions. The norms so far obtained are of a tentative character, but nevertheless have proven a very reliable standard for practical work along this line. Per 25	**6.75**
	Per 100	**20.00**

Number		Price
46376.	**Manual,** Kohs'. An eight-page booklet containing concise instructions for administering and scoring No. 36037; also a series of tentative norms and classifications.....	$ 0.65
36038.	**Moral Concept Test,** Brotemarkle's. Referred to as a comparison test in order to disguise its real purpose. The test is composed of 7 seven-word tests. The words of each test presented in column are to be placed in a series of horizontal spaces. The comparison is based upon the acceptance of two words already placed as the extremes or antonyms in a given series. After the first comparison has been made, an opportunity is given the individual to alter the words given as extremes, or to substitute any other word that is preferable. Next, the individual is given the opportunity to clarify his meaning of the comparative arrangement given the words by placing above them a word which modifies or clarifies each meaning. The tests are based on a modification of the James and Lange Theory of the Emotions. This permits investigating of the stimulus—response process from point to point, and the locating of the level of mal-adjustment. Test 1 presents what is termed the "basic moral principle." Test 2 presents what is termed the "reaction profile." Test 3 presents what is termed the "emotional response." Test 4 presents what is termed the "expressive-regressive attitude." Test 5 presents what is termed the "relational adjustment." Test 6 presents what is termed the "under-lying feeling—emotive profile." Test 7 presents what is termed the "resultant orientation." The result is the naïve expression of the comparative content of the moral concepts, and it is obtained without the individual knowing that the test involves the moral field in any way. The deviation score is indicative of the relative standing of the individual in the group. It is readily attained by use of the standard results established for college adults and others. So far the results indicate that the test has a significant factor of discrimination in the general intelligence and intellectual standing of the individual, establishing a differentiation in the tertile divisions. The emotive mal-adjustment represented in the deviation score is usable for group treatment of the lower tertile at least. The specific level of individual mal-adjustment presents the opportunity of correction, according to the most applicable physical, mental, moral, and social procedure. The test has been largely confined to the adult level, from 18 to 60. From a number of individual results it is certain that the test can be used at the high school level, i.e., 14 years. Its use in preparatory schools, military schools, reformatories, and all other institutions is limited to the adult age level, and primarily dependent on the use of language. Per 25.....	1.50
	Per 100.....	4.50
10013.	**Scoring Guide,** Brotemarkle's. For No. 36038.....	.50
46115.	**Manual,** Brotemarkle's. A reprint from the Journal of Applied Psychology, giving explanation, instruction, and data for evaluating No. 36038.....	.40
36039.	**Discrimination of Form Test,** Terman's. Two cards with the 10 forms used for the Terman or Stanford revision of the Binet and Simon scale. (173; 221:T4, 2).....	.20
36040.	**Essential Difference Test,** Shakow and Kent. A printed form with 26 groups of four words each. The subject is to mark the words that do not belong to the group. (23:T5.) Per 100.....	1.50
36041.	**Proverbs Test,** Thurstone's. A form with two sets of 20 proverbs. In each set there is one that corresponds to one in the other set. (23:T22.) Per 100.....	1.50
36042.	**Identification of Forms Test,** Woolley's. Consisting of two sets of 10 identical forms, one mounted on a large black board approximately 10½ x 21 x 1⅜ in. The subject is allowed to feel of one of the shapes and after the screen is taken away from in front of the board, is to try to identify the form handled. (23:T92; 37:30-31, 79).....	17.50
36043.	**Ethical Discrimination Test,** Wilson's. 1929 Revision. The material of this test will examine with reliability the insight which one has developed in the field of the professions, thus testing interest and character development in this important field of human relations. The test may be used in colleges, universities, business organizations, and professional schools. It makes no difference whether the adult taking it is a college student or engaged in one of the ordinary walks of life. The test covers bankers, editors, physicians, teachers, clergymen, and lawyers. (A monograph is in course of preparation.) Per 25.....	8.50

Number		Price
	Per 100	$ 25.50
46780.	**Manual,** Wilson's. 1929 Revision. For No. 36043	.25



No. 36042.

36045. **Unfinished Picture Test,** Binet and Simon. A card with four outline drawings, in each of which there is a part lacking. (69; 233; 266:502) ..... .10

36046. **Unfinished Picture Test,** Binet and Simon. The Yerkes and Bridges modification of No. 3 of the 8 Year Tests. This card is printed on both sides. The figures are the four originally used. The first figure, without arms, is used for the first part of the test, and the three heads printed on the opposite side are used for the balance of the test. (283:T2; 285:26-27, 130, 173, 175) ..... .20

36047. **Unfinished Picture Test,** Binet and Simon. The card used by Terman, also Porteus and Hill in their revisions of the Binet and Simon Intelligence Tests. (173: 221:T6, 2) .... .10

36049. **Error Checking Test,** Thurstone's. A test of concentration, consisting of a form with a number of examples in addition and substraction, with answers which the examinee is to check. (23:T103.) Per 100 ..... 2.50

36050. **Narrative Pictures Test,** Hayes and Dewey. The story of Cinderella and a chart with 12 pictures. The subject is required to designate the correct order of the pictures as the story is being told. (23:T13) 1.75

36057. **Mental Process Test,** Franz's. A series of 7 forms with key for testing the time of mental processes. The forms consist of 1 digit form, 2 letter forms, and 4 figure forms. (55:131-141; 57:126-133) Per 25 sets, with key 1.50

36065. **Filing Test, Alphabetical,** Link's. A slip containing a number of words and letters for demonstration purposes, and a sheet with 50 words which must be checked as belonging either before or after certain given letters of the alphabet. (121:108, 177, 394, 417) Per 100 ..... 1.75

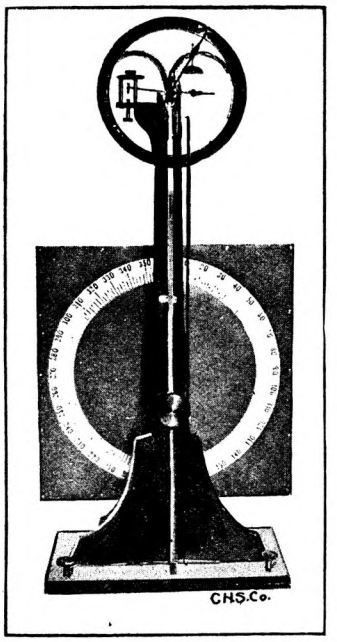
36067. **Filing Test, Alphabetical,** Link's. Designed to test the innate or natural ability of the subject for this class of work. It consists of a 3 x 5 in. filing box with an alphabetical filler, and 28 cards, each containing a name. (121:108, 177, 394, 418) 1.75

36075. **Complication Pendulum,** Wundt's. Designed to present a series of visual stimuli, any series of which may be accompanied by some disparate stimulus, such as sound, pressure, etc. While the experiment is primarily one of attention, and the visual impression and its complication objectively coincident, they are not necessarily "apperceived" as coincident. There may be a "temporal displacement" of the two simultaneous impressions according to the direction of attention. The observer's task is to determine the position of the pointer on the scale the instant the bell or other stimulus is brought into action. The speed of the pointer is governed by the position of the pendulum bob, and may be set to actuate the stimulus at any point on the dial 441.00

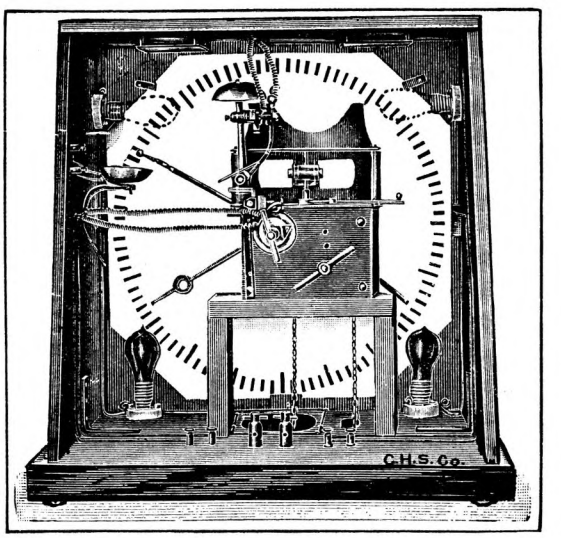
36076. **Demonstration Dial.** A translucent dial divided into 360 degrees, and arranged for attachment to the No. 36075 complication pendulum. With the aid of this dial, the complication experiment may be nicely demonstrated to an audience. The dial is easily attached and removed 40.00

36077. **Illuminating Attachment.** Designed to illuminate the No. 36076 translucent dial from the rear in such a manner that no shadow is cast on it 28.00

36080. **Complication Clock,** Geiger's. This model was originally built for Titchener. It differs in various minor details from Geiger's original model. The difference between the pendulum and the clock is that the hand of the clock moves uniformly around its dial, whereas the pointer of the complication pendulum repeats the accelleration of the pendulum movements. The clock, as will be noticed in the illustration, is operated by a weight, and the speed is controlled by an adjustable regulator which permits variations from 2-8 seconds. The stimuli provided consists of two gongs, one for experimental purposes and a very loud one for demonstrations to an audience. The translucent dial is illuminated by four incandescent lamps mounted so that they do not cast shadows. See illustration on page 166 ..... 620.00



Nos. 36075, 36076.



No. 36080.

Number		Price
36105.	**Syllogism Test A,** Thurstone's. A form with a list of 20 mixed arguments, some of which have true and others false conclusions. The examinee, working as rapidly as possible, takes the arguments in the order given and is required to place a plus sign after the argument if true, and a minus sign if false. (23:T30.) Per 100	$ 2.50
36107.	**Syllogism Test B,** Thurstone's. An alternative reasoning test based on 32 arguments about the height of Brown, Jones, and Smith. (23:T30) Per 100	1.50
36111.	**Syllogism Test,** N.Y.S.B.o.C. A form with 5 syllogisms. Devised to find at what age abstract reasoning may be expected. A normal 13 year old child may be expected to form correct conclusions for three of the five. (147:T7) Per 100	.80
36205.	**Aesthetic Judgment Test,** Binet and Simon. Goddard's card containing three series of drawings of women's heads. No. 4 of the 6 Year Binet and Simon scale. (69; 173; 221:T5, 3; 233; 266:499)	.10
36207.	**Aesthetic Judgment Test,** Binet and Simon; Yerkes and Bridges revision. A card with the Binet and Simon arrangement on one side, and a somewhat different arrangement of the pictures on the other side. (183:T1; 185:26, 127, 169-171)	.20
36210.	**Adjustable Figures,** Poffenberger's. An adjustable rectangle and a cross, for aesthetic judgment of form. The set of two black figures is made in such a way that the size of the rectangle and the proportion of the cross may be varied by means of white sliders operating on the heavy white cardboard background. (165:X42; 196:198-199; 215:243-245)	3.00
36211.	**Absurdities Test,** Franz's. A card with five absurd statements upon which the subject is to give his opinion. (55:147; 57:139)	.10
36237.	**Peg Board Test,** N.Y.S.B.o.C. A modification of the kindergarten board used as a motor co-ordination test. (147:T11)	.50
36240.	**Aesthetic Judgment,** Poffenberger's. A set of 15 cards, 3 x 3 in., each containing a combination of two colors. Used for determining the aesthetic value of color combinations. (165:X43)	1.50
36241.	**Photographs.** A set of 36 newspaper and periodical photographs, mounted on cardboard. For experimenting with the theories of those who attempt character analysis by means of facial and bodily conformation, texture of skin, hair, etc. (63.401-403; 77:50-92; 87:X16)	14.50
36242.	**Photographs.** A carefully selected set of 25 half-tone photographic prints cut from newspapers and magazines. They represent individuals recognized for intelligence, kindness, generosity, humor, neatness, and honesty; but who are not universally known, whose features are in repose, and whose bearing, environment, and clothing fail to give a clew to any of their characteristics, outside perhaps that of neatness. The photographs are mounted on 8 x 4½ in. cards and the rear contains a newspaper or magazine clipping of sufficient length to provide the necessary information for classifying the individual. (87:X16; 165:X44)	10.00

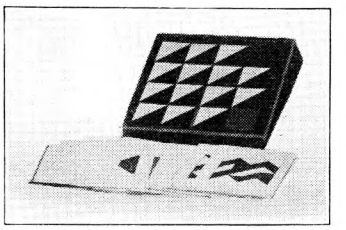
No. 36244.

No. 36246.

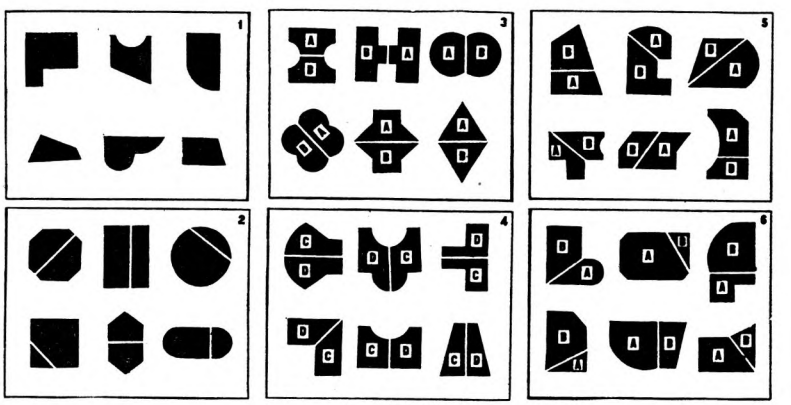
Number		Price
36244.	**Photographs,** Feleky's. This set of 24 photographs is the result of a rather extensive pioneer investigation by Miss Antoinette Feleky, and shows the female features expressing twenty-four of the more readily recognized emotions. The pictures are very good for studying the facial expressions evoked by the different emotions, and for testing the individual's judgment in identifying emotional states from facial expressions. The pictures are mounted on heavy 4 x 5 in. cardboard. (P.R. Jan. 1914:33-41; 2:224; 43; 51:X24; 51A:X31; 87:X17; 186:133)	$ 6.70
36245.	**Geometrical Forms,** DeSanctis'. Three four-sided wooden pyramids, about 2 in. high; 2 wooden parallelopipeds, 2½ x 1½ in.; and 5 wooden cubes the same size as one of the small cubes of No. 36249. (266)	.75
36246.	**Photographs,** Ruckmick's. A study of the female face, designed to demonstrate the expression of thirty-two of the more fundamental emotions. The photographs are half-tones, mounted on cardboard and numbered to conform to the list of adopted descriptions. Complete with eight-page manual (2:224; 63:399-401; 65:157-160; 156:167-172; 168:133)	2.50
	Per 10 sets	22.50
	Per 25 sets	50.00
36247.	**Form Test,** DeSanctis'. A test card with a collection of forms, and a small, black, wooden cube. (266:470)	.50
36248.	**Photographs,** Hickson's. A series of photographs of defective delinquents, male and female, intelligent and unintelligent in appearance. This set of photographs is the result of careful selection and will be of interest to psychologists, psychiatrists, sociologists, and others who are interested in the study of intelligence and delinquency from personal appearance	75.00
36249.	**Cubes,** DeSanctis'. A set of 12, ranging in size from about 10 to 80 mm. (266)	1.50
36250.	**Photographs** of Abnormals. A set of 50 half-tones from newspapers, etc., mounted on cards. The photographs include criminals, suicides, fanatics, doctrinaires, zealots, cranks, and others who by their interests and behavior give evidence of some phase of abnormality	20.00
36251.	**Photographs,** Rudolph's. A set of 18 pictures depicting the male face in a number of the more easily recognized emotions. (2:200-232)	10.00

INTELLIGENCE TESTS

37000. **Block-Design Test,** Kohs'. A carefully standardized test of the performance type which may be used on subjects who understand spoken language, those who do not understand spoken language, and those who do not know the names of colors. This test possesses an appeal which touches the roots of some of the very fundamental original tendencies. Of all the subjects tested, not one manifested an absence of a desire to combine the cubes in some fashion. The test consists of 16 colored cubes of approximately 1 in., and 17 cards, 3 x 4 in., each carrying a colored design of a different



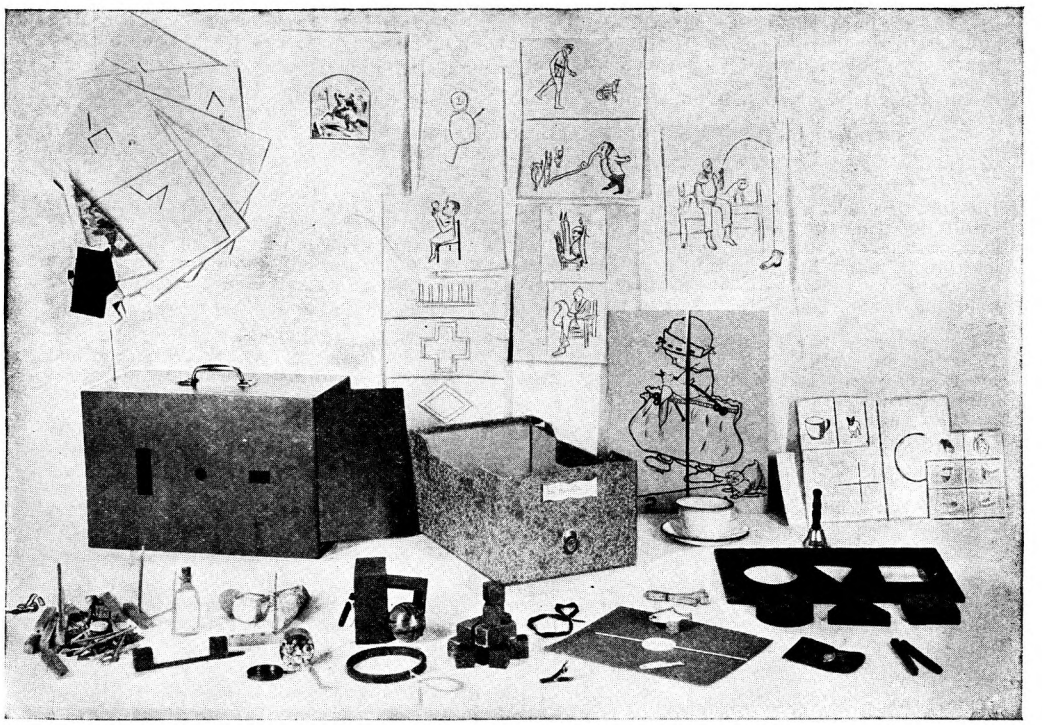
No. 37000.



No. 37007.

Number		Price
	degree of difficulty. The cubes have a red, blue, white, and yellow surface, and the remaining two surfaces are divided diagonally and have two colors each, one being blue and yellow and the other red and white. (J.o.Ex.P. Oct. 1920; 23:T96; 116).....	$ 3.35
46378.	**Scoring Table and Mental Age Equivalents,** Kohs'. On card. For No. 37000.....	.85
44028.	**Scoring Blank,** Almack's. For No. 37000. Per 100.....	2.50
37000A.	**Colored Cubes,** Stutsman's. Sixteen brightly colored cubes in a closely fitting wooden box. These cubes are used in the Stutsman Sixteen-Cube Test. They are the same cubes as those used in the No. 37000 Block-Design Test and Color Cube Tests. (219:14-17)...	.65
37000C.	**Color Cube Test,** Maxfield's. A set of 8 color cubes similar to those used in No. 37000, and a set of 5 (A, B, C, D, E) hand-painted designs for imitation. (P.C. 1925:98-109; 23:T59)	6.25
37000E.	**Color Cube Test,** Kent's. The 16 color cubes used by Kohs and 12 hand-painted designs, 4 lettered C-F and 8 numbered 1-8. (23:T97).....	20.00
37000F.	**Block-Design Test,** Kohs'; modified by Drever and Collins. Includes the blocks but only 10 of the set of 17 cards. (42:C2).....	3.00
	Form Boards, Ferguson's. This series of 6 form boards is the result of an extended series of experiments originally conducted with a series of 12 boards. The six selected furnish a graduated series increasing in difficulty from 1 to 6, and appear to be adapted to testing the individual through the school system, from primary grades to college inclusive. The boards will be supplied separately or in sets. (J.o.Ex.P.Feb. 1920:47-58; 23:T83)	
37001.	**Form Board No. 1,** Ferguson's. A simple board with one inset for each recess. The insets of this board, like those of the succeeding boards, project above the board.....	8.25
37002.	**Form Board No. 2,** Ferguson's. In this board the insets are made up of two sections	9.00
37003.	**Form Board No. 3,** Ferguson's. The insets are of a more complicated form, and in addition are cut apart at an angle of 45° to the surface.....	11.75
37004.	**Form Board No. 4,** Ferguson's. The insets in this board are cut in half and one of the halves grooved while the other half is made with a double bevel.....	12.75
37005.	**Form Board No. 5,** Ferguson's. On the order of No. 3 but rendered more difficult by diagonal sectioning of the insets.....	11.75
37006.	**Form Board No. 6,** Ferguson's. The insets have been cut apart at an angle of 45°, similar to those of boards Nos. 3 and 5, but the dimensions and forms of the insets	

Number		Price
	are of a character that makes them difficult to match and leads the unobserving subject to frequently think that part of the problem has been solved when the solution has merely been of a very superficial character	$ 11.75
37007.	**Form Boards,** Ferguson's. Complete set of 6 boards (Nos. 37001-37006)	58.50
37009.	**Tests,** Fernald's (G. G.). For the defective delinquent class. Comprising Nos. 11401, 11101, 11223, 19013, 19014, 25137, 12325, 19307, 22407, 20207, 19433, 30216, 30011, 32103, 27105, 36035, 10107. (47:523-594; 49)	324.60
37010.	**Intelligence Tests,** Drever and Collins. A series of performance tests for testing the intelligence of the deaf and illiterates. While the majority of the tests are of American origin, a few new ones are included, and in several instances, the American tests have been modified in construction and size to meet the compilers' ideas of strength, design, and portability. There are two sets, Set A and Set B; the latter includes three tests of Set A. Set A includes the following: Test 1, No. 37000F Kohs' Block-Design Test, with the 16 cubes but only 10 of the card designs; Test 2, No. 33304 Knox's Cube Test, modified by Pintner and Paterson; Test 3, No. 27306 Drever and Collins' double set (20) of "dominoes;" Test 4, No. 19012 Size and Weight Test, comprising a set of brass weights, a set of round wooden weights, and a set of wood cubes; Test 5, No. 27170 Pintner and Paterson's Manikin Test and No. 27183 Knox and Kempf's Feature Profile Test, modified by Pintner and Paterson; Test 6, No. 27167A Pintner and Paterson's Two-Figure Form Board, modified by Drever and Collins, and No. 27176A Healy and Fernald's Completion Puzzle A, modified by Drever and Collins; Test 7, No. 34360 Drever and Collins' Cube Test; Test 8, No. 34053 Healy and Fernald's Pictorial Completion Test 1 and No. 34055 Drever and Collins' Bo-Peep Test; one No. 25857 carrying case for above tests. Additional material for Set B: No. 27153 Healy and Fernald's Mare and Foal Test, No. 27159A Goddard's Form Board, modified by Pintner and Paterson and further modified to meet the requirements of this series of tests; No. 27188A Dearborn's Triangle Board, No. 34051 Healy and Fernald's Teacher and Class Picture Form Board. Tests 2, 4, and 5 of Set A are also required for Set B. (42:C2, 5)	119.85
37013.	**Tests,** Franz's; Neurological and Psychiatric. This is the minimum set for the most important tests. It comprises the following: Nos. 12003, 12327, 14043, 14349, 15151, 16041, 18003, 18011, 18109, 25129, 10505, 19017, 10411, 19239, 19119, 30197, 27005, 10407, 27311, 34071, 32209, 30011, 30203, 30207, 23007 (2 packs), 32109, 36211. (55; 57)	160.10
37013A.	**Tests,** Franz's; Neurological and Psychiatric. This set comprises Nos. 12003, 12421, 12325, 12327, 14043, 14225, 14349, 15151, 16041, 18003, 18011, 18009, 18107, 18015, 18031, 18023, 25817, 18205, 18221, 18133, 19045, 19041, 18109, 25129, 10505, 19017, 22207, 22303, 22059, 25511, 25503, 22005, 19351, 22221, 10411, 19239, 19119, 19141, 30197, 27005, 10407, 27311, 34071, 34025, 21005, 21237, 32209, 20207, 30011, 30203, 30207, 23007 (2 packs), 36057, 32109, 29105, 36211, 34310, 34311, 27136, 27120, 27121, 24506. (57)	686.50
37015.	**Pre-school Child Test,** Gesell's. The testing material in this set is selected with the greatest of care, and investigators who make use of it can rest assured that no deviation will be allowed to take place unless such deviation has the approval of Dr. A. Gesell. In making use of psychometric tests, too much stress cannot be laid upon the fact that all material must conform strictly to that used by the original experimenter in establishing norms. This series of tests covers development from birth to the sixth year. Due to the time and expense involved in supplying and handling small material of this kind, we are obliged to make it a rule to refuse orders for this material amounting to less than $1.00 net. Under this number we supply the complete material as listed in detail below, including 25 each of the Yale Psycho-Clinic Development Schedules. (67)	37.69
37015- 1.	**Saucer,** White Enamel	.40
37015- 2.	**Cup,** White Enamel	.70
37015- 3.	**Teaspoon,** Aluminum	.10
37015- 4.	**Cubes, Wooden,** Red. Set of 10	.25
37015- 5.	**Pencil,** Round, Red	.05
37015- 6.	**Bell,** Nickeled, with wood handle	.20
37015- 7.	**Embroidery Ring,** Wood. Painted red, with white string	.70
37015- 8.	**Paper,** Six sheets each letter and half-letter size	.10
37015- 9.	**Rod,** Wooden, Red, 10 x 1 cm	.15
37015-10.	**Lumber Crayon,** Red	.15
37015-11.	**Pellets, Sugar,** White. Per 200	.15
37015-12.	**Ball, Rubber,** Painted	.20
37015-13.	**Bottle, Glass,** w.m.g.	.15
37015-14.	**Doll, Rubber,** 12 cm. high, with whistle	.25
37015-15.	**Form Board,** 36 x 16 cm. With circle, triangle, and square	4.00
37015-16.	**Performance Box, Wood.** Painted bright green; 38 x 24.7 x 17.6 cm. Open at one end	9.00
37015-17.	**Cards.** Set of 8 white cards with a different figure on each	.95
37015-18.	**Picture Card** with cup, shoe, dog, and house	.12
37015-19.	**Picture Card** with flag, star, basket, clock, leaf, and book	.12
37015-20.	**Picture Card.** Showing six stages in the drawing of a watch	.12
37015-21.	**Picture Card.** A little girl knitting. Bisected vertically	.50



No. 37015.

Number		Price
37015-21A.	**Picture Card.** Same as above but each section bisected horizontally	$ 0.50
37015-22.	**Puzzle Box** with colored ball	2.00
37015-23.	**Cardboard Forms.** Set of 10 colored forms and 5 sheets of cardboard on which are lines indicating where the forms should be placed	2.50
37015-24.	**Picture Card.** Domestic Scene	.12
37015-24A.	**Picture Card.** The above card cut diagonally	.12
37015-25.	**Card, White.** With a 2 in. red square in the center which is subdivided into four 1 in. squares	.20
37015-26.	**Fishing Test.** A green card, 12 x 8 in., with a 2½ in. white circle in the center; a cardboard fish 2½ in. long, a cork, and a steel rod 9 in. long	.70
37015-27.	**Picture Card,** Incomplete Man	.12
37015-28.	**Pictures.** Three pairs; one humorous and one non-humorous in each pair. On 11 x 8½ in. cards	.70
37015-28A.	**Picture.** Boy blowing bubbles. Printed on half-letter size green paper	.12
37015-28B.	**Block Design Test.** Four blocks with one red surface	.25
37015-29.	**Free Construction Test.** A collection of timbers, rods, plaques, checkers, etc	1.20
37015-30.	**Maze Test.** Three of the Porteus Mazes printed on letter size green paper. Per 25	.75
37015-31.	**Picture Card.** Man on shying horse	.25
37015-32.	**Picture Card.** Man fishing up shoe	.25
37015-33.	**Maze** with 14 blind alleys. On 11 x 8½ in. black-lined yellow paper. Per 25	.75
37015-45.	**Personality Interview.** Per 25	.80
37015-47.	**Neo-Natal Period Schedule** (Yale Psycho-Clinic). Per 25	.80
37015-48.	**Developmental Schedule,** Four Months (Yale Psycho-Clinic). Per 25	.80
37015-49.	**Developmental Schedule,** Six Months (Yale Psycho-Clinic). Per 25	.80
37015-50.	**Developmental Schedule,** Nine Months (Yale Psycho-Clinic). Per 25	.80
37015-51.	**Developmental Schedule,** Twelve Months (Yale Psycho-Clinic). Per 25	.80
37015-52.	**Developmental Schedule,** Eighteen Months (Yale Psycho-Clinic). Per 25	.80
37015-53.	**Developmental Schedule,** Two Years (Yale Psycho-Clinic). Per 25	.80
37015-54.	**Developmental Schedule,** Three Years (Yale Psycho-Clinic). Per 25	.80
37015-55.	**Developmental Schedule,** Four Years (Yale Psycho-Clinic). Per 25	.80
37015-56.	**Developmental Schedule,** Five Years (Yale Psycho-Clinic). Per 25	.80

37016. **Test Cards and Pictures,** Binet and Simon. Used for the Goddard revision of the Binet and Simon Measuring Scale for Intelligence: Nos. 32109, 36009, 32307, 27207, 36205, 36045, 32309, 12305, 32303, 27205, 34323, 33003, 31037. (61:81-90; 69) **3.20**

37017. **Measuring Scale for Intelligence,** Binet and Simon. The 1911 Goddard revision, comprising No. 37016 with the addition of Nos. 19004, 44009, and 46210. (61:81-90; 69) .. **10.20**

37025. **Tests,** Healy and Fernald. For practical mental classification. Comprising Nos. 27153, 34051, 27176, 27178, 27141, 29111, 32303, 31032, 31035, 31036, 31037, 32227, 32229, 32231, 27239, 30129, 19235, 34057, 23003, 39006, 44013, 44014. (61:108-114; 85) **111.90**

Number | Price

37028. **Mental Alertness Test, Literate,** Haines'; Form A. A group intelligence test for persons able to read simple English with ease (reading ability for entering the Fifth Grade).

This test is especially recommended for use in schools as a checkup on grade classification, as an aid in determining promotions, and for general survey purposes. It measures alertness and learning capacity in children who can read the directions. It may be used with Fourth Grade children, but some of them will find the printed directions difficult. It is the test to use with all above the Fourth Grade. It brings out marked differences in ability even in high school graduates and in college students. It is a quick and accurate method of assessing the general intelligence of adults.

Directions for giving the tests, for scoring and for interpreting the results are so simple that reliable data can be secured by an intelligent and careful person, even without special training in giving tests.

Results from this test correlate well with the Army Alpha, with the National Intelligence Tests and with Terman's revision of the Binet and Simon tests. From A has been standardized by results obtained from several thousand white children and young persons in public schools and colleges in Mississippi, Missouri, Maryland, Arizona, North Dakota, Wyoming, New York, and Texas.

The test originated in the work of the National Committee for Mental Hygiene. In the state-wide field studies of mental health conditions which had been carried on by the Committee for several years, it had become increasingly clear that mental health conditions among children were of prime importance. The public schools presented the opportunity for the isolation and study of these problems among the young people of any community.

Measurement of learning capacity had long been recognized as an important part of the mental examination, especially of children.

Binet had contributed an accurate means of measuring mental ability. The principle of the Binet and Simon test had been embodied in a group test, the Army Alpha.

When, therefore, the Committee started the Mississippi Mental Deficiency Survey early in 1918, the stage was set for the inauguration of a more intensive study of the mental health of school children than had been possible in earlier studies. The only needed implement was a suitable group test. The army tests were not available at that time for use outside the office of the Surgeon General; furthermore, experience with the army tests had convinced the author that some modifications of the Army Alpha would contribute to its serviceability. This test is a modified Alpha and shorter than the original. It can be given to a group within a 45 minute period. The "information" test of the Alpha, the value of which has been questioned, was replaced by a maze test, thus bringing in a performance element. This makes a special appeal to persons characterized by that special form of dullness which finds difficulty in language. It provides an opportunity for display of ability to contrive without words.

This test has proved to be a valuable means of assessing persons by the group method of testing, on their abilities to learn and to adapt themselves to situations. It provides a useful first approach to the mental study of a group of adolescents or adults in an institution of any sort. The Committee has used it among persons varying widely in age, in race, and in education and other training. It has served to pick out mental health problems in reformatories, penitentiaries, prisons, orphanages, industrial training schools, and many different kinds of homes for dependent persons. It has been used to assess the learning ability of several hundred each of Negro children, Mexican children, and Indian children.

Re-testing the same children at half year intervals will bring to teachers and superintendents important facts in regard to the nature of the problems in many individual children. Some children will be seen as being urged and expected to work quite beyond the capacity developed. Others will have energy and capacity for pushing on much more rapidly than the school affords opportunity for doing. Special needs and special abilities of many sorts, brought out by the tests, will enable the school to give service to the child. The increased value of educational service which such testing makes possible makes the time used in testing and the outlay for material an exceedingly profitable investment. **Per 25** ..... **$ 2.00**

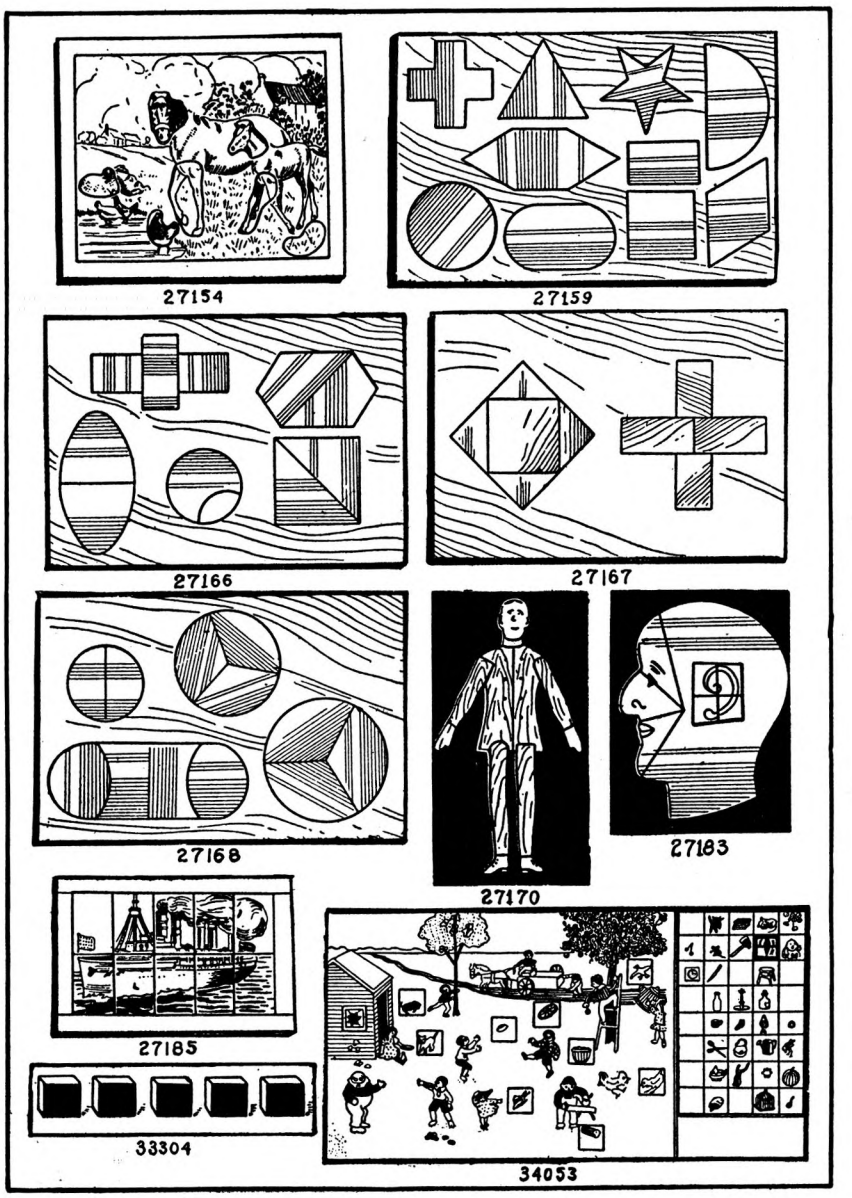
Per 100 ..... **6.00**

10011. **Scoring Guide** for No. 37028 ..... **.50**

37029. **Mental Alertness Test, Illiterate,** Haines'; Form X. A group intelligence test for persons unable to read directions for Form A (No. 37028) with ease.

This test is recommended for use with children who are entering school and those who are in the primary grades. It will aid in classification and promotion in school work. It is especially well adapted to the requirements of general mental and educational surveys of small ungraded schools. While each part-test is simple enough to tap the interest of the beginner, each one is also long enough, and grows sufficiently difficult, to hold the interest of the grammar school child through the time allotted. These features of the test likewise commend this form for mental surveys among adult illiterates, as well as children, in institutions. It is a good test to use in any general mental survey of illiterate persons.

Number		Price
	The test is, in the main, a "performance" test, with the material all in the booklet which is in the hands of the person being examined. Each part is presented as a game. Children enjoy it as a game. Scoring cards and the manual of directions make it so easy to be accurate that any careful teacher may secure reliable measurements of the mental capacities of children. The small outlay required for material is a matter of very small moment when one considers the possibilities of adapting the school facilities to the needs of the individual child as ascertained by the careful and repeated use of the tests. By their use one sees the needs and the capacities of individual children in a light very different from that of class-room performance. Retesting at half year intervals shows varying rates of development as well as it emphasizes other individual differences and special individual needs for adjustment within the school. Young children do not give the same attention to group activity as they give to the question-and-answer procedure of the Binet and Simon tests. Correlation of this test with the Terman revision of the Binet and Simon tests, however, is very good. This test was standardized in the same schools and at the same times with Form A. The standards were obtained from several thousand white children in the public schools of the states named in the description of Form A. Forms A and X are equivalent; by one or the other of these tests every person in a school or other institution can have measured his general capacity for appropriate response to his environment, his general intelligence. Use this form for all persons of reading ability less than is required to enter the Fifth Grade of school. Per 25	$ 2.00
	Per 100	6.00
10012.	**Scoring Guide** for No. 37029	.50
46245.	**Manual,** Haines'. Contains detailed description and directions for giving and scoring Nos. 37028 and 37029	.60
37031.	**Intelligence Tests,** Kent and Shakow. A set of 4, comprising an Information Test, a Sentence Completion Test, a Similarity Test, and an Essential Property Test. Per 25 sets	2.00
	Per 100 sets	6.00
37033.	**Immigration Tests,** Knox's. Devised for the U.S.P.H.S. at Ellis Island, N. Y. This series of tests comprises the following. Nos. 32113, 27156, 33303, 32315, 27191, 33305, 27192, 32309, 32115, 27176, 12307, 27177, 27153, 19005, 27194, 36005, 32217, 27169, 27209, 27182, 27185, 27172, 27174, 27178, 27027, 34015, 44027, 46370. (113)	83.20
37035.	**Mental Tests,** N.Y.S.B.o.C. A series of tests comprising Nos. 27156, 27176, 27178, 19235, 27004, 32104, 29111, 34053, 40003, 30129. (145)	43.40
37036.	**Mental Tests,** N.Y.S.B.o.C. This series comprises Nos. 33303, 27006, 32132, 31235, 32219, 36111, 36237, 19216, 34365. (147.)	12.05
37037.	**Intelligence Tests,** Norsworthy's. For backward and feeble-minded children. These tests consist of 12 printed forms and are put up in packages of 25 sets (300 sheets.) (149)	2.00
37038.	**Intelligence Test,** N.I. of I.P. (Series 33, No. 11061.) A secondary and university students' group test devised by the National Institute of Industrial Psychology, London, England, for 15 years and upward. Pounds, shillings, and pence are used in all questions involving currency. Per 25	2.60
	Per 100	7.80
37038A.	**Manual** for administering and scoring No. 37038	.25
37039.	**Intelligence Test,** N.I. of I.P. (Series 34, No. 5801.) For use with elementary and secondary school students ranging from 10-15 years. Like the preceding might be used in any English-speaking country. There are only a few cases where American subjects would be likely to encounter slight difficulties on account of the origin of the test. Per 25	5.20
	Per 100	15.60
37039A.	**Manual** for administering and scoring No. 37039	.25
37043.	**Picture Game Test,** Town's. An intelligence test consisting of a small picture book of 16 pages. It presents, by means of simple pictures, twelve tests of the Binet type and adapts them to mass testing by the use of the cross-out method. The test is given in the spirit of a game and has proved effective in grading kindergarten and first year classes. (J.o.A.P. June 1922:89-112.) Per 25	5.75
	Per 100	17.25
37043A.	**Manual** for No. 37043	.25
37045.	**Performance Tests,** Pintner and Paterson; "Short" Scale. Comprises the following: Nos. 27154, 27158 (now used instead of No. 27159), 27166, 27167, 27168, 27170, 27183, 27185, 34053, 33304, 44031. (136:661-704; 163)	66.10
37046.	**Performance Tests,** Pintner and Paterson; "Long" Scale. This series of tests includes all of No. 37045 with the exception of No. 44031, and in addition Nos. 27172, 27174, 27176, 31047, 36027, 44032. (163)	79.40



No. 37045.

Number		Price
37047.	**Performance Scale,** Arthur's. A new point scale comprising the following tests: Nos. 33304, 27156, 27167, 27168, 27170, 27183, 27154, 34053, 37000, and 100 each of Nos. 27124-27134 inclusive. (J.o.A.P. Dec. 1925; 5)	**$ 62.50**
37048.	**Test Cards and Pictures,** Binet and Simon. Used for the Porteus and Hill revision of the Binet and Simon Measuring Scale for Intelligence. A set of 15, comprising all of the printed material required in giving this version of the test. (173)	**1.95**
37049.	**Measuring Scale for Intelligence,** Binet and Simon. The Porteus and Hill revision, including No. 37048 with the addition of the following: Nos. 19003, 34021, 44029, and 46510. (173)	**11.35**
37054.	**Maze Tests,** Porteus'; Vineland revision. One package (100) each of Nos. 27122, 27123, 27124, 27125, 27126, 27127, 27128, 27129, 27130, 27131, 27133 (3-14 years), and 46513. (39:117-120; 167)	**9.95**
37055.	**Maze Tests,** Porteus'; Vineland revision. Includes all of No. 37054 and in addition 100 sets of the No. 27134 Adult Tests (I and II). (167)	**11.55**

Number		Price
37056.	**Mental Test,** Rossolimo's; revised in 1917 by Herman Campbell Stevens, Ph.D., M.D. An individual test covering nine fundamental processes: (I) Attention; (II) Suggestibility; (III) Recognition and Discrimination; (IV) Memory; (V) Comprehension; (VI) Construction; (VII) Mechanical Ingenuity; (VIII) Imagination; (IX) Observation and Reason. The original series required three hours and was found to be too extensive and bulky for practical clinical work. By omitting unnecessary repetitions, and slight variations, the test has been revised so that it can be given in one hour. This revision does not sacrifice any of the excellent features of the original series, and with the new method of scoring enhances its applicability, beside making feasible a reliable comparison of the results with those obtained with the original. (A.J.o.I. 73, 1916:273-293; 218:128-149)	$ 58.00
44086.	**Record Blanks,** Stevens'. For the Rossolimo psychograph. Per 25	.80
	Per 100	2.40
37059.	**Intelligence Test Z,** Bixler's. This is a ten-minute intelligence test, and was devised for use by the Junior Employment Offices of the Department of Vocational Guidance of the Pittsburgh Public Schools. The test has been extensively used and is proving very satisfactory in situations where time for giving tests is limited. It correlates very well with tests that require a great deal more time. (S.a.S. Sept. 10, 1921:166-168.) Per 25	2.25
	Per 100	6.75
46086.	**Manual** for administering and scoring No. 37059	.50
37061.	**Performance Tests, Pre-school,** Stutsman's. Developed at the Merrill-Palmer School, Detroit, Mich. This series comprises the following: Nos. 37000A, 27241, 19207S, 19208S, 27106, 19217, 33308, 27159S, 27152, 27163, 27165, 30138, 33309, 27154S, 27170S, 27171, 46620. (219)	45.75
37061A.	**Performance Tests, Pre-school,** Stutsman's. A series of 6 supplementary tests used at the Merrill-Palmer School, Detroit, Mich. This series of supplementary tests comprises the following: Nos. 32320, 32321, 32322, 12313, 25836, and 19237	1.85
37062.	**Test Cards and Pictures,** Binet and Simon. For the Terman or Stanford revision of the Binet and Simon Measuring Scale for Intelligence. A set of 18, comprising all of the printed material required to give the tests. (221)	1.25
37063.	**Intelligence Test** (1V), Thurstone's. A psychological examination for college freshmen and high school seniors. This test was devised by Dr. Thurstone while a member of the faculty of Carnegie Institute of Technology, and was used to measure the native mental endowment of high school seniors and college freshmen. In a school examination the candidate uses his resourcefulness in solving problems relating to a specific course of instruction, whereas in an intelligence test he demonstrates the same mental power in solving problems which do not relate to any specific school work. School examinations test formal schooling in a certain subject, and failure or success is at least partly determined by opportunities and efficiency of tutors. The intelligence test, on the other hand, gives the subject a chance to demonstrate ability to think clearly on simple problems about things that are accessible to everyone. With the aid of this test, an instructor can readily determine whether the student is bright, but lazy; or industrious, but of moderate mental endowment. This test consists of 168 problems and requires 30 minutes. (61:3-13.) Per 25	5.60
	Per 100	16.70
46640.	**Manual,** Thurstone's. For No. 37063. Contains concise information for administering and scoring the tests, also a series of norms derived from 34 liberal arts colleges, 43 engineering schools, 10 normal schools, and a number of other institutions including medical and dental schools	.40
37064.	**Psychological Examination** (1922), Thurstone's. Devised for testing intelligence, and somewhat on the same order as No. 37063. There are 57 problems with a time limit of 30 minutes. As a prognostic and diagnostic instrument, it is the equivalent of Test IV. If there is reason for suspecting that any of the students have been coached on Test IV, it is advisable to use this test. We are very careful about the distribution of all tests of this kind and take the utmost pains to see that they do not fall into the hands of students or others not entitled to see them. Per 25	5.60
	Per 100	16.70
46641.	**Manual,** Thurstone's. For No. 37064. Contains instructions for administering the test, also answers and other information of value to the examiner	.40
37065.	**Measuring Scale for Intelligence,** Binet and Simon. The Terman or Stanford revision, including all of No. 37062 with the addition of Nos. 19003, 27176, 34022, and 44041. (183:500-538; 646-657; 221)	10.90
37066.	**Measuring Scale for Intelligence,** Binet and Simon. The Terman or Stanford revision, consisting of No. 37065 with the addition of Terman's book No. 46630, "The Measurement of Intelligence." (221)	13.60

Number | Price

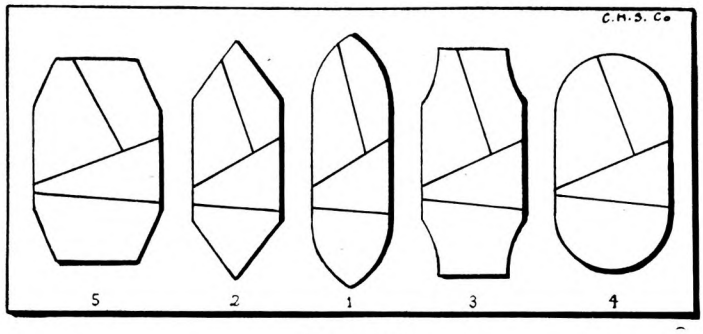
37068. **Measuring Scale for Intelligence, Complete,** Binet and Simon. Includes No. 37062 and in addition Nos. 19003, 27176, 34022, 44042 Abbreviated Filing Record Cards, and 46631 "Condensed Guide." (221) ..... **$ 10.90**

37069. **Improvement Tests,** Wallin's. For measuring the rate of mental growth and improvement. Comprises Nos. 32003, 30003, 30215, 30119, 27103, 30189, 34305, 34321, 46714. (D.C. April and May, 1912; 248; 249:257, 275, 313; 251) **15.75**

37070. **Psychological Examination,** (1923-24), Thurstone's. This is the last edition of this popular intelligence test for college freshmen and high school seniors. Per 25 ..... **5.60**

Per 100 ..... **16.70**

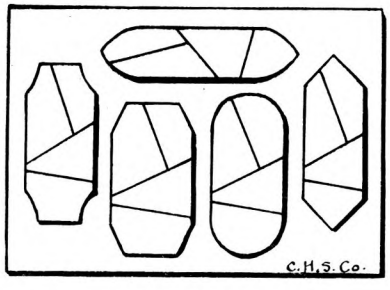
46642. **Manual,** Thurstone's. For No. 37070. Contains instructions for administering and answers ..... **.40**



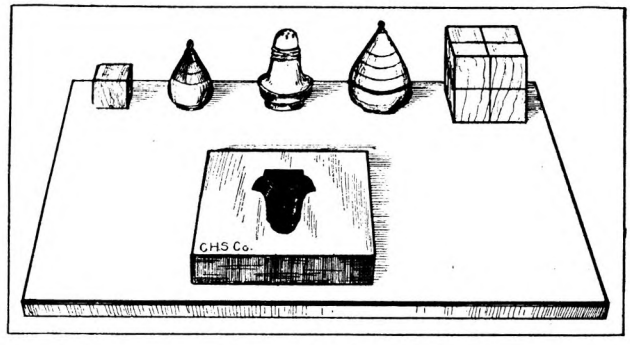
No. 37071.

37071. **Form Board, Industrial,** Kent and Shakow. A wooden base board having five recesses and fitted with eight series of projecting insets. Each series of five insets is painted a different color, and the variation in color is sufficient to enable anyone to readily identify the components of each series. The eight tasks are graduated in difficulty. The test places a high premium upon orderly procedure as opposed to trial-and-error performance. The sequence of tasks is arranged for study of practice effects, the last three tasks being almost impossible except for the subject who takes advantage of his experience in the earlier tasks.

The specific problem of each task is presented five times, and the repetition furnishes a check on the interference of chance. Each task is essentially self-corrective. No two insets of any series are interchangeable, nor are any two so nearly alike as to mislead the subject who gives careful attention to their differences. (P.J. Aug. 1928:115-120) .. **60.00**



No. 37071A.



No. 37073.

37071A. **Form Board, Clinical,** Kent and Shakow. A smaller model of the industrial form board, the base board being made to fit a brief case. Compactness is the essential feature of this model. It differs slightly from the larger model in the arrangement of the five recesses, and also in their proportions. The series of eight tasks is the same, and the two tests are exactly similar in principle. (P.J. Aug. 1928:115-120) **54.00**

37072. **Form Boards, Worcester,** Shakow and Kent. A series of 4 form boards, painted gray, with eight sets of insets: four gray, two violet, and two blue. Two of the form boards are made to serve for a series of insets apiece, one for four series, and the other for two series. The two boards with a set of insets apiece are listed separately below; they are of a very simple type and especially recommended for pre-school children. (P.S.a.J.o.G.P. 1925:599-611; 23:T125) **38.70**

Number		Price
37072A.	**Form Boards, Worcester,** Shakow and Kent. The first two boards (1a and 1b) of the Worcester series, with a set of insets apiece. Recommended for use with pre-school children as an introduction to the No. 37071A clinical form board. The remainder of the Worcester series is now considered obsolete. (P.S.a.J.o.G.P. 1925:599-611; 23:T125)	$ 21.75
37073.	**Object-Fitting Test,** Atkins'. This is a non-language test of intelligence for children of the mental age range from 1½-5½ years. There are 22 objects and 15 molds. The subject's problem consists of selecting the 15 objects which fit the molds. In addition to this material, there are included a felt-surfaced display board, 2 large boxes and 1 small box with telescoping covers, seats for subject and examiner, and a carrying case approximately 15 x 12 x 6 in. Since all instructions are given in pantomime, it is particularly suited for use with normal young children, with deaf children, and with children from foreign homes. The materials were selected from equipment originally gathered by Prof. John G. Rockwell and Dr. Atkins for studying the genetic development of perception. The test has been found to be reliable and correlates highly with tests of the Binet type within the age range for which it is adapted. (6)	52.00
37075.	**Association Tests,** Woodworth and Wells. Complete set including 100 each of Nos. 30101, 30102, 30216, 30217, 30219, 30220, 30223, 31045, 30124, 30125, 30126, 30183, 30184, 30185, 30161, 30157, 30179, 30177, 30143, 30137, 30131, 30169, 30170, 27222, 27223, 27225, 30011, 44061, and 6 No. 12309. (277)	25.10
37077.	**Mental and Physical Tests,** Woolley and Fischer. Complete set comprising Nos. 11101, 11223, 11401, 12011, 12127, 14059, 20207, 16203, 57203, 57206 (10), 19117, 19523, 25513, 25503 (6), 19303, 22407, 19263, 27008, 27009, 32013, 20107, 31019, 31021, 34338, 30109, 27142, 46830. (279)	335.15
37078.	**Point Scale,** Yerkes, Bridges, and Hardwick. Comprises the set of 15 cards used for administering the test. (283)	1.80
37079.	**Point Scale,** Yerkes, Bridges, and Hardwick; complete. The No. 37078 set of cards and in addition No. 19003 and 25 of No. 44081. (283)	7.05
37080.	**Point Scale,** Yerkes, Bridges, and Hardwick; complete. The No. 37078 set of cards and in addition No. 19003 and 100 of No. 44081. (283)	9.05
37081.	**Point Scale,** Yerkes, Bridges, and Hardwick. All of No. 37080 with the addition of No. 46850 "A Point Scale for Measuring Mental Ability." (283)	11.80
37083.	**Point Scale,** Yerkes and Foster; 1923 revision. Includes all of the tests and 100 each of the Porteus mazes and record blanks required for the three divisions following: Infant Point Scale, No. 36207, 32117, 27122, 27195, 27123, 27124, 27196, 27127, 36011, 36046, 19003, 32106, 12311, 32311, 32305, and 44080; Pre-adolescent or Child Scale, Nos. 32111, 33009, 32313, 34327, and 44081; Adolescent-Adult Scale, Nos. 32118, 29111, 27116, 31038, 27208, 32318, 32306, and 44083. (285)	24.45
37084.	**Point Scale,** Yerkes and Foster; 1923 revision. Includes all of No. 37083 and a copy of No. 46851. (285)	26.70
37085.	**Army Alpha Test,** U.S.A. One of the five forms of the intelligence tests used by the Division of Psychology, S.G.O., of the United States Army during the World War. Its value as a means for measuring intelligence is unhesitatingly acknowledged, and since the war it has been used extensively by educational institutions and commercial organizations. With the aid of this test, it has been shown that an individual's occupational field or fields are bounded to a very marked extent by his intelligence level, and under the circumstances it is important that educational, vocational, and industrial organizations and others determine the individual's intelligence level and see that he does not attempt anything beyond his ability and thus waste time and money and eventually become discouraged. On the other hand, the individual must be urged to exert himself to his full capacity and take work that will make sufficient demands on his ability and thus keep him interested and satisfied. This test consists of really eight types of tests: Test I, Directions or Commands Test; Test II, Arithmetical Problems Test; Test III, Practical Judgment Test; Test IV, Synonym-Antonym Test; Test V, Dissarranged Sentences Test; Test VI, Number Series Concept Test; Test VII, Analogies Test; Test VIII, General Information. (41:18-24; 51:X14; 51A:X22; 61:136-152; 155:19-23, 307-314; 237:287, 309-325; 287.) Per 25	2.25
	Per 100	6.75
37086.	**Army Alpha Test,** U.S.A. Form 6. Per 25	2.25
	Per 100	6.75
37087.	**Army Alpha Test,** U.S.A. Form 7. Per 25	2.25
	Per 100	6.75
37088.	**Army Alpha Test,** U.S.A. Form 8. Per 25	2.25
	Per 100	6.75

Number		Price
37089.	**Army Alpha Test,** U.S.A. Form 9. Per 25	$ 2.25
	Per 100	6.75
37090.	**Army Beta Test,** U.S.A. Form 0. This intelligence test was devised by the Division of Psychology, S.G.O., United States Army, for the purpose of testing illiterates and foreigners not familiar with the English language. The test is equal in difficulty to the Alpha tests used for literates and will be found very satisfactory for determining the intelligence levels of the two classes referred to above. (61:153-158; 237:310; 287.) Per 25	2.25
	Per 100	6.75
37093.	**Superior Adult Test,** Roback's; 1924-25 Edition. This mentality test was devised for detecting adults of superior mentality and was originally used by Prof. A. A. Roback of Harvard University for discovering superior adults in Simmons College where he was special instructor in psychology. This test is the only superior adult test on the market and is very effective for detecting clerical or secretarial skill of a high order. It picks out the brightest—as well as the dullest. One of the leading psychologists in the United States at the head of the psychological department of a large college thinks it is the best test available for the purpose of sharp discrimination. The test certainly brings out individual differences in a way no other test can do. The aim of Dr. Roback was to devise a test that would detect every element of general intelligence, not merely two or three. The abstraction problems demonstrate whether the examinee is able to detect the principle common to a number of elements; the insertion problems give an index of the examinee's power of perception and apperception; the subsumption problems purpose to reveal the examinee's steps in following out a line of thought; the acumen problems are to be regarded as a probing stone of subtlety; the problem tests should give an insight into the capacity of the examinee to grapple with a practical situation; analytical ability may be judged from the way the examinee goes about deciphering the cryptogram. The test is one that stimulates individuals to do their best. An important feature of this test is the diagnostic and prognostic properties—a feature which does not attach to the so-called objective test. Dr. Roback has been able to pick out such traits as perseverance, suggestibility, imitativeness, flightiness, nervousness, etc., among the examinees. A recent "follow up" of individuals who were given the test a few years ago demonstrated the reliability of the prognosis that was at the time based on standing in the test. A great deal of work has recently been done with the test, and the results demonstrate beyond a doubt that it meets all the requirements of a test designed for the selection of superior adults. Per 10	8.75
	Per 100	56.25
46535.	**Manual** for No. 37093. Contains all the necessary information for administering, scoring, and evaluating	.50
37096.	**Mental Alertness Test.** Devised by The Scott Company, consultants and engineers in industrial personnel, for use in industrial organizations. This test correlates exceptionally well with ability and may be used for any position ranging from office boy or girl to confidential clerk, salesman, etc. It is not so difficult as to prevent an individual with even a partial grammar school education from making some headway, but it is nevertheless sufficiently difficult and long enough to prevent even individuals of superior ability from making a perfect score. It has been well established that mental alertness is an important asset for success in many different kinds of work. The Scott Company Mental Alertness Tests have been, and are being used, by many different companies successfully in choosing persons for employment, in selecting employees for executive positions and for important clerical positions, and in picking and grouping employees for training. These tests help the employer find in advance those persons in his organization who are better qualified for positions of responsibility; they help him choose from the applicants in the Employment Office those who will most likely succeed; they help him avoid the waste effort and lost time involved in putting someone on the job, who in spite of every favorable appearance, lacks the necessary intelligence to make a success of it. It is generally known, for instance, that mental alertness is valuable in executive positions, in many clerical operations, in occupations requiring initiative and resourcefulness, and in sales work. Companies utilizing these tests extensively in their own work, however, find it advantageous to record the test scores of their employees in order to check the test scores against the success of the employees in their work—thus establishing "standards," scores below which the probability of the individual succeeding in the work is slight. When such standards have been established by a company, the practical value of the test in choosing persons for certain kinds of work and in selecting them for training is enhanced even further. Years of research work have been necessary in the development of these tests. They have been tried out in many different companies and general standards have been set. There are concrete reasons, based on this research, to believe that in the average company, for instance, men stenographers should not be engaged who score less than forty points and that men should not be chosen to take up stenographic work who make less than this score. The corresponding scores for men bookkeepers is 35; for men draftsmen, 32; for men clerks, 33; for messenger boys, 15, etc.	

Number		Price
	Conversly these tests are of value in preventing persons who possess mental alertness in a high degree from being assigned to work of a more routine nature, or work which does not call for initiative, resourcefulness, quickness in thinking, etc. Good employment practice has found that misplacements of this kind are costly. Persons of high mental alertness will not "stay put" on work of this nature; they shortly become restive and dissatisfied and frequently quit because the work to which they are assigned does not offer the opportunity to exercise their mental powers.	
	These tests can be given by any capable clerk after an hour's instruction; no trained psychologist is necessary. They can be given to individuals or to groups of employees or applicants at one time; the only limit is that imposed by the size of the room available for the purpose and the strength of the clerk's voice. It takes fifteen minutes to test an individual or group of individuals. One great advantage of these tests is the short time needed to give them. (191:227-282.) Per 25	$ 3.70
	Per 100	11.20
37097.	**Mental Alertness Test;** for illiterates. This is another of The Scott Company's tests, and was used for testing employees in positions where ability to read and write was not a factor demanding consideration. This test is found to correlate very well with intelligence among the illiterate, and as it was devised especially for industrial purposes, it will be found very satisfactory where the employment department has to deal with foreigners and illiterates. (191:262-266.) Per 25	5.60
	Per 100	16.80

APTITUDE AND ACHIEVEMENT TESTS

39002.	**Sentence Vocabulary Scale,** Holley's. A printed form with 70 incomplete sentences in which the subject has a choice of one of four words required to correctly complete the sentences. (23:T26.) Per 100	1.60
39003.	**Picture Vocabulary Test,** Baldwin and Stecher. A set of fifty 3x5 in. cards, on each of which is pasted a black and white figure. (11:130-133)	5.00
39004.	**Vocabulary Test,** Kirkpatrick and Whipple. Nearly all thought and expression is couched in linguistic form, and since intellectual progress is in a sense a process of augmentation of vocabulary and of refinement in its use, the determination of the size of this vocabulary is of significance and value in estimating general intellectual status. This list contains 100 words and the subject is to mark the familiar words "+", the unfamiliar "—", and the doubtful "?". (268:T50.) Per 100	1.50
39005.	**Vocabulary Test,** Terman and Child; modified by Whipple. This is another vocabulary test of 100 words and is scored on the basis of ability to define, ability to explain, rough familiarity, and absolute unfamiliarity. (268:T50.) Per 100	1.50
39006.	**Information Test,** Healy and Fernald. A printed form with a series of questions designed for the purpose of eliciting the actual information possessed by the individual, but also for getting at what his opportunities have been in general environment and in school life. Through this inquiry one readily gets some indication of the amusements, occupations, and aspirations of the subject. Opposite each question is sufficient space to permit the investigator to record answers. (85:T22.) Per 100	1.50
39007.	**Range of Information Test,** Whipple's. This test was devised by the author as an extension of the Vocabulary Test. The 100 test words have been selected in such a manner that each one is representative of some specific field of knowledge or activity, in the sense that if the subject has made himself familiar with a given field, he will almost certainly know the word selected from that field; whereas, if he has not made himself familiar with the field, he will almost certainly not know the term, or at least will not have such knowledge of it as to enable him to define it exactly. (268:T51.) Per 100	1.50
39008.	**Scaled Information Test,** Lowe and Shimberg. A printed form with 25 graded questions. The questions cover general or common-sense information. For example, "How many hours are there in a day?" (23:T25.) Per 100	1.50
39008A.	**Key** for scoring answers to No. 39008	.10
39009.	**Literacy Test,** Link's. Designed for industrial use. (121:150-152.) Per 100	1.50
39010.	**Arithmetic Test, Simple,** Link's. A form with a number of simple examples in addition, subtraction, multiplication, and division. (121:79, 104, 394, 408-409.) Per 100	2.50
39011.	**Spelling Test,** Link's. A form with correctly and incorrectly spelled words. (121:93, 167, 394, 415-416.) Per 100	1.50
39012.	**Handwriting Scale,** Ayres'. Based on legibility. For measuring the quality of handwriting of school children. (59:X13)	.25
39013.	**Handwriting Scale,** Freeman's. Based on the degree of uniformity, quality of the line, correctness of letter formation, and the spacing or composition. (59:X8)	.45
39014.	**Handwriting Scale,** Thorndike's. Based on legibility, beauty, and character	.15
39015.	**Grammar Test (I),** Link and Connolly. A form with a number of sentences with grammatical errors which the subject is instructed to correct. (121:93, 394, 421-422.) Per 100	.80

Number		Price
39016.	**Grammar Test (II),** Link and Connolly. Similar to No. 39015. May be used as a substitute. Per 100	$ 0.80
39020.	**Arithmetic Test,** Courtis'; Series B, Form 1, for Grades 4-8. (159:27, 71, 78, 90, 98.) Per 100	2.25
39022.	**Arithmetic Test,** Courtis'; Series B, Form 3, for Grades 4-8. (159:27, 71, 78, 90, 98.) Per 100	2.25
39024.	**Number Concept Test,** Baldwin and Stecher. A set of 30 cylindrical sticks, 2½ in. long and ¼ in. in diameter. (11:157-158)	.50
39025.	**Marbles.** Used by Baldwin and Stecher for one of the number concept tests. (11:158-159.) Per 100	.25
39026.	**Fraction Test,** Baldwin and Stecher. A red cardboard circle, 4 in. in diameter, and 4 circles of the same size cut into two, three, four, and five pieces. (11:159-161)	.50
39027.	**Bells.** A set of 2. Used by Baldwin and Stecher in one of the number concept tests. (11:161-162)	1.00
39028.	**Technical Information Test,** Girls', Leary and Dry. Devised to ascertain how much knowledge of a technical nature the examinee possesses in the field of home economics. It measures not only what was learned in school, but also the information acquired at home or through reading. Per 25	2.20
	Per 100	6.60
46395.	**Manual** for No. 39028	.20
39030.	**Sports Information Test,** Pressey's (L.C.). Covers a series of games and sports, with five questions asked concerning each. The questions could not be answered by people who were merely spectators; they are matters that would be understood only through engaging in the game or sport for quite a while. Departments of Physical Education found that experts get four out of five points correct for those games or sports in which they are expert. It has been suggested that this standard of four answers correct might be set up as the requirement for students in physical education. College students taken at random without training in games and sports make zero scores for about half and a score of one an occasionally two points on the other half. The test is designed for use in investigating the degree of acquaintanceship that students of physical education have with the various games and sports and it may be used as a research factor in investigating the relationship of proficiency in athletics to academic work, or to social ability, or to any other factor which is of interest to the instructor. Per 25	1.25
	Per 100	3.00
46526.	**Manual** for No. 39030	.50
39032.	**Achievement Test in Psychology,** Averill and Mueller; Form 1. This test is based on the text and reference books in introductory courses in psychology in approximately 50 representative higher institutions of learning. The tentative norms supplied are computed from results achieved by elementary students at the end of one complete semester in introductory psychology. The devisers of this test arbitrarily sub-divided the field of general psychology into 12 sections and the problems devised for each section were constructed on the basis of the common sectional content of the text and reference books. In as much as the content and range of introductory courses in psychology have been found by the devisers of this test to differ appreciably, it has seemed best to publish tentative standards for each of the 12 sections, so that any instructor, regardless of the content and range of his course, may compute the standard aggregate score for his students by totaling the sectional standard norms. The test booklets are supplied with perforated sheets, so that the instructor may, if he desires, remove any section or sections that his course has not included and which, in consequence, his students would not be expected to handle. The perforation also makes it possible for the instructor, if he prefers, to examine his students in each major topic of psychology at the completion of their study of that topic. From 2 to 2½ hours are necessary for the complete test. For sectional tests, estimate approximately ¾ of a minute per problem. Per 25	8.50
	Per 100	26.00
46082.	**Manual** for administering and scoring No. 39032. Also contains tentative norms and a perforated "Report to Authors," which can be readily detached and should be sent to the Department of Psychology, Massachusetts State Normal School, Worcester, Mass.	.50
39033.	**Achievement Test in Biology, Richards'.** A test not too difficult for high school use, and yet sufficiently comprehensive for testing university freshmen students of biology. It covers reasonably well the field of biology and is therefore adequate for measuring the knowledge of students in any given biological course. The questions are based on six of the textbooks representing more than 80% of the matter taught in biological courses at the present time. This information was ob-	

Number Price

tained by Dr. Oscar W. Richards, of the Department of Biology, Clark University, from answers to 86% of the questionnaires sent out to the school principals of all cities of 100,000 population and over. From this data, it became obvious that a satisfactory test in biology must cover more material than was actually taught in any given school system, and that when the test was to be used for purposes of diagnosis, the diagnosis must be based on those parts of the test which measure the subject matter actually taught. In order that a biological test may serve all needs, it must also cover the sum of all courses and be so arranged that one need use only those items which pertain to his course. The pedagogical soundness of this theory is more apparent when we see test constructors of the more standardized subjects, such as arithmetic and algebra, at present reconsidering their fundamental content.

The form of the test was also carefully considered. It was finally decided to use the "multiple response" type, as more of the students' knowledge could be sampled during a forty-minute high school period. This type also permitted the use of a stencil to score the test. The tests may be readily corrected by clerical help, as the answers do not require expert evaluation. The number of items is limited numerically to a convenient number and to the length of time usually allotted to testing. One hundred items are easily marked by the students in a high school period, and this number permits expressing the scores as a per cent. Since it has been indicated, theoretically, that the guessing factor of the "four-alternative" type test is small enough that it may be disregarded in a test of 100 questions, it was decided to use four alternatives to each item in this test. This seems more desirable when we see how inadequate the "right-wrong" method is, and how much more accurate the "four-response" is over the "three-response" test.

The test is divided into the following groups: Practical Value, 24 items; Digestion, 14 items; Classification, 23 items; Interrelation of Biology, 8 items; History of Biology, 14 items; General Biology, 17 items. These topics and items were chosen from the survey of the content of biology mentioned above. The test was then improved by the information gained from classes. Later on it was submitted to several experts in test construction and in biological science, as well as to a number of high school teachers, and further improved by their constructive criticism. (J.o.Ex.P. 7, 1924:148-157; J.o.E.P. 16, 1925:8-18; S.S.a.M. Jan. 1927.) Per 25 ..... $ 1.40

Per 100 ..... 4.20

39034. **Scoring Guides,** Richards'. Set of 3, for No. 39033 ..... .20

46547. **Manual** for No. 39033 ..... .15

39040. **Silent Reading Test,** Burgess'. A printed form with 20 pictures, each accompanied by a paragraph of instructions. (23:T27.) Per 100 ..... 2.50

39041. **Silent Reading Test,** Monroe's. A series of 3 printed forms for Grades 3-12. Each test consists of 16 exercises. Test I, for Grades 3, 4, and 5. (23:T28.) Per 100 ..... 1.80

39041A. **Silent Reading Test,** Monroe's. Test II, for Grades 6, 7, and 8. (23:T28.) Per 100 ... 1.80

39041B. **Silent Reading Test,** Monroe's. Test III, for Grades, 9, 10, 11, and 12. (23:T28.) Per 100 ..... 2.25

39042. **Silent Reading Test,** Thorndike and McCall. A form containing eleven passages of graded difficulty and three or four questions based on each of these passages. There are 10 forms applicable to Grades 2-12. (23:T29.) Any grade, per 100 ..... 3.60

39043. **Standard Practice Tests in Reading,** Series I, Courtis'. Material for one pupil. (11:219-224) 1.50

39050. **General Mental Ability Test,** Cleeton's. Designed for use with college freshmen and high school graduates. That mental ability is shown by the facility with which an individual is able to profit by training is the theory underlying these tests. They are intended as a measure of "educability" and were so constructed.

The nine tests contained in the examination were developed experimentally. A large number of tests containing a wide variety of test items were given to college freshmen. Those tests which showed the greatest merit in predicting college success were selected for inclusion in this examination. Each item in the nine tests was selected on the basis of data showing predictive value of single test items. Tests were then carefully calibrated as to difficulty of items.

The experiment showed that a combination of novelty (mental process) type test items like those of the older intelligence tests and information (mental product) type questions like those of the newer achievement tests predicted scholastic ability more accurately than did either type of test item when used alone. Tests included in a mental ability examination, therefore, should be of such variety as to measure both mental processes and the product of past functioning of learning capacity. From evidence of what a student can now do and from evidence of what he has done in the past, it is possible to predict what he will do in the future.

While this examination was originally devised for the purpose of classifying entering college freshmen, it may be used to measure the mental ability of high school pupils from Grades 9-12. Since about half the tests emphasize knowledge of school subjects, the examination may be used as a measure of progress. If given to students at

Number | Price

the end of each successive grade from 9 to 12, it provides a reliable index of mental growth both in breadth and power.

Tests 1-4 of the examination are "Word Relations Tests," including disarranged sentences, opposites, antonym-synonym, and definition tests (180 items). Tests 5-7 are "Number Relations Tests," including number series, calculation, and mathematical reasoning tests (105 items). Tests 8 and 9 are "High School Information Tests" (100 items). Each of the nine tests are of such length and so calibrated that reliable scores can be obtained for each separate test. Scores may also be computed for number relations, word relations and high school information sections along with the general ability score of the entire examination.

Several new departures in test form have been incorporated in these tests which make for high reliability and ease of scoring. For instance, scoring is accomplished by placing keys along the right-hand margin of each page. Since all answers appear as numbers, scoring can be quickly and efficiently done. Scoring has been reduced to the simplest possible form and subjective judgment on the part of the scorer has been completely eliminated. The reliability of the complete examination is .947 (probable error ±.004).

About an hour and a half are required for administering the examination. This is sufficient time to permit a comprehensive sample of mental quality to be obtained. The tests can all be given at one time or can be given over two or more periods if conditions necessitate. (E.A.a.S. Oct. 1925; J.o.A.P. Sept. 1926; J.o.E.R. May 1927.)

Per 25 ..... $ 5.00

Per 100 ..... 15.00

46122. **Manual** for No. 39050 ..... .70

40003. **Time-Telling Test,** N.Y.S.B.o.C. A clock dial, 4½ in. in diameter, printed on a heavy piece of 5½ in. sq. cardboard, and supplied with movable hands. (145:T10) ..... .30

40010. **Intelligence Test,** Thurstone's. A test consisting of 25 problems for the solution of which the subject is given 5 minutes. Each problem consists of four proverbs, two of which are virtually identical in meaning. The subject is required to check the two that are identical. The test was used by Dr. Thurstone as a supplement to No. 37063. Per 25 ..... 3.35

Per 100 ..... 10.00

40015. **Analysis of Work Interest Blank,** Miner's. The purpose of this blank is to help discover special interests and abilities, likes and dislikes, traits, etc., by suggesting how to observe one's own likes and dislikes. This questionnaire is a very comprehensive one and gives an intelligent and experienced counselor valuable data for making educational and vocational recommendations. It differs from other self-analysis blanks in that it is devoted entirely to relating the vocational choice to fundamental personal interests. The blanks have been used by the thousands in Pittsburgh, Erie, and Seattle and in half a dozen other cities; Y. M. C. A.'s; Pennsylvania State Department of Public Instruction, etc. (J.o.E.R. April, 1922; S.R. Dec., 1925.) Per 25 ..... 2.20

Per 100 ..... 6.50

46437. **Journal of Educational Research,** April, 1922. Contains the original article on the No. 40015 Analysis of Work Interest Blank, by J. B. Miner, Ph.D. ..... .85

40018. **Vocational Guidance Score Blank,** Brewer's. For junior high schools. The purpose of this questionnaire is to force the individual to do some careful thinking on the characteristics of any vocation he is thinking about, and to consider his own characteristics in comparison with the requirements of the occupation. This blank contains a list of sixteen qualifications and blank spaces for four more. The idea is to get the subject to make an estimate of the qualities and the degree in which he thinks they are required for success in the particular occupation in which he is interested, and to make an estimate of the degree to which he thinks he can develop the qualities required. This questionnaire frequently demonstrates that the individual does not know very much about the occupation under consideration, or is unduly modest or conceited. It furnishes a splendid basis of discussion for vocational counseling of children. (73:338.) Per 25 ..... .85

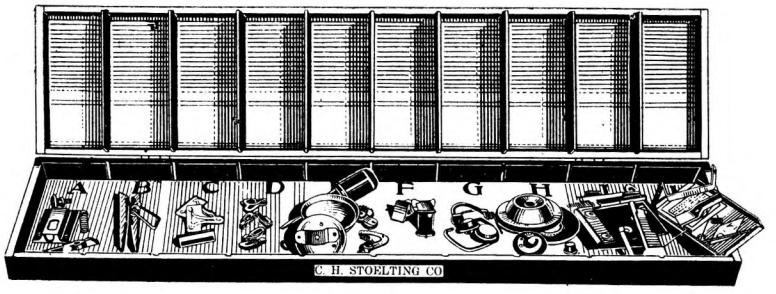
Per 100 ..... 2.50

40019. **Vocational Guidance Score Blank,** Brewer's. For high schools and colleges. This blank is somewhat similar to the preceding, but contains a list of thirty qualities with blank spaces for five more. The degree of the quality under consideration required for an occupation may be rated by the individual as 60, 70, 80, 90, or 100 per cent, and the degree of the quality that the individual thinks he can develop is rated the same way. This is an excellent questionnaire for adults, and supplies a good deal of valuable information for intelligent vocational guidance. (73:338.) Per 25 ..... .85

Per 100 ..... 2.50

40020. **Occupational Interest Blank,** Freyd's. Devised for males. This blank contains a list of eighty occupations representing every type. Opposite each occupation are five

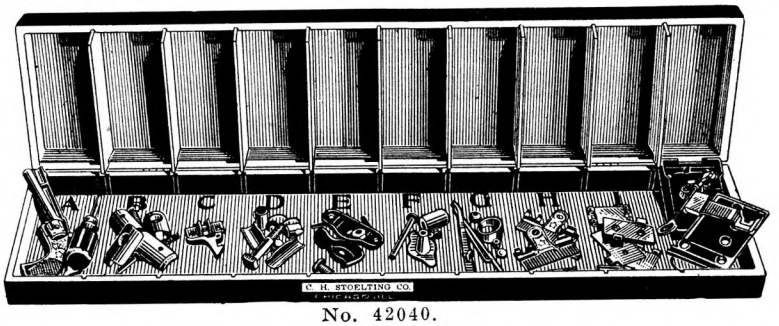
Number		Price
	symbols, each representing a different attitude toward that particular occupation. The subject merely draws a circle around one of the symbols after each occupation. At the bottom of the list are three blank spaces for any other occupations not listed but which may be of interest to the subject. (J.o.A.P. Sept. 1922:243-254; J.o.P.R. Oct.-Nov 1922:319-328; J.o.E.P. 1926:617-624.) Per 25	$ 0.85
	Per 100	2.50
10021.	**Occupational Interest Blank,** Freyd's. Devised for females. This blank is similar to the blank for males and contains a list of sixty-seven occupations ordinarily open to women. (P.J. Aug. 1928.) Per 25	.85
	Per 100	2.50
12000.	**Stenographic and Typing Tests,** Rogers'. This series of tests is one of the many devised by the psychologists interested in "human engineering" who for several years have been engaged in research work to find groups of simple mental tests that will accurately determine the presence or absence of ability in certain professions or lines of work. Some years ago Dr. H. W. Rogers selected from a group of standard tests certain ones which he believed would correlate well with actual typewriting and stenographic ability. After a great deal of study and experimentation with a large number of subjects, he found that his assumptions were warranted and that six of the tests gave a very high degree of correlation. Before entering the army during the World War, Dr. Rogers was employed by the Brooklyn branch of the Charles Williams stores as an efficiency expert and so had an excellent opportunity to try out these tests in actual practice. In his report to the president of the corporation, the employment manager, Mr. Fitzpatrick, said: "Since the evidence warrants it, I recommend that these tests be used in conjunction with the usual tests in performing typewriting, on all new applicants." (J.o.A.P. 1, 1917:213-216; 91:198-199; Ar.o.P. 1922.) Material for 100 tests, including record blanks and directions	6.50
12001.	**Dictation and Typing Test,** Link's. A card containing a letter with five-spaced units, numbered in order to facilitate scoring. (121:94, 167, 394, 418-419)	.50
12003.	**Context Test,** Links. A completion test for stenographers and dictaphone operators, in which the examinee supplies the missing words. This test is an improvement on the one originally used. (121:92-93, 144-145, 394, 411-413.) Per 100	1.50
12004.	**Context Test,** Link's. Devised as an alternative for No. 42003. Per 100	1.50
12005.	**Address Copying Test,** Link's. A test devised for clerks whose principal occupation will be the addressing of mail and copying addresses from mailing lists and other sources. Per 100	1.50
12007.	**Scoring Stencils,** Benge's. Set of 3. For No. 42008 Clerical Test K	.65
12008.	**Clerical Test K,** Benge's. A practical test of clerical ability which is applicable for most kinds of clerical work. The problems are made up of four types: verifying, checking, extending, and classifying, the four major divisions of this type of work. It quickly eliminates the unfit. A time limit is set and the performance is graded in "percentiles." Speed and accuracy are the basis of marking. A percentile of 78 means that the applicant exceeds 78% of the other people who have taken the test—in other words, is in the upper 22%. The test was devised as an aid in clerical selection while the author, E. J. Benge, Ph.D., was serving as Manager of Industrial Relations with the Atlantic Refining Co., of Philadelphia. Since its introduction in 1922, it has been adopted by scores of business organizations. The test takes but a few minutes to administer and the stencil and tables listed below show instantly the standing of the applicant. Per 25	5.00
	Per 100	15.00
16085.	**Instructions and Tables** for No. 42008	.45
12009.	**Comptometer Adding Test,** Link and Gilbert. A form with three columns of figures. Used for testing operators on the Comptometer, Burroughs Adding Machines, etc. (121:94-95, 395, 424-425.) Per 100	.80
12011.	**Comptometer Extending Test,** Link and Gilbert. A form with a number of sums to be multiplied on the Comptometer, Burroughs Adding Machine, etc. (121:94-95, 395, 425-426.) Per 100	.80
12013.	**Topical Filing Test, Easy,** Link and Koehne. Devised to measure individual analytical ability such as required for topical filing. The form contains a number of topics for which the subject must indicate the correct filing. (121:108, 395, 426-428.) Per 100	1.50
12014.	**Filing Test.** Devised by The Scott Company for the selection of filing clerks. The proper filing of correspondence is a very important factor in an office, especially where the correspondence is large. Time and money lost by misplaced correspondence runs into quite a respectable sum in the course of a year, and the inconvenience and delay in giving service is a matter that merits consideration. Exercising care in the selection of filing clerks is an investment of time that pays. (191:301-311.) Per 25	5.60
	Per 100	16.80



No. 42015.

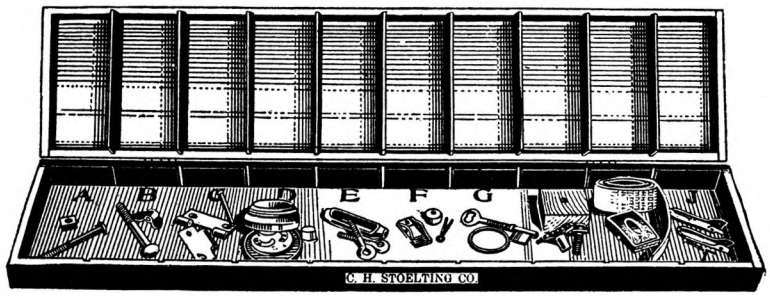
Number		Price
42015.	**Assembling Test,** Series I, Stenquist's. A mechanical aptitude test designed to get away from the conventional pencil and paper test. It deals specifically with the world of objects—concrete things as distinguished from words about things. It involves both manual skill and mental ability, and should be thought of as a measure of general mechanical aptitude. A real mechanical aptitude test must measure both manual skill and mental ability. A mechanical aptitude test of the pencil and paper type is really an abstract intelligence test, as it deals with symbols on paper, and while it may measure intelligence, it does not measure the dexterity required to execute manually the solution one has reached. Modern life is permeated on every hand with machines and mechanical devices of every description, hence marked mechanical aptitude should be discovered as early in life as possible, and appropriate training provided. Abstract intelligence tests predict fairly well success in academic subjects, but of the large percentage of individuals who drop out of school because it is unsuited to their means, a large portion could unquestionably be greatly benefited if their other abilities were discovered and suitable educational and vocational guidance provided. So far the evidence does not show that all who drop out of school as failures are really of low intelligence. This series of tests calls for a generous amount of the best kind of thinking, and involves accurate perception, imagination, reasoning, judgment, and knowledge. Only a very low score is possible for the individual who depends merely upon thoughtless manipulation. These tests represent over six years of experimental work carried on in the Department of Educational Psychology, Teachers College, Columbia University, and in the Department of Education of New York City. They were designed as group tests, having been given in the army to entire companies and in schools to entire classes. The time required is 30 minutes. This series consists of 10 dissembled commercial mechanical articles in a hinged box 5½x2 3/16x24 3/16 in., divided into ten compartments, and the cover opposite each compartment marked with one of the letters of the alphabet, A-J. The problem consists in a perfect assembling of the articles within a given time. The articles included are the following: cupboard latch, clothes pin, Hunt paper clip, chain, bicycle bell, shut-off, wire stopper, push button, lock No. 1, and a mouse trap. (211)	$ 12.50
46600.	**Manual** for No. 42015. Contains concise instructions for administering, grading, and evaluating	.40
44071.	**Scoring Blanks** for No. 42015. Per 100	.80
42016A.	**Mechanical Intelligence Test (I),** Stenquist's. A printed form for testing the mental factor of mechanical aptitude. The form contains a series of common mechanical objects. The subject is required to determine which one of five pictures is related to each of five others. (23:T63; 211.) Per 25	2.75
42016B.	**Mechanical Intelligence Test (II),** Stenquist's. A test on the same order as Series 1 but with questions regarding a machine and its parts and the mechanical processes in which they are used. (23:T63; 211.) Per 25	2.75
42016C.	**Manual** for Nos. 42016A and 42016B	.30
42017.	**Vocabulary Test, Tool-makers',** Link and Keeler. A form with a list of various kinds of tools, from which the subject is asked to check the tools applying particularly to his trade. (121:148-149, 395, 429.) Per 100	.80
42019.	**Part-Whole Test, Tool-makers',** Link and Keeler. A card listing parts of machines in the left-hand column and the name of the machine in the right-hand column. The	

Number		Price
	left column is read to the subject and he is to state the machine of which it is a part. (121:147-148, 395, 429)	$ 0.10
42021.	**Context Test, Tool-makers',** Link and Keeler. A completion test designed to bring out the ability of the subject to name the proper tools and processes which are concerned in the work of a tool-maker. (121:146, 395, 429.) Per 100	.80
42023.	**Trade Questions, Gunsmiths',** Link's. A card with a series of questions designed to determine a subject's ability as a gunsmith. (121:224-226, 395, 429)	.20
42025.	**Designers' Test, Jig and Fixture,** Link and Keeler. A card with a number of questions designed to discover the applicant's ability in designing jogs and fixtures. (121:395, 429-430)	.10
42026.	**Knowledge of Tools Test,** Wardner's. Devised by the Director of Vocational Education in the city schools of Jackson, Michigan. The test is in the nature of an examination for boys who have finished the intermediate shop school course. It covers woodworking and metal-working tools and will be found very useful in manual training departments, vestibule schools, etc. A master copy for scoring accompanies each order. (Ind. Arts Mag. Oct. 1919:402-403.) Per 25	1.25
	Per 100	3.75
42047.	**Arithmetical Test, Tool-makers' and Apprentices',** Link and Keeler. A form with a number of mathematical operations which ought to be within the scope of every tool-maker's and tool-maker apprentice's education. (121:129, 176, 395, 430-431.) Per 100	1.50
42029.	**Trade Questions, Machinists',** Link and Keeler. A card with a series of questions designed to discover the machinist's knowledge of his trade. (121:395, 431-432)	.10
42031.	**Association Test, Machinists',** Link and Keeler. A card for the examiner, designed to aid him in discovering the machinist's knowledge of his trade. (121:395, 432)	.10
42033.	**Context Test, Machinists',** Link and Keeler. A printed form designed to bring out the ability of the subject to name the proper tools and processes concerned in the work of a machinist. (121:395, 442-443.) Per 100	1.50
42035.	**Intelligence Test for Stenographers and Typists,** Shellow's. Used to supplement the trade tests such as the No. 42001 Link Dictation and Typing Test. This test differentiates between levels of responsibility in the same occupation. The following correlations were obtained: Intelligence test with ranking, 0.73; trade tests with ranking, 0.48; intelligence test with trade test, 0.12, and both tests combined with ranking, 0.59. Many positions demand more than simply the ability to handle the technical work of a stenographer; where this ability alone is not sufficient qualification for the job, this test makes an excellent instrument for determining ability for secretarial and similar positions where considerable responsibility is thrown upon the stenographer. (J.o.P.R. Dec. 1926:306-308.) Per 25	2.25
	Per 100	6.75
46575.	**Manual** for No. 42035	.40
42037.	**Posting Test I,** Link's. A test designed to be given to clerks whose principal occupation will be posting. (121:107.) Per 100	1.50
42038.	**Posting Test II,** Link's. An additional test for posting clerks. (121:107.) Per 100	1.50



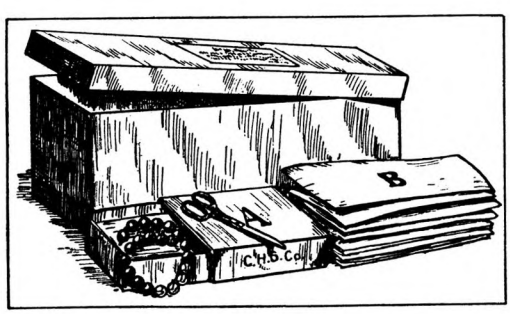
No. 42040.

42040.	**Assembling Test, Series II,** Stenquist's. This series and Series I (No. 42015) are of practically equal difficulty and may be used parallel for Grades 5-8, high schools, and adults generally. The series contains the following articles: pistol, elbow catch, rope coupling, expansion nut, sash fastener, expansion rubber stopper, calipers, Defiance paper clip, double-acting hinge, and lock No. 2. (211)	12.50
44072.	**Scoring Blanks** for No. 42040. Per 100	.80
42041.	**Assembling Test, Series III,** Stenquist's. Devised for boys too young to be tested with Series I and II. This series should be used for Grades 3-6. It is put up in the same manner as the other two series and contains the following: plain bolt and nut,	

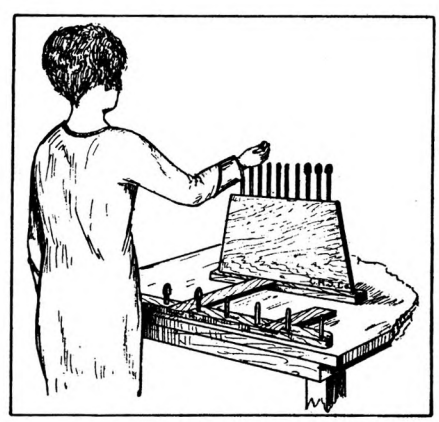


No. 42041.

Number		Price
	bolt and wing nut, plain hinge, key and ring, turn buckle, drawer pull, trunk caster, plain push button, belt and buckle, and mail clip. (211)	$ 12.50
44073.	**Scoring Blanks** for No. 42041. Per 100	.80
42043.	**Mechanical Aptitude Test,** Minnesota. A modification and amplification of the Stenquist Assembling Tests for determining general mechanical aptitude. The test consists of three boxes containing a series of 36 mechanical devices, taken apart and each placed in its proper compartment in one of the boxes. The contents of the boxes are as follows: Box A. (1) expansion nut, (2) hose pinch clamp, (3) Hunt paper clip, (4) wooden pinch clothes pin, (5) links of chain—six, (6) bottle stopper, (7) push button door bell, (8) bicycle bell, (9) Corbin rim lock, (10) coin purse. Box B. (1) safety razor, (2) monkey wrench, (3) ring stand clamp, (4) test-tube holder, (5) spark plug, (6) inside calipers, (7) electric plug and wire, (8) Clover Leaf coin purse, (9) flat iron handle, (10) mouse trap. Box C. (1) hemostat, (2) die holder, (3) pliers, (4) electric light socket, (5) wing nut, (6) glass drawer knob, (7) rope coupling, (8) kettle cover knob, (9) lock nut, (10) fork magneto-post, (11) petcock, (12) hose clamp, (13) radio switch, (14) pencil sharpener, (15) air gauge valve, (16) metal pencil. This test presents a wide and carefully graded range of difficulty and is suitable for both young and old subjects. (P.J. Apr. 1928:473-478)	32.25
42043A.	**Mechanical Aptitude Test,** Minnesota. This is the abridged form, consisting of boxes A and B of No. 42043. This abridged form of 20 items has of course a lower reliability than the unabridged test, but is offered to meet the requirements of those who find the saving of time more important than a high degree of accuracy. (P.J. Apr. 1928:473-478)	19.00
42045.	**Carrying Strap.** Devised for convenience in handling the Stenquist Assembling Tests where a large number are in use for group work. As the boxes are of uniform size, eight or ten of them can be readily strapped together and handled with the strap as conveniently as the ordinary suitcase	3.50



No. 42047.



No. 42048.

42047. **Assembly Test for Girls,** I.E.R. When Dr. H. A. Toops and the staff of the Division of Psychology, Institute of Educational Research, Teachers College, Columbia University, started out to provide tests for the vocational guidance of children in their early teens, they selected as a second test a test to discover the ability of the subject to deal with things and mechanisms. The Stenquist Assembly Test was found to answer admirably the requirements for boys, but, as expected, it did not meet the requirements for a girl's test.

Number | Price

Girls do poorly on a test like the Stenquist Assembly Test, so it became necessary to devise a test for female mechanical ability along the lines in which girls exhibited skill and in which they were likely to find an opportunity to engage. The I.E.R. spent considerable time in investigating the matter and finally produced the I. E. R. Girls' Mechanical Assembly Test.

This test will do for girls what the Stenquist test does for boys. Like the Stenquist test, it measures not only mechanical intelligence but also the manipulative or manual skill which is so inextricably bound up with what is usually understood by mechanical intelligence. As stated before, a pencil and paper test dealing with pictures of things —mechanical symbols—will not measure all that goes to make up mechanical intelligence. A mechanical intelligence test is valuable only when it helps discover the combined traits of mechanical intelligence and the manual skill required to deal with things and mechanisms.

The I.E.R. test is offered through the courtesy of Prof. E. L. Thorndike, of Columbia University, who secured for us the consent of Teachers College for its production. Dr. Toops, now of Ohio State University, will be glad to receive reports from the users of the test and will also be pleased to render any required assistance from the scientific side.

The tests are eleven in number and consist of the following: A, stringing beads; B, inserting tape; C, rosette; D, cross stitch; E, key ring; F, clip chain; G, tape sewing; H, trunk tag; I, card wrapping; J. booklet; K, trimming paper. The tests are put up in a box and a suitable scissors furnished with each. Some of the material is used up in giving the test, so we have listed below supplies of additional material for giving 25, 50, and 100 tests. (231) ..... $ 6.70

42047A. **Replacement Material** for giving 25 additional I.E.R. tests 4.25

42047B. **Replacement Material** for giving 50 additional I.E.R. tests 7.10

42047C. **Replacement Material** for giving 100 additional I.E.R. tests 11.45

44075. **Scoring Blanks** for No. 42047. Per 100 ..... 1.50

46660. **Manual** entitled "Tests for Vocational Guidance of Children Thirteen to Sixteen," by Herbert A. Toops, Ph.D., and Staff of I.E.R., Teachers College, Columbia University. This book gives the history of the work done in connection with the selection of the tests and also gives all the details for administering, scoring, recording, and evaluating No. 42047 ..... 1.80

42048. **Thimbles Test,** Spielman's; N.I. of I.P. Devised for testing speed of arm movements. This apparatus consists of two sections: (1) a low wooden rack provided with two arms of different lengths and ten vertical pegs for supporting rubber-covered, open-top thimbles, and (2) a higher rack also provided with ten vertical pegs. The high rack is slotted at the base so that it can be slipped over either the short or long arm of the low rack in order to vary the problem. The test requires the subject to transfer the thimbles from the rear to the front rack and back again as speedily as possible. Instructions accompany each test. (140:129-131) 18.00

42055. **Electrical Inclination Test,** Ruth's. Consists of a booklet of 16 pages, four of which contain plates with 30 electrical devices and parts each, and two pages of questions.

Interest and perceptual capacity along any line are at least two of the important factors that go toward making up what is usually termed "aptitude" for a vocation. They probably contribute as much toward success as all other factors combined. A temporary interest or a mistaken desire to enter a certain vocation can nearly always be distinguished from the natural bent and abiding interest by a carefully selected set of questions, and by observing the individual's perception of detail and the accuracy with which parts of devices common to the vocation are recognized and placed A great deal of this information is readily picked up without conscious effort on the part of the subject with special aptitude for the vocation.

This test is designed to demonstrate the individual's interest in electricity, and the amount of practical information he has been able to gather and retain for practical application. The test is both diagnostic and prognostic, and being eminently practical, leaves no doubt in the mind of either teacher or pupil as to the latter's inclination. The test has been thoroughly tried out and is recommended as a very satisfactory instrument for discovering whether or not an individual's inclinations are electrical.
Per 25 ..... 4.50

Per 100 ..... 13.50

46545. **Manual** for No. 42055. Contains concise instructions for administering the test, and a rating score chart ..... .20

46545A. **Scoring Guide** for No. 42055. This guide reduces the labor of scoring to a minimum .. .15

44036. **Record Blanks** for No. 42055. Per 25 ..... .50

Per 100 ..... 1.50

Number | Price

42060. **Musical Talent Test,** Seashore's. A set of 6 phonograph records, designed primarily for use in making special surveys in the public schools and for use in the regular music course. They should not be used lower than the Fifth Grade because this is the lowest grade in which group measurements can be made with any degree of satisfaction, and it is early enough for making serious arrangements for a musical education.

These six records furnish material for the most fundamental and essential capacities of the musical mind. They furnish a scientific means for aiding in the detection, analysis, and rating of musical talent. The records are standardized for content that requires no change; they give quantitative results which may be verfied to a high degree of certainty; they are simple and as nearly self-operating as possible; they are well adapted to group measurements; they take into account practice, training, age, and intelligence. For teaching purposes the records furnish excellent class experiments in elementary psychology. If the performance of the various tests is taken up with the corresponding chapter in Seashore's "The Psychology of Musical Talent," they will furnish a six-day course in intensive training in the measurement of individual differences.

The complete set of 6 records covers pitch, intensity, time, consonance, memory, and sense of rhythm. Including manual with instructions and interpretation. (51A:X23; 200:280-288) ..... $ 8.40

42063. **Clerical Test,** N.I. of I.P. (Series 25). Well adapted for Great Britain and her colonies, but not a very good test for Americans on account of the problems in English currency and a few other minor factors. Per 25 ..... 5.20

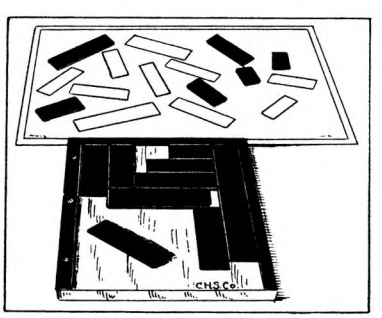
Per 100 ..... 15.60

42063A. **Manual** for No. 42063 ..... .10

42066A. **"Form Board" A, Paper,** Minnesota. Modelled after the Geometrical Construction Test (7) of the U.S.A. Beta Test, Form O. This is a four-page form with 56 items. The subject indicates by drawing lines in the large figure of each item just how the small one could be fitted into it. One of the Minnesota series of mechanical aptitude tests. (P.J. Apr. 1928:473-478.) Per 100 ..... 3.35

42066B. **"Form Board" B, Paper,** Minnesota. An alternate form for use where one has reason to suspect coaching or a retentive memory on the part of the subject who has taken the Form A test. (P.J. Apr. 1928:473-478.) Per 100 ..... 3.35

42066C. **Stencils.** For scoring Nos. 42066A and 42066B 4.50



No. 42067.

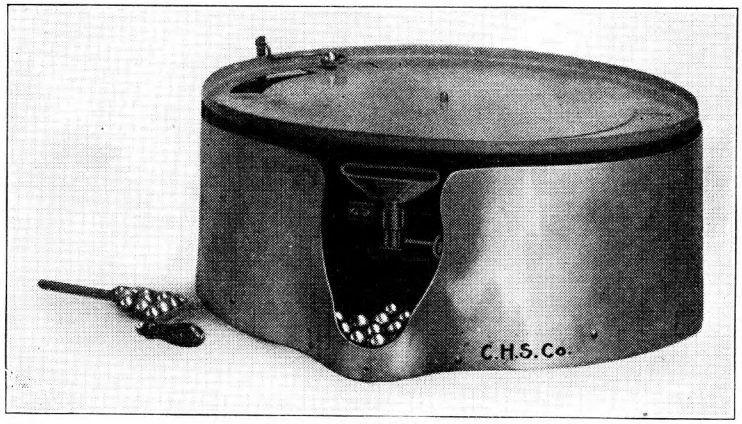
No. 42068.

42067. **Strip Building Test,** Spielman's; N.I. of I.P. Devised for the selection of engineering apprentices. It consists of a small raised platform with a metal retaining frame on three sides, a set of 16 metal strips of the same width but of varying lengths, and a standard position card. The metal strips are placed in position on the card and the subject is instructed to take the strips and place them on the platform as quickly and as neatly as possible. He is not informed that the strips, if properly placed on the platform, will virtually cover it. (140:133-134) 15.50

42068. **Form Building Test,** N.I. of I.P. Another of the National Institute of Industrial Psychology tests devised for the selection of engineering apprentices. The test consists of four sets of metal plates of varying shapes, and a set of 4 position cards. The metal plates are placed on the position card as outlined and the subject is then instructed to take each set of plates in turn and make the required rectangle as rapidly as possible. The time for each rectangle is recorded separately. (140:133) 15.50

42073. **Dial-Feed Machine Operators' Test,** Link's. This apparatus was suggested by the Bogardus, fatigue apparatus (modified in one instance for use as a factory test by Dr. Weidensall; see catalog No. 19423), and is designed to simulate the operation of a hand-feed dial machine. It is very useful in detecting the rhythms required for the operation of certain machines.

The apparatus consists of a cylindrical enclosure, open at the front, containing a phonograph motor of the spring type which revolves a metal disk with adjustable



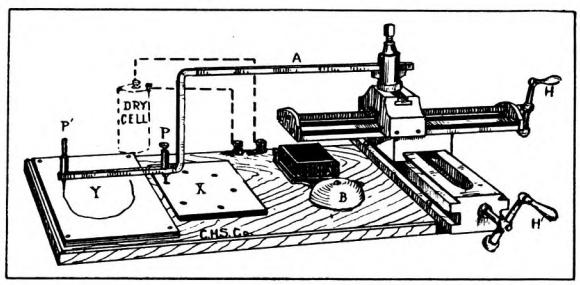
No. 42073.

Number Price

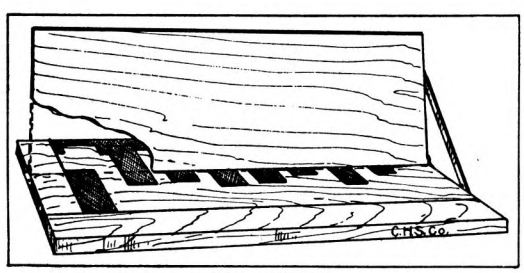
slots. Below the disk is located a hopper for catching the properly dropped steel balls. In falling through the hopper, the balls strike a disk attached to a lever operating a counter; thus each properly dropped ball is recorded. Another counter serves to record the R.P.M. of the revolving disk. The steel balls which miss the hopper are carried along until they strike the curved arm at the left side of the apparatus, where they are forced through the slot and, like the properly dropped balls which go through the hopper, eventually roll toward the opening at the front of the cylindrical enclosure. (121:112-120, 164-165, 395, 434-435) **$197.50**

42074. **Perceptotaquimeter,** Mira's. Devised for testing the speed of perception of bus operators, for the Compania General de Autobuses of Bareclona. The present model includes the improvements made by Lahy, who used the device for selecting the operators of Parisian busses. The device consists of a 15 ft. support, with narrow table top on which, by means of more or less concealed electrical and mechanical contrivances, three small vertical rods are made to travel in front of a white screen at varying speeds in a plane at right angles to the subject's line of vision. The subject is placed 15 ft. in front of the device and is then requested to indicate on the scale running along the top of the table, directly below the rods, the point at which he expects the rods to pass or meet after they begin to move. By varying the number of rods in movement, and their directions, the examiner is enabled to present four different set of problems. Average results and correlations are given in the original paper **275.00**

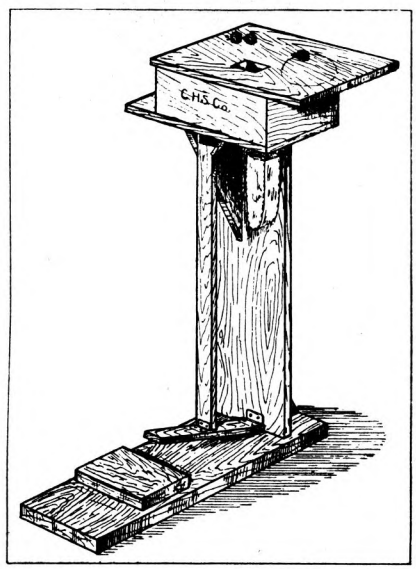
42076. **Engine-Lathe Test,** Hull's. Designed to discover aptitude for operating an engine-lathe. It duplicates the slide-rest of an engine-lathe by which the movement of the cutting tool is controlled. The slide-rest is mounted on a heavy wooden base and the tool post that usually supports the tool is provided with an arm carrying a contact pin and a tracing point. Directly below the tracing point, attached to the base, is a



No. 42076.



No. 42078.



No. 42077.

Number | Price

fiber plate with metallic contacts, in circuit with a bell or sounder for providing auditory evidence of contact. The subject's problem consists in making these contacts as rapidly as possible by turning the cranks of the screw-propelled slide-rest. If a graphic record of the subject's movements is desired, a piece of paper fastened to the base with thumb-tacks is placed underneath the tracing point at the extreme end of the apparatus. (98:67-69, 179-183; 140:133-134) ..... $ 75.00

42077. **Press, Foot and Hand Co-ordination,** N.I. of I.P. Devised by the National Institute of Industrial Psychology, of London, England, for testing press machine workers. The machine is fed by hand with 1 in. cubes dropped through the removable tray top into a tube opening on one side at the lower end near an opening in the bottom of the casing. After the cubes strike the bottom, pressure on the foot lever sets in operation a mechanical contrivance which forces the cube into the bag suspended below this opening. A set of 30 cubes is furnished with each press, and these are placed in a standard way inside the circle drawn on the tray forming the top of the casing. A block placed on the base of the press serves as a heel-rest so that the subject's foot is in a comfortable position for depressing the foot lever..... 95.00

42078. **Touch Placing Test,** N.I. of I.P. Devised for selecting workers for machines where articles are to be inserted without visual aid. The apparatus consists of a large base board with a series of channels supplied with metallic guides and stops, and a set of metal strips. An adjustable screen erected near the center of the base board serves to prevent the subject from seeing the guides and stops. The subject's problem is to place the series of metallic strips in the correct position without seeing the location of the channels. The only assistance provided is the metallic guide at the right-hand side of the channels. The metallic strips are all of the same length but must be moved through different distances. Instructions accompany each test..... 25.00

42080. **Teachers Graphic Rating Scale,** Freyd's. Superintendents, principals, and others with teachers under their supervision have for years looked in vain for a satisfactory method that would enable them to rate teachers in a way that would virtually eliminate personal prejudice on the part of the rater, and provide a ready means for obtaining a fairly accurate idea of the characteristics that competent judges deem desirable in anyone aspiring to teach.

In late years a great deal of personnel work has been done in governmental, educational, and industrial organizations, and with some of this work as a basis, the author, Dr. Max Freyd, formerly of the Department of Psychology of the University of Pennsylvania, concluded that it was now possible to devise a scale that would prove satisfactory for the appraisal of the principal traits or characteristics looked for in a member of the teaching profession. It must be borne in mind that this scale does not measure teaching efficiency, but the psychological traits underlying success in teaching.

The characteristics rated are the following: 1. Physique and Bearing; 2. Neatness and Dress; 3. Self-possession; 4. Sociability; 5. Physical Energy; 6. Alertness; 7. Sense of Humor; 8. Self-assertion; 9. Tact; 10. Popularity; 11. Impartiality; 12. Patience; 13. Acceptance of criticism; 14. Ability to think on feet; 15. Fluency of speech; 16. Distinctness of speech; 17. Interest in teaching.

A truly efficient school system not alone possesses accurate mental ratings of the pupil—the material worked upon by the teacher—but also an intimate knowledge of the ability and chief traits or charactertistics of the teacher—the workman. The best results in any organization, educational, industrial, or governmental, are obtained only when the executive possesses a thorough knowledge of his material, tools, and the abilities and disabilities of his workers.

It is a well-known fact to all experienced superintendents and principals that an instructor's scholastic achievements are not always a guarantee of success in teaching. A lack of interest in teaching or the proper degree of patience, tact, or other trait essential to success may be lacking, making it impossible for the individual to obtain satisfactory results with even pupils of a high I.Q. You owe it to the coming generation, society, and yourself to determine whether or not in addition to their scholastic training the members of your teaching staff possess a fair amount of each of the principal traits or characteristics necessary to help you make your school a success. (J.o.E.P. Feb., 1923; J.o.E.R. Dec., 1923.) Per 25..... 2.50

Per 100 ..... 7.50

42081. **Scoring Stencil** for No. 42080..... .20

46195. **Journal of Educational Research,** December, 1923. Contains a detailed description and information for use of No. 42080..... .50

RECORDING BLANKS—BINDERS

44009. **Record Blanks,** Goddard's. Devised for use with the Goddard revision of the Binet and Simon Measuring Scale for Intelligence. (69). Per 100..... 1.50

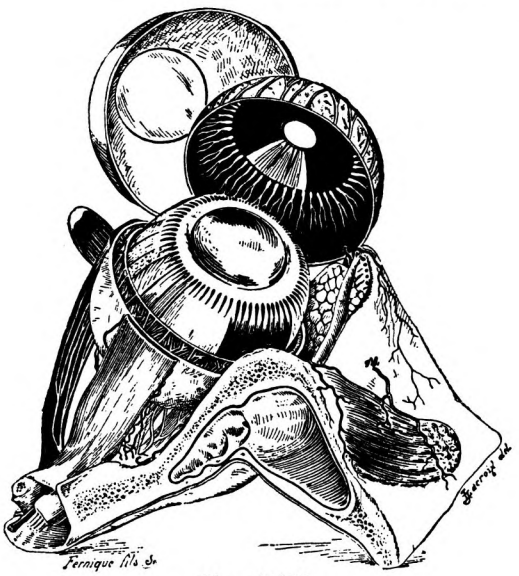
44013. **Tabular Scoring Record,** Healy and Fernald. For the practical purpose of comparing results of tests with one another in the same individual or similar tests in different individuals of the same age, a business-like arrangement is essential. The system

Number		Price
	of colored lines used in this record blank makes tabulation and future deciphering particularly easy. (85.) Per 50	$ 7.00
	Per 100	12.50
44014.	**Binder.** Devised for filing No. 44013	8.00
44021.	**Record Blanks,** Huey's. Devised for recording the results of the modified Goddard 1911 revision of the Binet and Simon Measuring Scale for Intelligence, covered by the No. 46291 Huey "Syllabus for the Clinical Examination of Children." (95). Per 100	3.20
44023.	**Record Card,** Link's. For recording the results of psychological examinations. (121:397.) Per 100	3.00
44024.	**Record Blanks,** Kirkwood's. For recording the results of the No. 31092 Association Learning Test. (109.) Per 100	1.70
44025.	**Record Card, Cumulative,** Kirkwood's. For keeping a cumulative record of a child's performance of No. 31092 given at different periods. (109.) Per 25	1.25
44027.	**Record Cards,** Knox's. Devised by Dr. Knox for the U.S.P.H.S. at Ellis Island, N. Y. (113.) Per 50	2.75
44028.	**Record Blanks,** Almack's. For recording the results of the No. 37000 Block-Design Test. (116.) Per 100	2.50
44029.	**Record Blanks,** Porteus and Hill. For recording the results of the Porteus and Hill revision of the Binet and Simon Measuring Scale for Intelligence. (173.) Per 100	4.50
44031.	**Record Blanks,** Pintner and Paterson. For use with the No. 37045 "short" scale performance scale. (163.) Per 100	1.75
44032.	**Record Blanks,** Pintner and Paterson. For use with the No. 37046 "long" scale performance scale. (163.) Per 100	1.75
44035.	**Record Blanks,** Pyle's. For recording the results of examinations made with the tests covered by "The Examination of School Children." (175.) Per 100	1.50
44036.	**Score Sheet,** Ruth's. For recording the results of the No. 42055 Electrical Inclination Test. Per 25	.50
	Per 100	1.50
44038.	**Record Blanks,** Rogers'. For recording the results of the No. 42000 Stenographic and Typing Test. Each blank has sufficient space for recording the results of seven tests. Per 15	.25
44039.	**Record Blanks,** Seashore's. For use with No. 42060. Per 100	1.50
44041.	**Record Booklets,** Terman's. This is a twelve-page booklet containing all the reading material, such as digits, sentences, absurdities, fables, vocabulary list, the square and diamond for copying, etc., and in addition gives for each test the standard for scoring. The arrangement is such as to provide ample room for a verbatim record of all of the subject's responses. (221.) Per 25	2.50
44042.	**Record Card, Abbreviated,** Terman's. Especially devised for recording the results of the Terman or Stanford revision of the Binet and Simon Measuring Scale for Intelligence. (221.) Per 25	1.25
44045.	**Record Blanks,** West's. For recording the results of the psychological tests used in the Speech Clinics. (265.) Per 25	.50
44061.	**Record Blanks,** Woodworth and Wells. Devised for recording the results of the Woodworth and Wells series of association tests. The space allotted to "Remarks" may be utilized for making twelve individual records. (277.) Per 100	.80
44065.	**Record Blanks,** O.P.D.; Form 1. Devised for recording the time and moves in doing the No. 27178 Healy and Fernald Construction Puzzle B. (23:T73; 85:T4.) Per 100	1.50
44071.	**Record Blanks,** Stenquist's. For use with the No. 42015 Assembly Test Series I. (211.) Per 100	.80
44072.	**Record Blanks,** Stenquist's. For use with the No. 42040 Assembly Test Series II. (211.) Per 100	.80
44073.	**Record Blanks,** Stenquist's. For use with the No. 42041 Assembly Test Series III. (211.) Per 100	.80
44074.	**Record Blanks,** U. of M. For Nos. 42043 and 42043A. Per 100	1.25
44075.	**Scoring Blanks,** for No. 42047. Per 100	1.50
44080.	**Record Blanks, Infants',** Curtis'. For recording the results of the Yerkes and Foster Infant Point Scale. (285:140-144.) Per 25	1.00
	Per 100	3.00

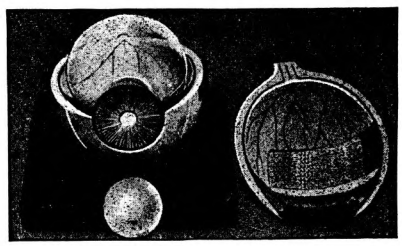
Number		Price
44081.	**Record Blanks,** Yerkes, Bridges, and Hardwick. Used for recording the results of the original Point Scale, and also for the Pre-adolescent or Child Scale of the Yerkes and Foster revision. (283:136-137; 285:28-29.) Per 25	$ 1.00
	Per 100	3.00
44083.	**Record Blanks, Adolescent-Adult,** Yerkes and Foster. Devised for recording the results of the Adolescent-Adult Point Scale of the Yerkes and Foster revision of the Yerkes, Bridges, and Hardwick Point Scale. (285:97-100.) Per 25	1.00
	Per 100	3.00
44085.	**Rating Sheets, Musical,** Tinker's; for self-rating. (51A:X23.) Per 100	1.50
44086.	**Record Blanks,** Stevens'. For the Rossolimo psychograph. Per 25	1.00
	Per 100	3.00
44088.	**Record Blanks,** Stutsman's. For the No. 37061 performance tests for children of pre-school age. Per 25	1.50
	Per 100	4.50

Developmental Schedules, Yale Psycho-Clinic. See No. 37015-47 Neo-Natal to No. 37015-16 Five Year, page 170.

MODELS—CHARTS—LANTERN SLIDES



No. 45009.



No. 45013.

No. 45021.

45009. **Eye Model.** This is a greatly enlarged model of the eye, completely dissectable, and shows all of the different parts with a great deal of detail. The model is profusely labeled and this, with the accompanying manual makes it a very valuable one for the study of the eye by the student of physiology and psychology. The model is approximately 6½ x 9 x 12 in. (H.T.P.:486-526; K.H.P.:724-774; S.P.:968-1024; 224:87; 255:58-67; 257:98-108) **48.00**

45010. **Eye Model.** Similar to No. 45009 but cut vertically and, as in the complete eye, displaying the muscles, arteries, veins, nerves, membranes, anterior and posterior chambers, glands, ducts, and in microscopic detail the iris, choroid, and retina **56.50**

45011. **Eye Model.** Lower horizontal section of right eye, enlarged 10 times. This model is approximately 9½ x 12½ x 17 in. and shows in the smallest detail the various parts of the eye with their relation to the orbit and its dependent parts. All of the parts are labeled and this, with the accompanying manual, makes the model easy to study. **130.00**

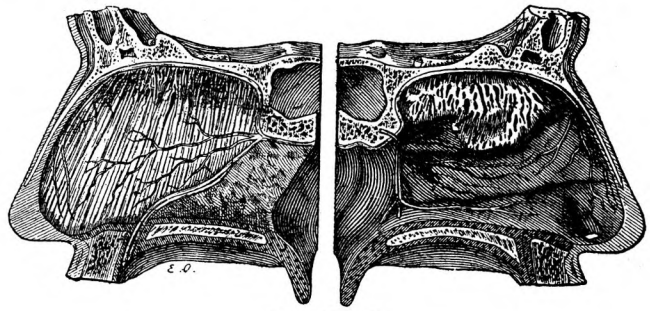
45013. **Eye Model.** This model is approximately 7 x 7 x 7½ in. and, as shown in the illustration, is dissectable. While it lacks the detail of the more expensive models, it nevertheless meets all the requirements of elementary work **12.00**

45021. **Ear Model.** Enlarged 4 diameters; approximately 6½ x 6½ x 12½ in. This model, like the companion model of the eye (No. 45013) is well adapted for elementary work. The principal parts are easily removable for the inspection of the students **15.00**

45022. **Ear Model.** Temporal section, approximately 2 ft. long. This model shows the external, middle, and internal ear with the most minute detail. All of the parts are labeled and a detailed list is furnished with each model. This is the model recommended for the more intensive study of the organ of hearing. See illustration on page 192. (H.T.P.:466-485; K.H.P.:697-710; S.P.:1024-1035; 224:109; 255:85-90; 257:60-64) **122.25**

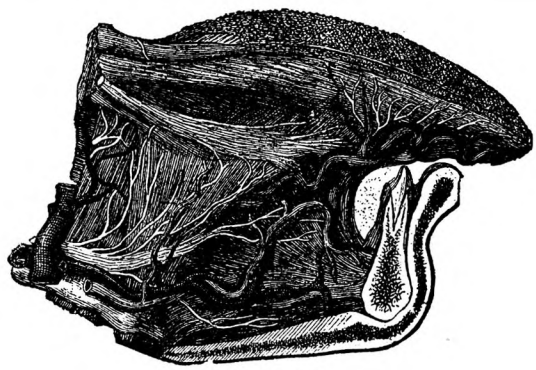
No. 45022.

Number		Price
45023.	**Labyrinth and Ossicles of the Ear.** The same size as No. 45022. This model represents a section including the superior semi-circular canal and a part of the bony vestibule; all parts adjacent to the membraneous labyrinth can be seen. The first part of the cochlea opening longitudinally permits following the vestibular and tympanic "rampes;" the terminating part opening transversely permits following also all the ramifications of the auditory nerve as far as the organ of Corti, etc.....	**$ 40.00**



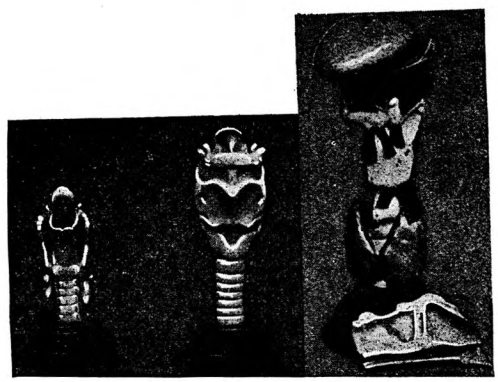
No. 45025.

45025.	**Nose Model.** Two halves, each showing different details, mounted on a base. (H.T.P.:458-461; L.S.:1004-1009; 224:125; 255:98-101; 257:73-74).....	**24.75**
45026.	**Tongue Model.** The same proportion as the No. 45027 larynx; in fact, it may be fitted into the larynx. This model shows in the smallest detail the muscles, glands, nerves, and blood vessels.....	**99.00**
45027.	**Larynx Model;** greatly enlarged. Approximately 1 ft. long. All the muscles and cartilages are removable. This model shows the action of each muscle, the vocal cords, and the entire mechanism by which the voice is produced. It is the companion piece to No. 45026. (H.T.P.:610-616; K.H.P.:711-724; L.S.:632-647; 257:310-317).....	**99.00**
45028.	**Larynx Model;** twice natural size. This model shows the cartilages and vocal cords only. It is articulated so as to show the glottis, the play of the vocal cords, and the mechanism for the production of sound.....	**16.50**
45029.	**Tongue Model.** Approximately 5x11¾x16 in. Mounted on a wooden base with adjustable support that permits rotation of the model for the study of any part without changing position. It represents a longitudinal section of the tongue and shows in great detail the blood supply, muscular fibers, nerves, etc. (H.T.P.:461-465; L.S.:264-266; 224:138; 257:67-70, 175-176).....	**30.00**
45030.	**Larynx, Model A.** Showing an anterior aspect with connection above with the hyoid bone and below with the windpipe. It is partially covered in front by the thyroid gland and shows connecting ligaments.....	**9.50**
45031.	**Larynx, Model B.** Posterior aspect, showing connection with the hyoid bone and the trachea. The cartilages are uncovered, the mucous membrane being retained only on the epiglottis and in the interior of the larynx.....	**9.50**
45032.	**Larynx, Model C.** Another posterior aspect. The larynx is laid open to show the tongue, hyoid bone, trachea, and pharynx with connecting ligaments. The parts are shown with their mucous membrane covering.....	**11.75**



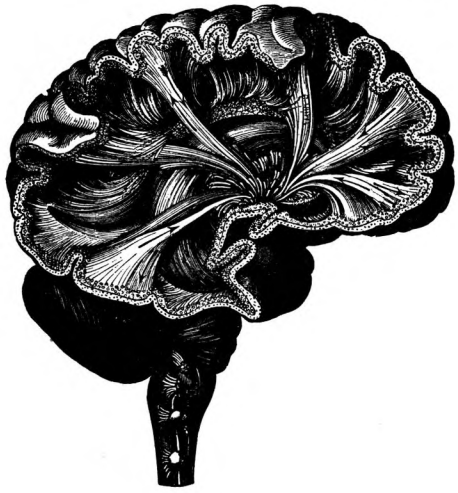
No. 45029.

Nos. 45026, 45027.

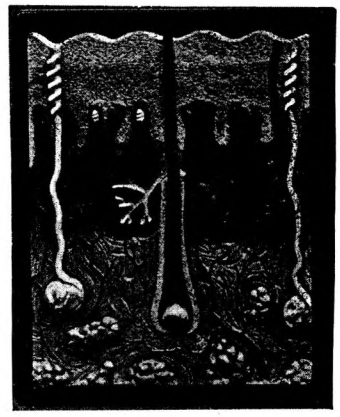


Nos. 45030, 45031, 45032.

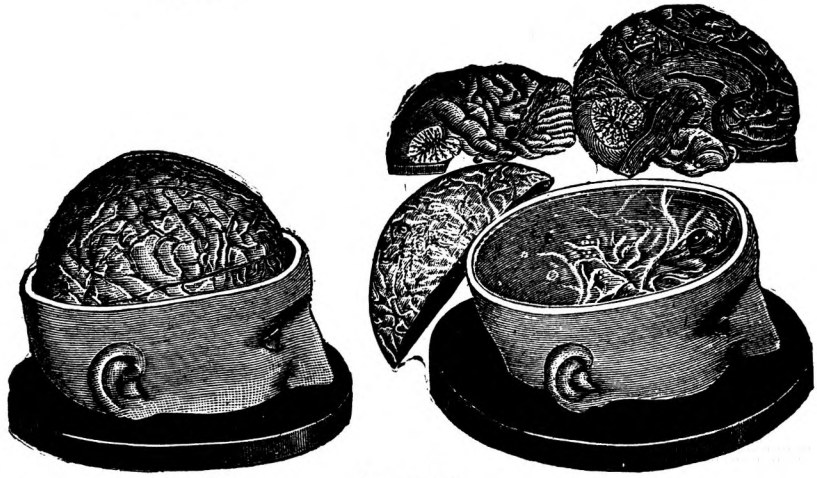
Number		Price
45033.	**Larynx Phantom.** A mask of the face with open mouth. The posterior portion of the pharynx is removable and permits a view of the nose, mouth, and throat cavities..	**$ 12.00**
45034.	**Cerebellum and Spinal Cord.** This model shows the anterior and posterior roots of all the spinal nerves	**49.50**
45035.	**Section of the Spinal Cord.** This model exhibits the complete and minute structures of the spinal cord. It covers all of the latest discoveries of the anatomists.....	**59.50**
45036.	**Brain Model.** Mounted on a wooden base with adjustable support that permits rotation of the model for the study of any part without changing position. This model is devised from dissections of chromic acid hardened brains and embodies all of the work of ancient and modern anatomists. An excellent model for the Psychological or Physiological Laboratory. (32:132-143; K.H.P.:602-673; L.S.:849-903; S.P.:891-962; 255:28-34; 257:126-151)	**203.00**
45037.	**Brain Model.** The same size as No. 45036, showing in addition the following: Right hemisphere: transverse section through the optic thalamus, through the two corpora striata of internal capsule, the claustrum, the external capsule, the inferior peduncle of the optic thalamus, insula (Island of Reil), lenticular fibers, etc.: showing all the bundles of fibers, sensory and motor lasciculi, arcuate or association fibers, commissural fibers, external striate arteries (arteries of cerebral hemorrhage, Charcot); left hemisphere: transverse posterior section through motor voluntary fasciculus, showing its fibers entering the capsula interna and minute anatomy of thalamic region, viz., ganglion of Luys, and its connections, commissures of Forel, of Meynert, etc.	**231.00**
45038.	**Brain Model A;** natural size. Presenting the superior aspect of the brain.....	**6.00**
45039.	**Brain Model B;** natural size. Presenting the inferior aspect of the brain.....	**6.00**
45040.	**Brain Model C;** natural size. Presenting a perpendicular section of the brain.....	**6.00**
45041.	**Brain Model D;** presenting a transverse section of the brain, showing the cavities.....	**6.00**
45042.	**Skull with Brain.** This model consists of a section of the head supporting a brain dissectable into three parts, giving beside the external view, an internal view of a vertical and horizontal cross-section.....	**15.00**



No. 45037.

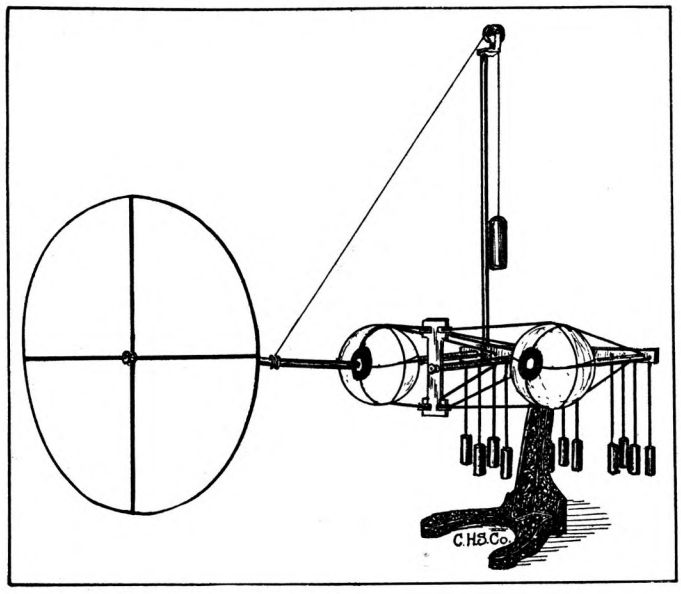


No. 45070.



No. 45042.

Number		Price
45043.	**Ophthalmotrope.** An excellent device for making clear the action of the extrinsic muscles of the eye. The cords of different colors, representing the muscles, run over pulleys and are kept taut by weights. The eye models are mounted on ball-and-socket joints and so are easily adjustable. The right eye is furnished with a rod, at the end of which is attached a disk indicating the field of view. A special upright with a pulley and counterpoise permits easy adjustment of the disk representing the field of view. (225:134-137)	**$ 80.50**
45044.	**Horopter Model,** Titchener's. A carefully constructed model showing the horopter as a horizontal circle and a vertical through the fixation point. (224:308-316)	**125.00**
45055.	**Otolith Organs,** Exner's. For demonstrating the effect produced by movements of the head, also the displacement of the otoliths above the fields of hair-cells due to other causes. (224:173, 180-182)	**57.00**
45059.	**Semicircular Canal Model,** Exner's. A glass model arranged with an opening for introducing liquid in order to demonstrate the mechanical action of the endolymph on the hairs of the ampullar cells in the semicircular canal of the auditory apparatus. (224:176-178)	**50.00**
45065.	**Course of a Sense Feeling Model,** Wundt's. A wooden base on which is supported a model for representing the course of a typical sense feeling according to Wundt's theory. (224:250-257)	**8.00**
45070.	**Skin Model.** This model presents a view of all the component parts of the skin. Some of the parts, however, such as tactile bodies, papillae, hair follicles, and sebaceous glands, are taken from different parts of the skin and are thus placed nearer to each other than they are in the real skin. Mounted on a base; approximately 12x14 in.	**8.50**



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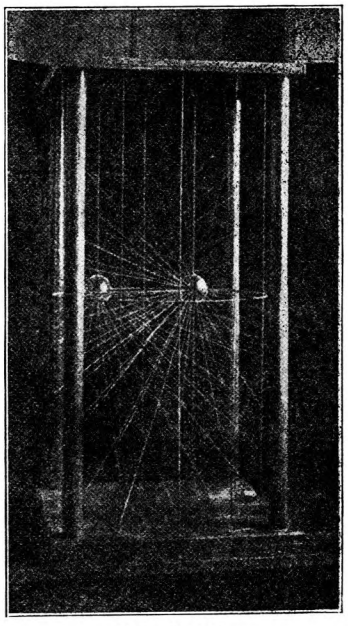
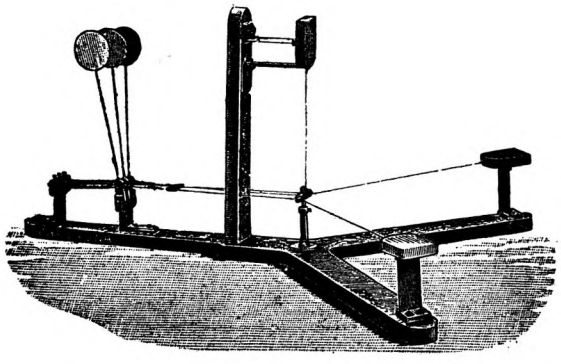
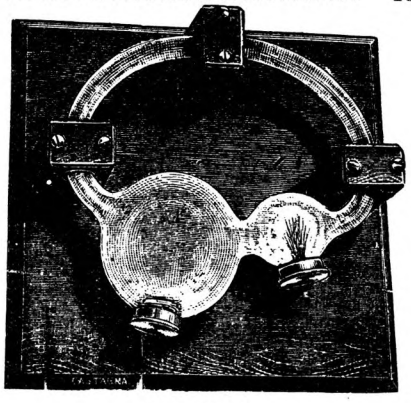


No. 45044.

Number		Price
45071.	**Skin Models.** Set of 2. A section of the skin and the thumb, the former enlarged 100 times and the latter 30 times. This is a set of high-grade models showing the different layers of the epidermis, the dermis, sebaceous glands, sudoriferous glands, the hair with its root bulb, etc. (3284-89; H.T.P.:429-437, 447-450; L.S.:543-558; S.P.:1038-1052; 257:50-57)	**$112.00**
45103.	**Auditory Chart,** Titchener's. A heavy wooden frame, approximately 48x155.4 cm., with a cloth-covered section depicting the piano keyboard from A to E—33 white and 23 black keys—and a second section composed of two sliders operating independently, one above the other, for locating by means of properly placed black squares any two fundamentals with seven of their overtones. The white keys being about 28 mm. wide and the black keys and overtone squares in proportion, the chart is large enough to be seen in the rear of the average class-room by any person with normal vision. (224-97-99)	**50.00**
45115.	**Beta Blackboard,** U.S.A. Constructed to conform to the War Department's specifications. The crank may be inserted at the top and bottom on either side. A spring roller curtain serves to protect the face of the blackboard chart when not in use. The chart is 27 ft. long, and the demonstration figures are very carefully painted with the best grade of white paint obtainable. See page 177 for the Beta Tests. (77:303-306; 287:79-92)	**167.00**

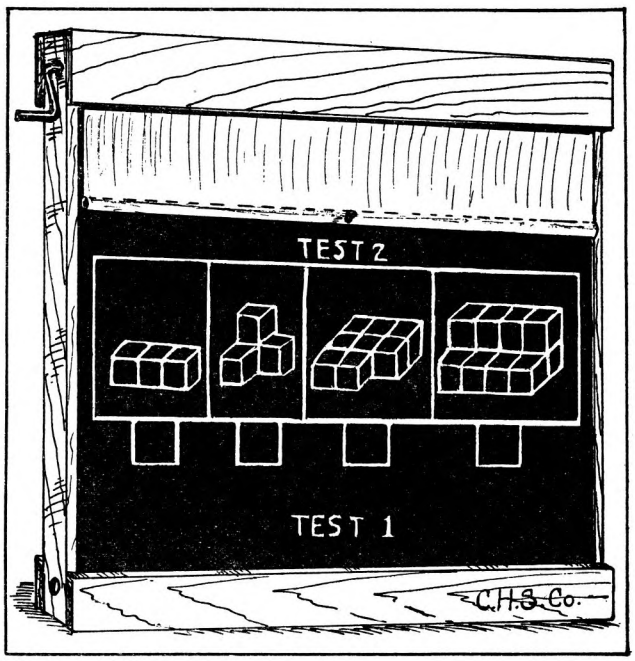


No. 45055.



No. 45059.

45121.	**Anatomical Charts,** Wenzel's. A set of 13, 19¾x26 in. Part I, covering the sense organs: Makroscopic and microscopic views of the eye (5 plates), ear (4 plates), skin, hair, nail, tongue, taste buds, and nose (4 plates). (224:138; 255:98-103; 117-120)	**6.75**
45127.	**Neurological Charts,** Strümpell and Jakob's. Set of 21 plates, ranging from 106x140 to 140x212 cm., the majority in colors, covering the brain and nervous system. Designed for clinical, anatomical, and physiological instruction. A manual with details accompanies each set of plates. (255:28-31)	**75.00**



No. 45115.

Number | Price

45133. **Chart of Osteology,** Michel's. Life-size (32x62 in.), in 3 colors. A life-size picture of the skeleton as a whole, anterior and posterior views. This chart shows all articulations and also the internal organs back of the ribs. The organs, being represented in different colors, are plainly seen in their exact location with their relation to the skeleton and ribs. The lower level of the lungs, both front and back, is illustrated—after expiration, in ordinary inspiration, and in forced inspiration. Separate pictures scattered around the anterior and posterior views of the skeleton represent all of the principal joints in the flesh itself, showing their inner shapes and relations with the adjoining structures. The chart also contains a life-size side view of the skull, spinal column, and normal foot.

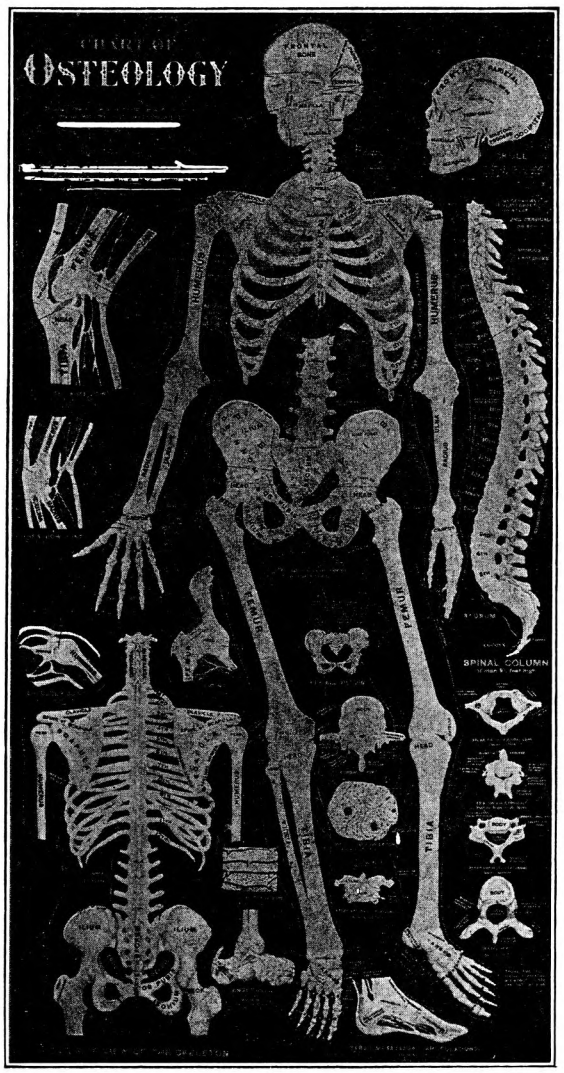
The distinguishing feature of this chart, like that of the three following, is that the names of the structures are printed either on the face of the structure itself or along side, thereby eliminating the waste of time necessary when using a key. Furthermore, this method of closely associating the structures and names thereof causes the student to recall the location of a certain structure by its proper name instead of thinking of it in connection with a "key" number. This is the only series of charts on the market which makes such extensive use of this method of labeling.

This chart is printed on heavy paper with a cloth backing, and supplied with a molding at the top and bottom ..... **$ 7.00**

45135. **Chart of the Muscular System,** Michel's. Two-thirds life-size (32x44 in.), in 6 colors. This chart shows both the superficial and deep muscles with their arterial and nervous relations. In addition to the anterior and posterior views of two complete human figures, there are ten side pictures showing, in life-size, head, neck, hand, foot, throat, and eye. This chart is printed on very heavy paper and supplied with a molding at the top and bottom **7.00**

45137. **Chart of the Spine and Spinal Nerves,** Michel's. Life-size (28x42 in.), in 3 colors. This chart shows two life-size illustrations of the spine and seven supplemental figures. These illustrations show the bony spine, front and side views, with the spinal nerves issuing from the intervertebral foramina; the spinal cord and the origin of the spinal nerve; the cervical, brachial, lumbar and sacral plexuses of nerves; the great sciatic and all other pelvic nerves; the sympathetic system of nerves complete; the plan of formation of the spinal nerve; a life-size skull; a most perfect representation of the fifth cranial nerve, and the difference in the appearance of a brain and spinal nerve cell is shown by two small figures (highly magnified) to the right of the large central figure. Comparative illustrations of the male and female pelvis are also shown, although considerably reduced in size. This chart is also supplied with a molding at the top and bottom. (32:128-131; S.P.:859-891, 936-965; 255:19-29; 257:122-126; 275:220-224) **7.00**

45139. **Chart of the Arterial, Venous, and Nervous Systems,** Michel's. Two-thirds life-size (32x44 in.), in 5 colors. This chart shows all the arteries, veins, nerves and their branches. It gives an accurate representation of the general blood circulation and



No. 45133.

Number | Price

nervous system. The chart shows the following: Life-size head, neck, and medisection of the brain, showing the blood and nerve supplies of the teeth, the construction of the brain and the origin of the twelve cranial nerves; a complete trunk from the neck to pubes, with the anterior wall removed, picturing the internal organs—outlines of the ribs are dotted over the organs and shoulders and hip-joints are shown; cerebro-spinal axis (brain, spinal cord and spinal nerves all connected), with the base of the brain, its blood supply, the twelve cranial nerves, and the spinal plexuses and ganglia; the sympathetic nervous system and vagi, showing the formation of the great sympathetic ganglia and plexuses and their relations with the spinal nerves; the heart, with the construction of its right and left chambers; three views of the eye-ball; three microscopical pictures, illustrating the capillary circulation, the transformation of the blood from arterial into venous, the discharge of nerve impulses on the muscular fibers, the blood supply of the nerves, and multipolar neuron. The chart is supplied with a molding at the top and bottom. (H.T.P.:527-597; 255:34-56)..... **$ 7.00**

45145. **Color Charts,** Ladd-Franklin's. A set of 8 charts, 30x25 in., painted in oil, for illustrating the Ladd-Franklin theory of color. These charts are copies of the color plates in "Colour and Colour Theories," and make an excellent addition to the lecture room equipment.

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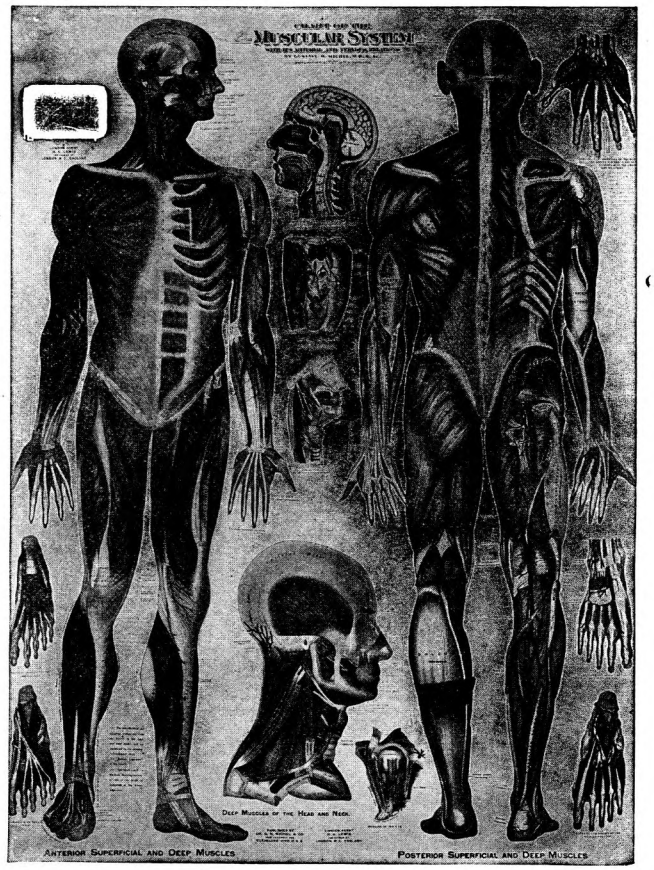

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*Baldwin, J. M.
*Baldwin, B. T.
Beneke, F. E.
*Bentley, M.
Binet, A.
*Burnham, W. M.
*Cattell, J. M.
*Dewey, J.
*Dodge, R.
*Drever, J.
*Dunlap, K.
Exner, S.
Fechner, G. T.
*Goddard, H. H.
*Hall, G. S.
Helmholtz, H. L. F. von
Herbart, J. F.
Hering, E.
*James, W.
Janet, P.
*Jastrow, J.
*Judd, C. H.
*Kirkpatrick, E. A.
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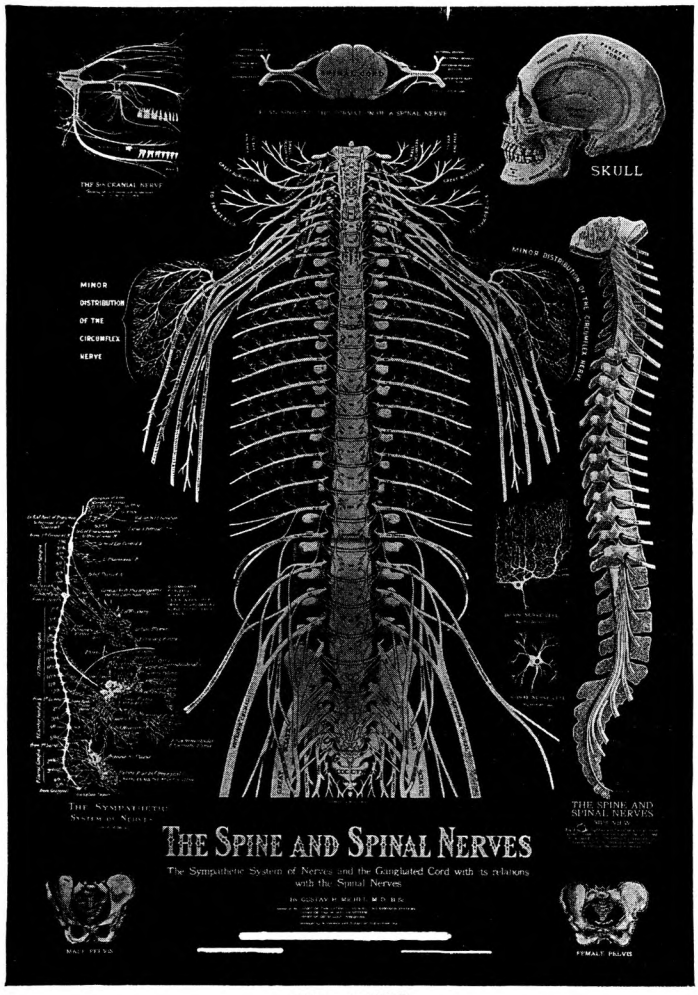

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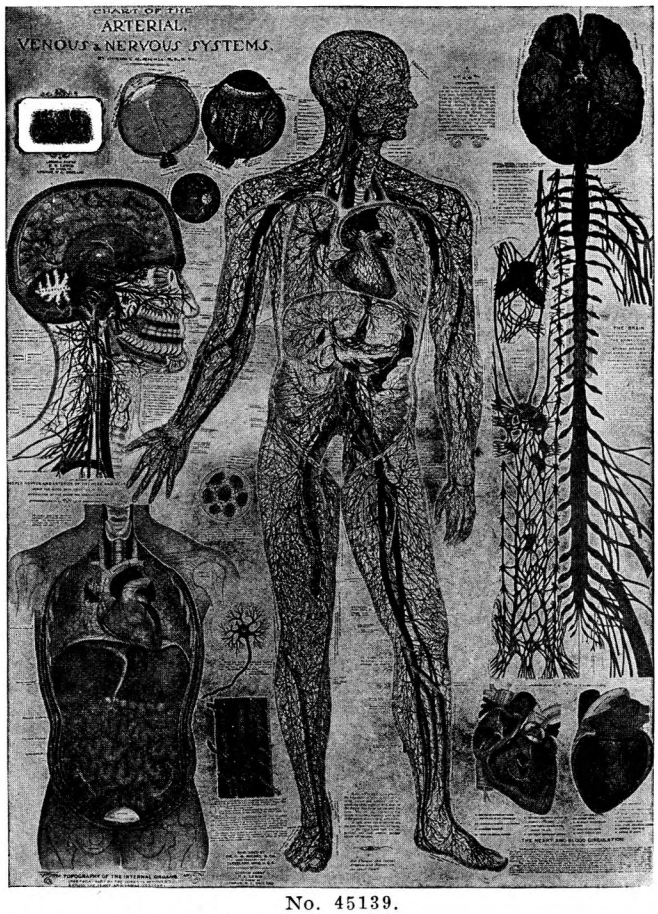
Number

45301. **Lantern Slides, Psychology,** Judd's. Selected for use with "Psychology—General Introduction," by Chas. H. Judd, Ph.D The slides cover the nervous system and the special sense organs in a very thorough manner and will be furnished separately or in sets of 50 or 103. The figures at the right of the description refer to the abridged selection, whereas those at the left refer to the unabridged set.

A. Comparative Development of the Nervous System (24 Slides).
- A1. First differentiation of neuro-muscular cell (1).
- A2. Very simple nerve cell in higher animals (2).
- A3. Highly evolved nerve cell in higher animals (3).
- A4. Longitudinal section of eye and optic nerve of actuacu fluviatilus.
- A4a. Amoeba—single cell constituting the whole organism (4).
- A5. Nervous system of starfish (5).
- A6. Nerve system and sense organ of colenterata (6).
- A7. Nerve system and sense organs of lithobius forficatus and scolopendra.
- A8. Brain of shellfish or Gadus aeglefinus.
- A9. Brain of Barbus fluviatilus.
- A10. Dorsal views showing development of shark's brain (7).
- A11. Median section of brains of fish, amphibian, bird, and mammal (8).
- A12. Sagittal section through brain of amphibian.
- A13. Frog brains (9).
- A14. Encephalon of a bird (10).
- A15. Median section through brain of embryo (11).
- A16. Brain of Nile crocodile.
- A17. Inside of a reptilian brain.
- A18. Convolutions of seal brain (12).
- A19. Section of chicken brain.
- A20. Side view of brain of African elephant (13).
- A21. Electric stimulative section of chimpanzee brain cerebrum (14).
- A22. Electric stimulative part of the cerebrum of a dog (15).
- A23. Showing the way nerve cells grow (16).



No. 45139.

B. Human Nervous System (36 Slides).
- B2. Phylogenetic development of mature cells (17).
- B3. Golgi's cell Type 1—from optic tract of cat.
- B4. Development of Neurone concept (18).
- B5. Distribution of different sensory neurones.
- B6. Nerve ending in muscle (19).
- B7. Location and attachment of nerves on spinal cord (20).
- B8. Course of nerve fibers.
- B9. Course of sensory stimulation (21).
- B10. Source, course, and termination of motor nerve fibers (22).
- B11. Wallerian degeneration of nerve roots.
- B12. Diagrammatic transverse section of conus medularis.
- B13. Scheme of indirect reflex path.
- B14. Reciprocal relations of elements within spinal ganglion.
- B15. Transverse section of spinal cord (23).
- B16. Transverse section of spinal cord through pyramidal tract.
- B17. Elements of gray matter of spinal cord (24).
- B18. Diagrammatic brain and spinal cord (24).
- B19. Cerebellum of embryo.
- B20. Diagrammatic section of fibers within brain (25).
- B21. Elements of the cerebral cortex (26).
- B22. Sensori-motor cortex (27).
- B23. Vertical median section of brain (28).
- B24. Base of brain (29).
- B25. Lateral section through hemisphere of brain.
- B26. Outline of lateral surface of cerebrum.
- B27. Transverse section of cerebrum.
- B28. Electric stimulative section of human cerebrum (30).
- B29. Schematic frontal section of frontal lobe.
- B30. Convolutions of the cerebellum.
- B31, Cerebellum from below.
- B32. Section through fold of cerebellum (31).
- B33. Section of medulla oblongata of nine month embryo.
- B35. Medulla oblongata—human (32).
- B36. Section through the medulla oblongata (33).
- B37. Brain weights of different races (34).
- B38. Brain weights of eminent men (35).

C. Eye (12 Slides).
- C1. Eye with extrinsic muscles (36).
- C2. Eye.
- C3. Visual axis and image formation of eye.
- C4. Ametropic and emmetropic eyes (37).
- C5. Different corneas showing development of eye.
- C6. Act of accommodation (38).
- C7. Accommodation graph.
- C8. Meridional section through ciliary body of human eye.
- C9. Retinae and visual area of the cortex (39).
- C10. Section of retina.
- C11. Perimeter charts—mapped (40).
- C12. Wave lengths perceptible to a color-blind person in terms of gas-light spectrum.

D. Ear (12 Slides).
- D1. Labyrinth and cochlea (41).
- D2. The bones of the middle ear.
- D3. Section through middle of cochlea.
- D4. Scheme of part of resonance apparatus of cochlea according to Helmholtz's hypothesis (42).
- D5. Transverse section of cochlea canal showing organ of Corti.
- D5a. Organ of Corti showing terminal cells or fibers (43).
- D6. The chain of ossicles and their ligaments.
- D7. External view of internal ear—vestibule, semicircular canal, and cochlea.
- D8. Tympanic membrane.
- D9. Distribution of the auditory nerve.
- D10. Effect of destruction in frog and dove of semicircular canals in the ear.
- D11. Vertical section of head.

E. Tongue (3 Slides).
- E1. Tongue showing taste papillae (44).
- E2. Papillae and taste buds.
- E3. The central junction of the taste nerves (45).

F. Nose (3 Slides).
- F1. Diagrammatic nose showing sensory area (46).
- F2. Cells and fibers in olfactory bulb (47).
- F3. Olfactory nerve cells and terminals.

G. Skin (4 Slides).
- G1. Transverse section of skin.
- G2. Transverse section of skin showing different layers (48).
- G3. Section of skin from finger tip.
- G4. Papillae of skin; Wagoner's touch corpuscle with nerve fibers; capillary loops (49).

H. Language (3 Slides).
- H1. Pictographic writing—an Indian letter.
- H2. Pictographic writing developing into symbolic writing.
- H3. Pictographic writing developing into alphabetic writing.

I. Miscellaneous—Chapters XIV and XV (6 Slides).
- I1. Bryan and Harter's curve showing improvement in sending and receiving telegraph messages.
- I2. Above analyzed.
- I3. Fatigue of nerve cells (50).
- I3a. Diurnal variations in ability to carry on muscular work.
- I4. Curve of sleep.
- I5. Changes in nerve cells due to age.

Single slides	$ 0.80
Abridged set of 50	40.00
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KEY TO ABBREVIATIONS

American Journal of Insanity	A.J.o.I.
American Journal of Physiological Optics	A.J.o.P.O.
American Journal of Psychiatry	A.J.o.Ps.
American Journal of Psychology	A.J.o.P.
American Journal of Sociology	A.J.o.S.
Archives of Psychology	Ar.o.P.
British Journal of Psychology	B.J.o.P.
British Journal of Psychology Monographs	B.J.o.P.M.

Chicago Child Study Reports.....C.C.S.R.
Columbia Contributions to Education.....C.C.t.E.
Columbia Contributions to Philosophy and Psychology.....C.C.t.P.a.Ps.
Comparative Psychology Monographs.....C.P.M.
Dental Cosmos.....D.C.
Educational Administration and Supervision.....E.A.a.S.
General Electric Review.....G.E.R.
Genetic Psychology Monographs.....G.P.M.
Harvard Monographs in Education.....H.M.i.E.
Industrial Psychology.....I.P.
Institute of Child Welfare Monographs.....I.o.C.W.M.
Journal of Abnormal and Social Psychology.....J.o.A.a.S.P.
Journal of Applied Psychology.....J.o.A.P.
Journal of Comparative Psychology.....J.o.C.P.
Journal of Delinquency.....J.o.D.
Journal of Educational Psychology.....J.o.E.P.
Journal of Educational Research.....J.o.E.R.
Journal of Experimental Pedagogy.....J.o.E.Ped.
Journal of Experimental Psychology.....J.o.Ex.P.
Journal of General Psychology.....J.o.G.P.
Journal of the National Institute of Industrial Psychology.....J.o.N.I.I.P.
Journal of Personnel Research.....J.o.P.R.
Journal of Psycho-Aesthenics.....J.o.P-A.
Pedagogical Seminary.....P.S.
Pedagogical Seminary and Journal of Genetic Psychology.....P.S.a.J.o.G.P.
Psyche.....Psy.
Psychobiology.....Ps'b.
Psychological Bulletin.....P.B.
Psychological Clinic.....P.C.
Psychological Monographs.....P.M.
Psychological Review.....P.R.
School and Society.....S.a.S.
School Review.....S.R.
School Science and Mathematics.....S.S.a.M.
Science.....S.
Teachers' College Record.....T.R.C.
The Personnel Journal.....P.J.
Training School Bulletin.....T.S.B.
University of Iowa Studies in Psychology.....U.o.I.S.i.P.
Vocational Guidance Magazine.....V.G.M.
Chapter.....C.
Demonstration.....D.
Experiment or Exercise.....X.
Lesson.....L.
Test.....T.

References, in parenthesis, follow the majority of catalog descriptions. At the left of the colon are given the abbreviations of the publications in the list above, or the reference numbers in the list following; the figures at the right, unless preceded by a letter, indicate pages. As an accommodation we carry a small supply of all the publications priced. Those unpriced (O.o.P.) are out of print, or in a few cases (H.b.P.), handled exclusively by the publisher. The names of textbooks and manuals for physiology and pharmacology are all abbreviated.

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(Psychology)

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Ref. No.	Cat. No.		Price
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(Physiology and Pharmacology)

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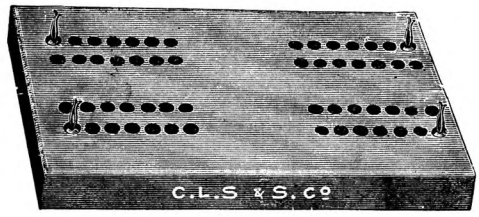
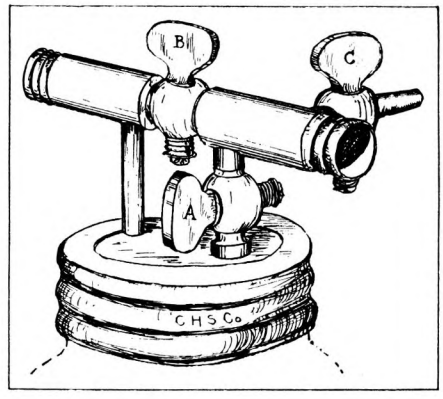


Nos. 51307, 51309.



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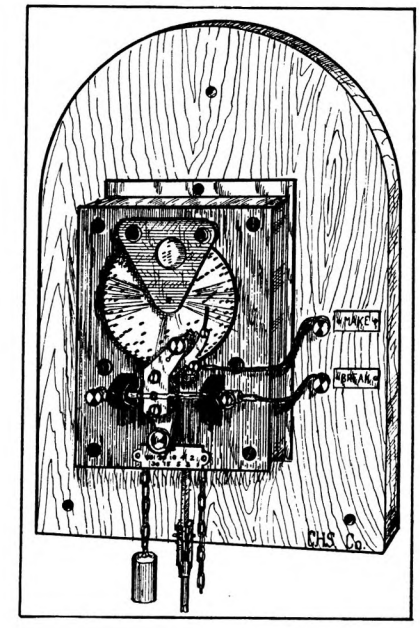

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Number		Price
51307.	**Frog Board.** A well-finished board with clip holes extending entirely through the board. (J.E.P.:54; M.E.P.:122; Z.L.E.P.:101)	$ 1.65
51309.	**Clips, Spring.** For No. 51307. Made of heavy spring wire and capable of holding frogs of any size. Per 5	.20
51420.	**Forceps, Artery.** For closing blood vessels; also useful as weights	.65
51515.	**Ether Jar Regulator,** Northwestern. The cover fits the ordinary fruit jar. It is provided with two vertical tublatures leading to a common horizontal tube with a stop-cock in the center. There is also a stock-cock in one of the vertical tublatures and another extending at right angles from its section of the horizontal connecting tube	10.00

TIMING AND RECORDING

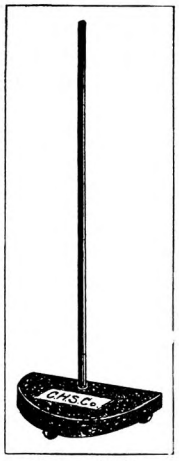
(See also Nos. 20000-22499)

52003.	**Contact Clock,** Bowditch and Balzar. A weight-driven clock, devised to make or break contacts at stated intervals, viz., 1, 2, 3, 4, 5, 10, 15, 20, 30, and 60 seconds. The device for making and breaking the contacts consists of a disk with a series of concentric pins inserted at the required intervals and a sliding spring contact, operating on a round horizontal rod along the lower part of the disk. The spring contact can be set to intercept any of the ten rows of contact pins. The clock is provided with three binding posts; the one at the left is the common post for making and breaking the circuit, while the upper of the two at the right supplies the other terminal for making and the lower the terminal for breaking the circuit. (J.E.P.:82; 103:X11)	250.00

SUPPORTS

(See also Nos. 22163—22228)

54003.	**Support.** Semicircular base and 30 cm. rod. The shape of the base permits the rod to be placed close to the kymograph drum or other apparatus. (M.E.P.:110, 123)	3.40
54013.	**Support.** Heavy tripod base with one leveling screw and a 60 cm. rod. (225:X19; 267:T10)	3.75
54014.	**Support.** Similar to No. 54013 but without leveling screw. (267:T17)	2.50
54018.	**Support, Universal.** Laboratory workers who have experienced the need of a high-grade support when making kymograph records, will readily recognize in this support a piece of apparatus that will meet their most critical demands for convenience and precision. The support consists of a heavy iron base with leveling screws, supporting a substantial upright around which rotates a heavy walled sleeve with a vertical diagonally-cut rack. Operating vertically on this rack, by means of a heavy encased pinion terminating in a	



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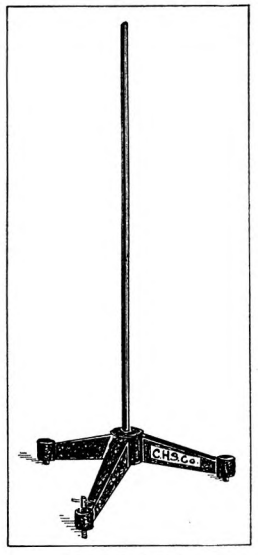

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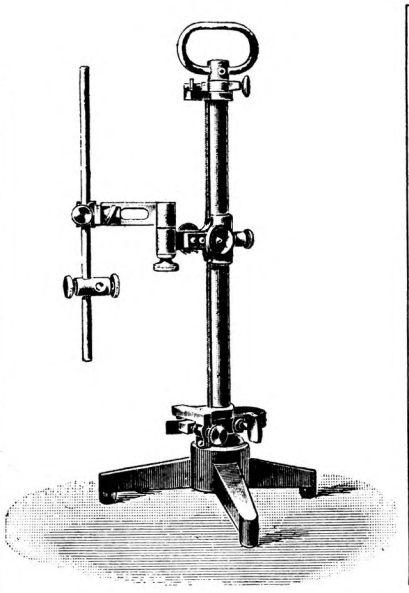

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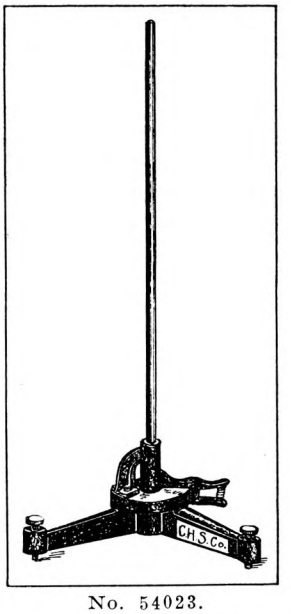

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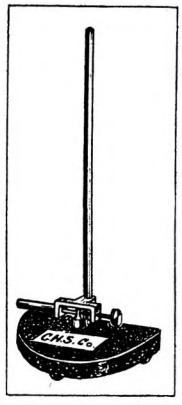

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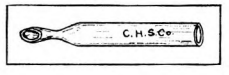

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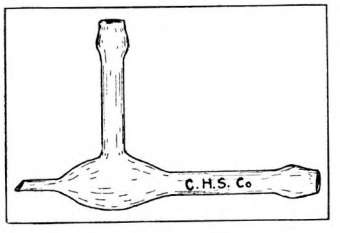

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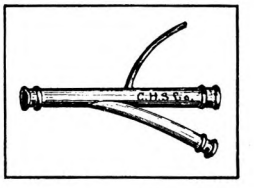


No. 56125.

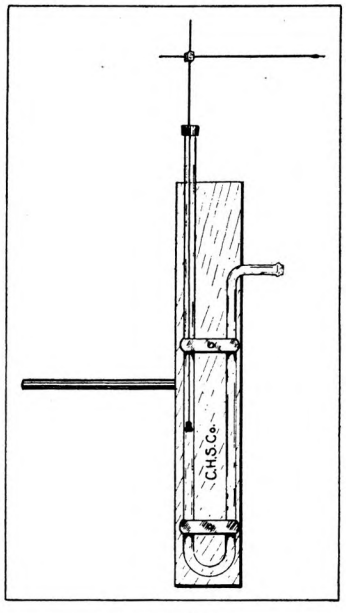
Number		Price
	large knurled head, is a pivoted bracket with a clamp which may be readily adjusted by means of a steel key so that rods of time markers, tambours, etc., can be used in either the vertical or horizontal position. Directly above the tripod is a fine adjustment, consisting of a carefully cut micrometer screw with a large knurled head working against a spring so that the bracket may be rotated around the vertical upright. At the top of the support is an arrangement for curtailing the rotation of the outside tube, also a handle which renders the entire support easily portable	**$105.00**
54023.	**Support.** A tripod base with three leveling screws, a 60 cm. rod, and a lever and clamp attachment which permits turning the rod through an angle of approximately 70°. The base is supplied with a stop so that when the tambours and time markers have been adjusted to the kymograph drum they can be readily swung away from the drum and returned again to the identical position	**28.50**
54025.	**Support** with adjusting screw. Similar to No. 54003 but provided with a micrometer screw adjustment for making delicate adjustment of the stylus of tambour or time marker to the writing surface of the kymograph drum. (Z.L.E.P.:26)	**13.75**
54060.	**Cabinet, Sanitary;** glass door. A very useful piece of white-enameled steel laboratory equipment, 67 in. high, 21 in. wide, and 15 in. deep; for storing head, mouth, and nasal mirrors, tongue depressors, and similar diagnostic equipment where cleanliness is a desideratum. The cabinet is mounted on legs with easy-rolling castors and provides 13 sq. ft. of shelf space. (265:C1)	**67.00**
25651.	**Clamp, Right Angle.** For 13 mm. rods. (267:T10)	**.45**
54207.	**Rod,** 13 mm. diameter, 80 cm. long, with screw end. Will fit any of the standard bases	**.90**

HEMATOLOGY

25450.	**Spectroscope,** Pocket Type. A direct-vision instrument for the spectroscopic examination of hemoglobin. (S.P.:74-77; S.P.P.:46-54; Z.L.E.P.:87-89)	**20.00**

CIRCULATION

Number		Price
56104.	**Cannulae, Arterial,** Straight. Made of glass. For dogs. (J.E.P.:107). Per set of 3.....	$ **0.75**
56105.	**Cannula, Arterial,** Straight. Made of glass. For frogs. See illustration on page 209...	**.20**
56106.	**Cannula, Arterial,** Curved. Made of glass. For frogs. (S.:Fig. 218).....	**.30**
56111.	**Cannulae, Arterial, Three-way,** Francois-Frank's. Made of glass. (B.E.E.P.:170; J.E.P.:42; K.H.P.:279; S.P.:210; S.P.P.:306). Per set of 3.....	**1.80**
56115.	**Cannulae,** Metal, Straight, Hall's. See illustration on page 209. Set of 6 in leather-covered case	**15.00**
56125.	**Cannula, Perfusion,** Kronecker's; with electrode connection. For frog heart. See illustration on page 209. (K.H.P.:252; L.S.:95; S.P.P.:280).....	**9.00**
56135.	**Cannulae,** Glass, Curved. For horses. Set of 3.....	**2.50**
56150.	**Cannulae, Arterial,** Glass. An assortment of 20, ranging from 2-8 mm. in diameter....	**3.25**



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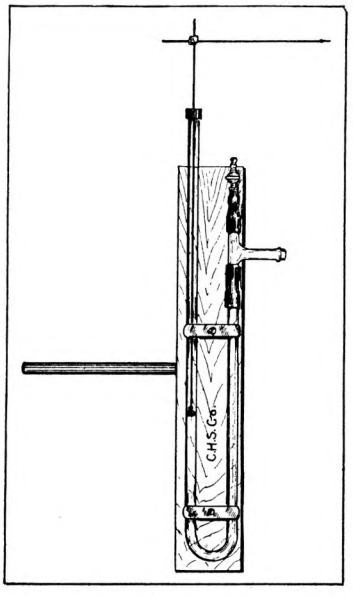

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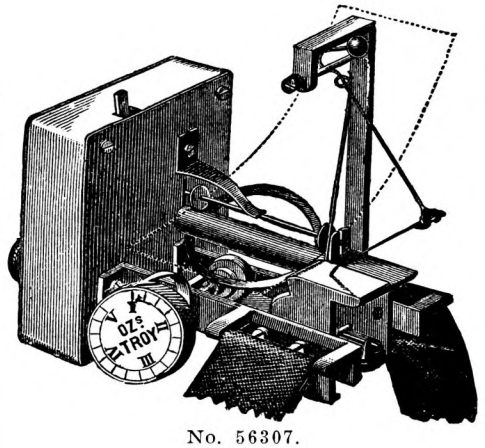

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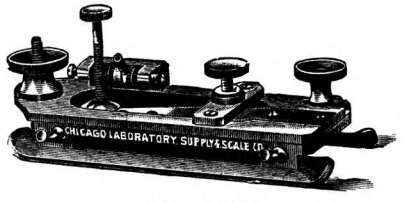


No. 56313.

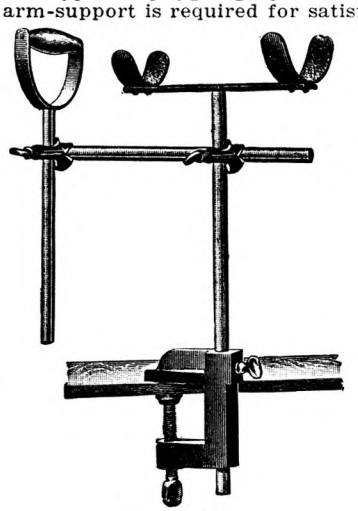
56209.	**Manometer, Mercury;** simple form. Made of glass and mounted on a wood back with supporting rod. (H.T.P.:119).....	**6.00**
56210.	**Manometer, Mercury,** Kronecker's; small, for frog work. Mounted similar to No. 56209. (L.S.:95; S.P.:110).....	**3.50**
56211.	**Manometer, Mercury,** Hall's. Adjustably mounted on a graduated back with supporting rod. The glass limbs are about 8 in. long.....	**16.00**
56212.	**Manometer, Mercury,** Hall's. Similar to No. 56211, with manometer limbs approximately 21 in. long.....	**32.00**
56213.	**Manometer, Mercury,** Guthrie's. With an extra side arm for washing out cannulae. The manometer is a slight modification of the original, with the additional right-angled outlet tube permanently inserted in the proximal limb. It is mounted on an ungraduated back similar to No. 56209. (S.P.:210).....	**6.75**
56215.	**Manometer, Mercury,** Glass; in three sections. Mounted similar to No. 56209. This is an economical manometer as the sections are easily replaced and attached by means of rubber tubing. (J.E.P.:37; Z.L.E.P.:130).....	**7.50**
56223.	**Manometer, Mercury,** Glass; in three sections, with a metallic stop-cock. (M.E.P.:51)...	**8.50**
56228.	**Manometer, Water.** Made of glass and mounted similar to No. 56209. (C.U.; M.E.P.:74)	**10.00**

Number | Price

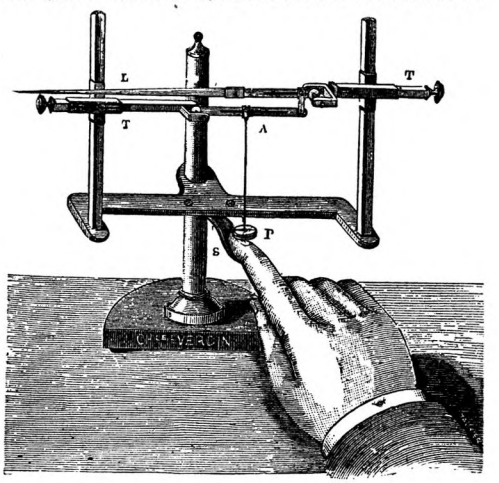
56307. **Sphygmograph,** Dudgeon's. In this sphygmograph a clock-work carries a strip of blackened paper beneath the recording needle attached to the artery button. This is a well-made compact instrument and is very sensitive. (B.E.E.P.:166; C.U.; J.E.P.:399; K.H.P.:263; L.S.:113; S.P.:103, 206; S.P.P.:293-294; Z.L.E.P.:109) ..... **$ 40.00**

56309. **Paper-Holder,** Hall's. For smoking the slips used in the Dudgeon sphygmograph. (H.E.P.:88) **6.50**

56313. **Sphygmograph,** Ludwig's. A sturdy instrument devised for recording on the kymograph. The type of sphygmograph for student use. Simple in construction and operation. An arm-support is required for satisfactory work. (S.P.P.:293-294) **70.00**



No. 56315.



No. 56319.

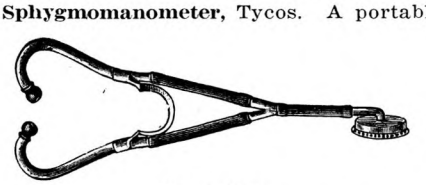
56315. **Arm-Support** for No. 56313. A strong, easily adjustable support with table clamp. (103:X12) **12.50**

56317. **Sphygmograph,** Von Frey's. An instrument in some respects very much like the No. 56307 Dudgeon sphygmograph in that it is operated by clock-work and carries its own recording device, but the record is made on a mimiature kymograph drum instead of a slip of paper. (224:248; 226:183) **238.00**

56319. **Sphygmograph, Volumetric,** Francke's. A finger sphygmograph; used for recording on a kymograph. It is very sensitive and the transmission, which is mechanical, is made by means of a system of adjustable levers. (224:245) **35.00**

56330. **Sphygmomanometer,** Tycos. Office size, for suspension. This model is well adapted for demonstration and experimental work in the lecture room and laboratory, and may be used in connection with the No. 22010 Dunlap pressure reducing capsule, a tambour, and a kymograph for obtaining a graphic record **41.75**

56331. **Sphygmomanometer,** Tycos. A portable model of the No. 56330. (119:X20-61) **27.80**



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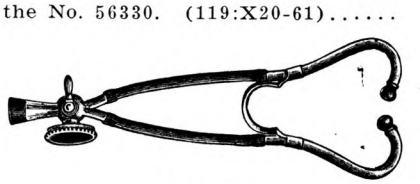
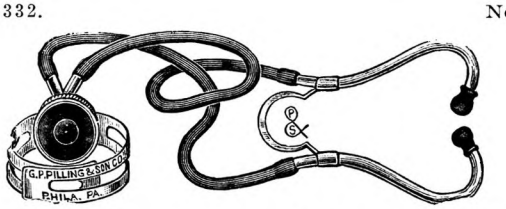


No. 56339.

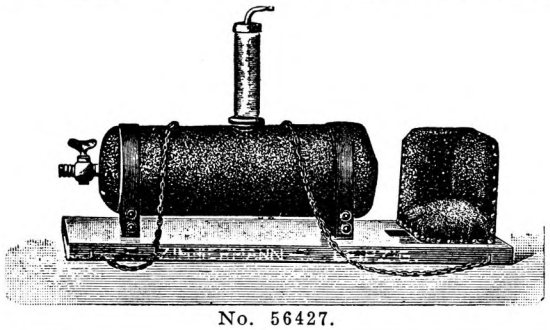


No. 56340.

56332. **Stethoscope,** Bowles'. A special binaural stethoscope with button on flat chest piece. (265:C1-2) **4.50**

56339. **Stethoscope, Binaural,** Pilling's. With rapidly interchangeable bell and Bowles' flat chest piece. (H.E.P.:79) **6.75**

56340. **Stethoscope, Bracelet,** Pilling's. Binaural, with button contact **7.75**



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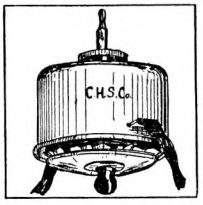

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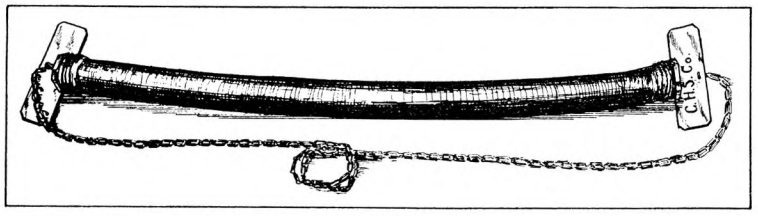

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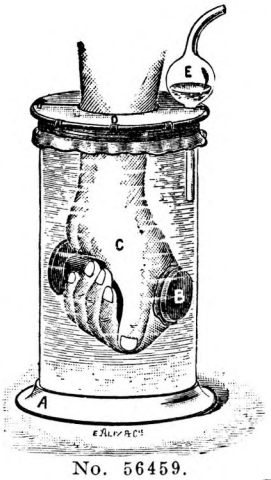
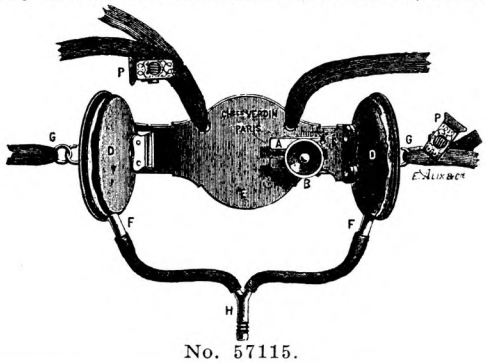


No. 56459.

Number		Price
56427.	**Plethysmograph, Arm,** Lehmann's. This is a well-made plethysmograph which can be suspended or used on the table. The arm cylinder is made of zinc, thoroughly insulated, and mounted on a base with an adjutsable padded elbow-rest. Complete as illustrated (32:218; 103:X12; M.E.P.:120; 215:264-265; 274:264-265)	$ 60.00
56459.	**Plethysmograph, Hand and Wrist,** Francke's. A heavy glass jar with a wooden grip, and a hinged metallic top for holding the rubber wristlet in place and supporting the glass bulb used for filling, observing the height of the water and connecting the plethysmograph to a tambour by means of rubber tubing. (224:246; 225:X24)	22.50
56607.	**Cardiograph,** Marey's. Consisting of a bell-shaped chamber supporting a tambour with an internal spiral spring designed to keep the contact button under tension. A lock-nut operating on the tambour stem outside of the chamber makes possible very delicate adjustment of the tambour. Two strong pieces of tape attached to the outside chamber serve to keep the instrument in place. This cardiograph is designed for use with the Marey and similar tambours. (L.S.:70-78; S.P.:90; S.P.P.:287)	14.50



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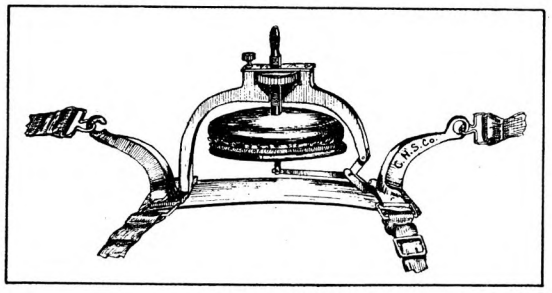

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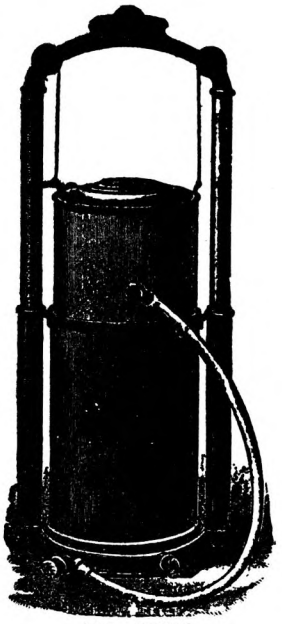
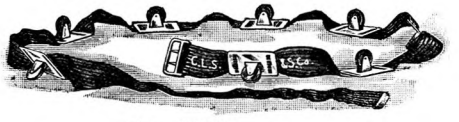


No. 57203.

RESPIRATION

57017.	**Cannulae,** Ludwig and Hall. A "Z" shaped glass cannula with a vent. Somewhat on the order of the original Ludwig metallic cannula. (H.E.P.:234). Per set of 3	3.00

Number		Price
57019.	**Cannulae,** Glass; "T" shaped pleural type. (S.P.:233). Per set of 3	$ 1.20
57023.	**Cannulae,** Glass, Straight thoracic. Per set of 3	1.00
57024.	**Cannulae,** Northwestern; curved thoracic, nickel-plated brass. Per set of 3	6.50
57111.	**Pneumograph,** Sumner's. A simple and efficient pneumograph. It consists of a spiral spring covered with a flexible rubber tube and both attached to the end-plates in a manner to make the arrangement air-tight. Both end-plates have pins for the chain used to make the tambour taut around the chest or abdomen. One of the end-plates is furnished with a tubulature for connecting the pneumograph to a tambour. (25:81-82; 32:216-217; 103:X12; 226:184; Z.L.E.P.:138)	9.25
57115.	**Pneumograph,** Verdin's. This instrument consists of a metal plate carrying two tambours at right angles, one fixed and the other adjustable. The tambours are connected by means of a "T" tube so as to furnish a connection for a recording tambour. The tapes attached to the membranes of the tambours are passed around the chest and tied so as to produce the required degree of tension. The instrument is suspended from the neck by means of a heavy adjustable tape. This is a very easily adjusted and sensitive instrument. (224:145-146)	35.00
57117.	**Pneumograph,** Marey's. The tambour of this pneumograph is carried in a support attached to a leather-lined flexible steel plate, at the end of which is attached a heavy adjustable tape passing around the chest. The movements of the chest are transmitted to the flexible metal plate, which in turn communicates the movements by means of a magnifying lever to the plate below the membrane of the tambour. The tambour is adjustable and may be readily removed for replacing the membrane without removing the remainder of the apparatus from the subject's chest. (B.E.E.P.:206; K.H.P.:342; L.S.:184; S.P.P.:308)	40.00



No. 57125.

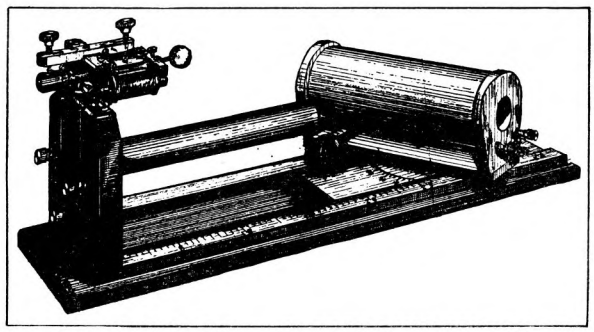
57125.	**Spirograph, Belt,** Hall's. While the usual type of pneumograph answers very well for showing qualitative changes of the circumference of the chest wall, a different type of instrument is required for getting a quantitative record. This spirograph consists of an elastic belt to which is attached a number of small pulleys. An inelastic cord tied to an eye in one of the pulley-mounts is passed around the chest, over the pulleys, terminating over the one with the eye and passing on to a supplementary pulley adjusted to give the end of the cord the proper direction for operating the recorder. (H.L.P.:315; H.T.P.:202)	20.00
57203.	**Spirometer, Wet,** Hutchinson's. Used to measure the total quantity of air that can be forcibly expired after a maximal inspiration. It is graduated in cubic decimeters and cubic inches, and can be used with either glass or wood mouthpieces. (H.T.P.:208-210; L.S.:192; S.P.:234; 267:T5)	34.50
57204.	**Shelf** for No. 57203	5.00
57206.	**Mouthpieces,** Glass. For use with No. 57203. Per 10	1.25
57207.	**Mouthpieces,** Wood. For use with No. 57203. Per 100	1.00
57208.	**Mercury Bichloride Solution.** For sterilizing No. 57206 glass mouthpieces. 8 oz. bottle	1.00
57209.	**Rubber Tube** for No. 57203	.50

ELECTRICAL STIMULATION

(See Nos. 20005—20299, 23200—23299, 25500—25599)

58007. **Inductorium,** DuBois-Reymond's. A horizontal form, with Meyer's interrupter. Outside of the kymograph, the inductorium has probably been the subject of more experimentation and criticism than any piece of apparatus used in physiological work. We have listened to all the suggestions and criticisms for the last two decades, and now have something which we are confident will meet the demands of the most critical and give long and satisfactory service.

The primary and secondary coils, also the interrupter coils, are wound with enameled wire. Primary and secondary coils are enclosed in Bakelite tubes and the base, cleats, and head-blocks are made of the same material. The binding posts are of the well-known non-removable knurled-head type with wide slot for taking connecting wires or cord tips. This construction makes a lasting, non-warping, liquid-proof inductorium, free from the annoyances common to many of the older types. The secondary is mounted on a support which revolves on a smoothly operating slider graduated in units of 5°. The base is graduated in millimeters the entire length and is sufficiently long to permit sliding the secondary entirely beyond the influence of the field of the primary without rotation. A soft rubber roller attached to the support of the secondary, when turned and slightly

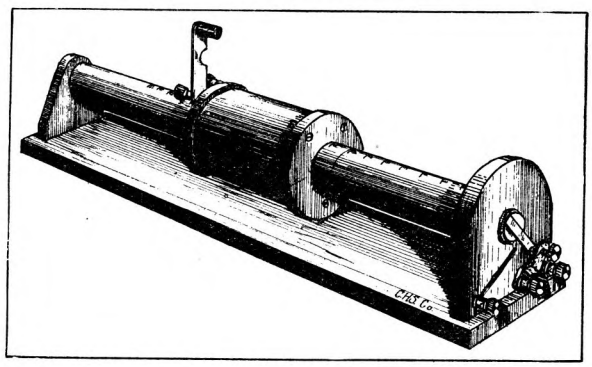


No. 58007.

Number | Price

pressed down on the base by means of the thumb and two fingers, serves to move the coil back and forth and permits very delicate adjustment. The heavy head-block supporting the primary also carries the Meyer interrupter. The length of the weighted lever of the interrupter is adjustable and serves to increase or decrease the vibration rate. This feature with the special contact adjustments makes it possible to maintain reliable and uniform interruption. (B.E.E.P.:4-10; H.T.P.:63-64; K.H.P.:115-118; L.S.:679-681; S.P.:198, 703-705; S.P.P.:168-176; 225:X20) ..... **$ 62.50**

58011. **Inductorium,** Lingle's. According to specifications of Prof. D. J. Lingle, of the Dept. of Physiology, University of Chicago. The base, head-block, and spools for the primary and secondary are made of thoroughly seasoned wood which has been boiled in paraffin and the coils are covered with material treated the same way. This makes an inductorium virtually impervious to water and ordinary liquids such as saline solutions, etc. The secondary coil is mounted on a slider which moves along the base between "V" shaped cleats. The end of the coil support is furnished with two binding posts for attaching electrodes. The coil is mounted on a handle and may be readily moved back and forward. This inductorium, like No. 58007, is supplied with a Meyer interrupter, which is mounted between the head-block and the binding posts on the base and readily accessible for adjustment **50.00**

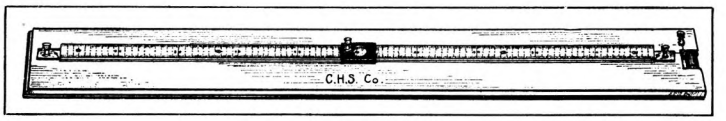


No. 58017.

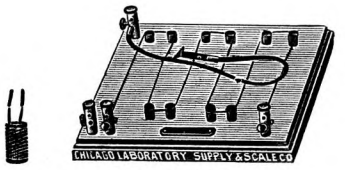
58017. **Inductorium,** Simple. Designed to meet the demand for a reliable yet comparatively inexpensive instrument that will stand the wear and tear of inexperienced students. Like No. 58007, both primary and secondary coils are covered with Bakelite tubing and the base, head- and tail-blocks are made of the same material. The vibrator is the usual form of spring vibrator and the binding posts are of the non-removable, knurled top type. The secondary is supplied with a simple short-circuiting switch for connecting the two binding posts.

The Bakelite tube covering the primary extends from head-block to tail-block and beginning at the head-block is graduated in centimeters 20 cm. of its length. A red encircling line indicates the end of the primary coil. The secondary slides over the primary and cannot be removed. The length of base and primary tube is sufficient to slide the secondary safely beyond the influence of the primary field **31.50**

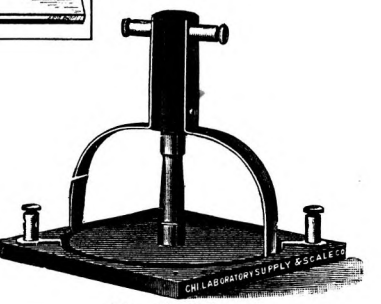
58204. **Rheocord.** Simple slide wire form, with supplementary coil. Consists of a long, narrow wood base with a meter stick, over which is stretched the first meter of a continuous .26 mm. diameter, German silver wire, 20 M. long. The remaining 19 meters are wound on a spool set into the end of the base. One end of the wire is fastened to an adjustable binding post for keeping the wire taut, and the other end is wound around the bobbin placed in the end of the base. One binding post is placed at the 1 M. length of wire passing over the meter stick, and the other at the other end of the coil, thus making it possible to throw into the circuit 1 meter of the wire or the entire 20 meters. A non-removable spring slider with binding posts operates along the top of the meter stick. (B.E.E.P.:91; H.E.P.:45-46; H.L.P.:43-45; S.P.:783; S.P.P.:163) **6.50**



No. 58204.



No. 58209.

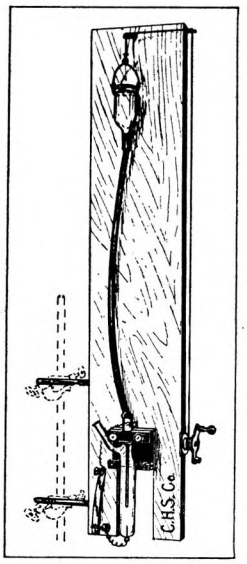


No. 58251.

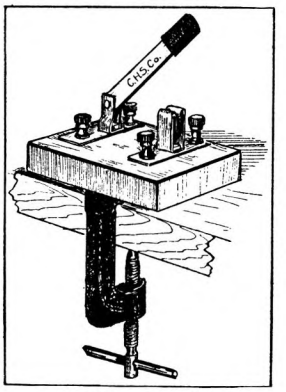
Number | Price

58209. **Rheocord,** Oxford; modified by Hall. A rectangular wood base, on which is stretched in compact form a .26 mm. diameter German silver wire, 1 M. long. An extra coil containing 19 additional meters of the same wire can be put in circuit by means of the binding posts shown at the lower left of the illustration. (B.E.E.P.:92; S.P.P.:165) ..... $ 7.50

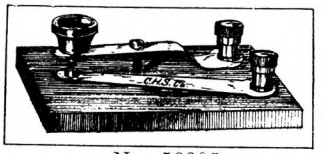
58251. **Rheonome,** Fleischl's. Used to demonstrate the DuBois-Reymond Law that it is not the absolute intensity of a galvanic current flowing through a nerve which excites it, but the rapidity of the variations in the intensity of the current. The rheonome consists of a square, hard-rubber base with a straight walled circular channel, into which dip at opposite sides the terminals of two binding posts. Erected in the center of the base is a revolving upright carrying on opposite sides two strips of zinc. One side of the zinc strips terminates in binding posts and the other ends dip into the saturated solution of zinc sulphate placed in the circular channel. (H.L.P.:57; S.P.P.:187-189) 25.00



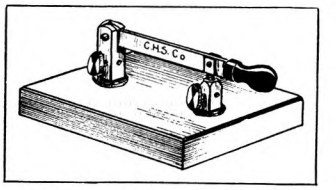
No. 58265.



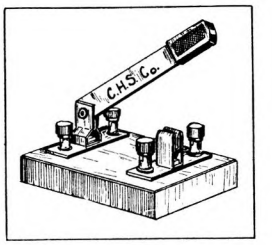
No. 58307.



No. 58305



No. 58303.



No. 58308.

58265. **Electrometer, Capillary,** Lyon's. In this model the capillary tube is fused into the top of the acid reservoir, and the filling tube near the top of the reservoir provides for convenient introduction of the mercury and dilute sulphuric acid. The walls of the acid reservoir are approximately parallel and the space between them as small as possible, so as to reduce distortion to the minimum. Fused platinum wires extend from the capillary tube and reservoir to binding posts at the side of the mount. The mercury reservoir is suspended by a strong cord from the top of the mount and its height regulated by means of a crank located at the side. The lower part of the mounting board, behind the capillary tube, is cut away so that the light can pass unobstructed through the reservoir into the objective of the microscope. (B.E.E.P.:154-156; H.E.P.:66-69; H.T.P.:64-65; K.H.P.:143-145; L.S.:683; S.P.:701-703) 31.25

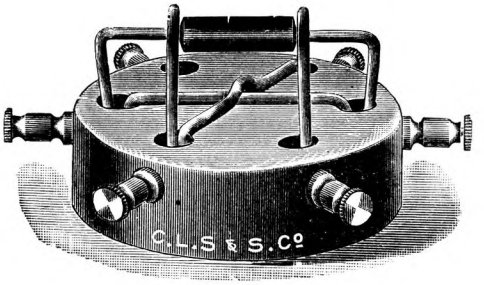
58303. **Key,** Simple; with platinum contacts. Contact is maintained partly by the weight of the contact bar and by the spring in the rear post to which the contact bar is pivoted. This key is supplied with a heavy alberine base. (J.E.P.:144, 436; M.E.P.:109, 123, 186; Z.L.E.P.:18) 3.40

Number | Price

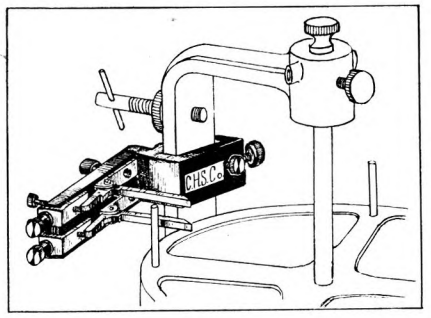
58305. **Key, Contact**; strap type with platinum contacts. On rubber base. See illustration on page 215. (225:X20) ..... $ 4.25

58307. **Key, Short-circuiting.** A modification of the DuBois-Reymond key, mounted on an alberine base and attached to a table clamp that will fit any table-top up to 1½ in. thick. See illustration on page 215. (B.E.E.P.:11; 58; K.H.P.:113; L.S.:682; S.:Fig. 300; S.P.P.:161) 7.00

58308. **Key, Short-circuiting.** Similar to No. 58307 but without the table clamp. See illustration on page 215 ..... 4.75



No. 58413.

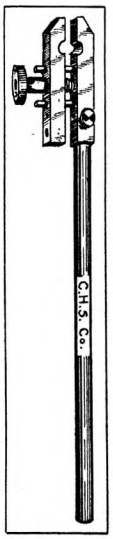


No. 58503.

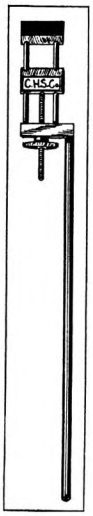
58413. **Pole Changer or Commutator, Mercury,** Pohl's. Used for sending a current into different pairs of wires or for reversing the direction of the current in a single pair of wires. The pole changer or commutator, as illustrated, consists of a heavy, round wooden block with six holes for the mercury, and a bridge. Each mercury well is in contact with a binding post, and the pair of curved wires of the bridge and the right-angled supports are insulated in the middle by means of a rubber handle. The battery wires are always connected to the binding posts in contact with the wells containing the right-angled bridge supports. To reverse the direction of a current, the pair of wires in front or at the back of the battery connections are attached to the mercury cups. When the commutator is used to send a current through different wires, the crossed wires shown underneath the bridge must be removed. (B.E.E.P.:12; K.H.P.:172; S.:Fig. 229; S.P.:198, 706, 817; S.P.P.:193, 246) 5.25

58503. **Key, Stimulus, Double Automatic,** Reichert's. Designed for attachment to the drum support of the No. 22207 kymograph 27.75

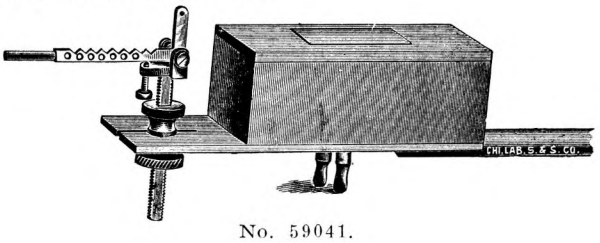
MUSCLES AND NERVES



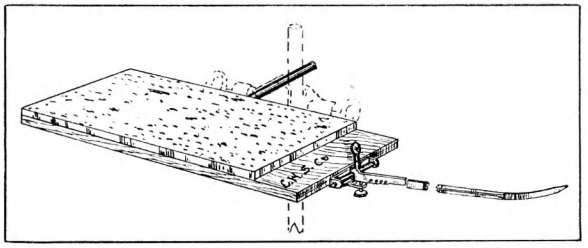
No. 59007.



No. 59017.



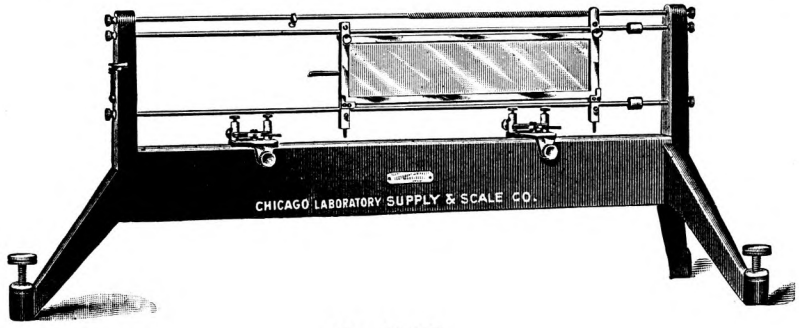
No. 59041.



No. 59047.

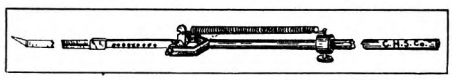
59007. **Clamp, Muscle, Parallel Flat-Jawed.** The jaws are kept apart by a spring and brought together by a thumb-screw. Guide pins insure absolute parallelism of the jaws while being opened or closed. A binding post at the side of one section of the jaws provides for

Number		Price
	electrical connection. This section of the jaws also contains a screw hole at the side so that the jaws may be placed at right angles, with the opening parallel with the rod. A screw hole on top of the other section serves to place the jaws at right angles to the rod with the opening horizontal	$ 3.75
59013.	**Muscle Lever, Light;** with double hooks, pulley, and after-loading screw. Mounted on a rubber block with insulated binding posts. (J.E.P.:58; Z.L.E.P.:40)	3.90
59015.	**Muscle Lever, Heavy.** Consisting of a tripod with a clamp at the top for holding a muscle lever and a cross-piece underneath supporting an adjustable lever arranged for electrical stimulation and taking a scale pan	6.80
59017.	**Clamp, Gaskell's.** A clamp with comparatively sharp, hard-rubber jaws operating on two small guide rods by means of a fine screw and nut attached to the movable section of the jaw. Used for compressing heart muscle and the sartorius	2.50
59041.	**Crank-Myograph.** Attachable to a support by means of a right angle clamp. The base plate supports a hot water chamber and a notched and perforated bell-crank lever with an after-loading screw. The hot water chamber is supplied with tublatures at the bottom for securing circulation of the water supply, and the top is provided with a cork covering having a central brass plate extending slightly above the cork. (B.E.E.P.:31; K.H.P.:119)	25.00
59045.	**Myograph, Double.** Consisting of two No. 59207 heart or muscle levers, with perforated stylus-holder and spiral spring tension regulated by means of a collar and set-screw, and a No. 59007 muscle clamp. (H.E.P.:58; S.P.P.:268)	13.25
59047.	**Myograph, Frog Board,** Hall's. Attachable to a support by means of a right angle clamp. The base board is covered with a heavy cork plate, and a bell-crank with an after-loading screw is attached to one end of the base. The bell-crank stylus-holder is perforated for the use of weights. Two of these myographs and a muscle clamp make an excellent double myograph of the frog board type. (H.E.P.:50-51, 54, 64-66, 75, 85; H.L.P.:54)	11.25

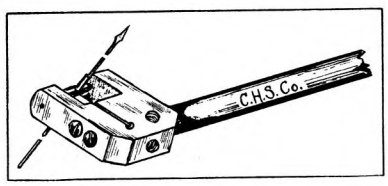


No. 59057.

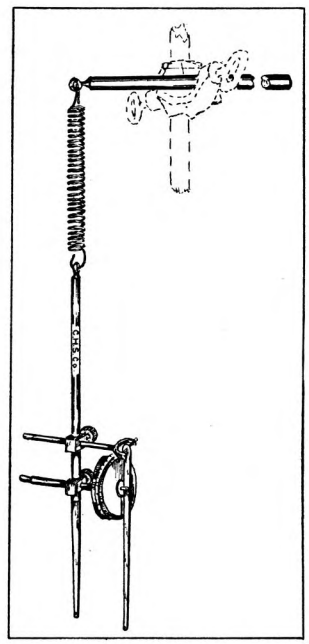
59057.	**Myograph, Spring,** DuBois-Reymond's; modified by Lingle. This type was originally constructed to meet the requirements of the Physiology Department of the University of Chicago. It consists of a heavy rectangular support with three legs, provided with quick-acting leveling screws. The sliding paper-carrier, to which is attached the smoked paper, travels over two nicely adjusted guide rods. Above the two guide rods used for the carrier is a third which carries the compression spring used to actuate the carrier. A projection from the top of the paper-carrier is used to compress the spring. At the side of the paper-carrier is a projecting rod with a notch which engages the trigger attached to the side of one of the uprights of the rectangular frame. When the trigger releases the paper-carrier, it shoots to the other side of the supporting frame and is caught, without back-lash, by a spring catch attached to the top of the other upright. Adjustable along the carefully planed surface of the horizontal part of the support are two adjustable trip keys with binding posts. The keys are tripped by projections extending downward from both sides of the paper-carrier. (C.U.; H.T.P.:65; K.H.P.:120; L.S.:593, 595, 703; S.P.:720, 788-792; S.P.P.:208-209, 251)	237.50
59057A.	**Paper, Glazed.** For use with No. 59057. Per 100 sheets	1.80
59109.	**Scale Pan,** Large. A bent aluminum strip with hangers on each side	.70
59111.	**Scale Pan,** Small. A small concave disk with hanger	.50
59113.	**Weights, Lead,** 10 grams. Per doz	.36
59119.	**Weight Set,** 100 grams down to 10 grams, with holder for use on muscle levers	3.00
59207.	**Lever, Heart or Muscle.** A carefully constructed lever with perforations in the bell-crank stylus-holder for weights, and a spiral spring with collar and adjusting screw for adjusting the tension. See illustration on page 218. (H.E.P.:58-60)	4.75
59213.	**Lever, Frog Heart, Hall's.** A lever with a pin for a cork on one end, and a counterpoise on the other. Pivoted on a sharp-pointed tripod. The pin end of the lever is arranged for the insertion of a stylus. (H.E.P.:75)	4.50



No. 59207.

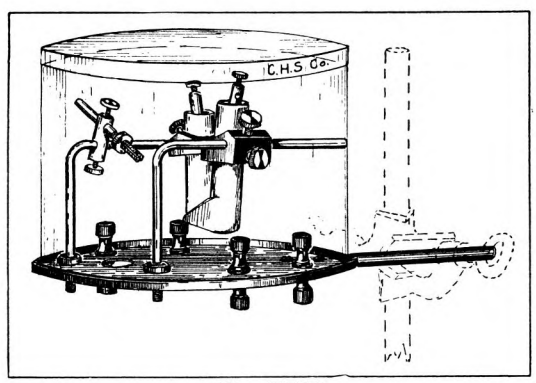


No. 59215.



No. 59257.

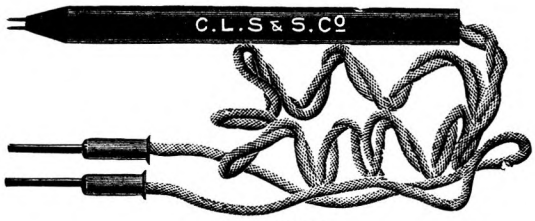
Number		Price
59215.	**Lever, Heart.** An adjustable light aluminum lever, mounted on a block with screw holes so that the support rod can be attached in three different positions, viz., from the side at right angles to the lever, from the side parallel with the lever, and from the bottom at right angles to the lever. One side of the support is split and is provided with two screws for regulating the tension on the pivot. (B.E.E.P.:99; K.H.P.:231; M.E.P.:109-110, 120, 122; S.P.:193)	**$ 2.65**
59257.	**Myocardiograph, Matthews'.** An improvement of the Cushny and Matthews modification of the Adami and Roy instrument. This myocardiograph is suspended by means of a spring connected to a rod so that it can be attached to a support by means of a right angle clamp. The myocardiograph proper consists of a vertical rod terminating in a flat spring lever with a hole at the bottom. The vertical rod carries an adjustable forked support, from which is pivoted a similar lever attached to the tambour placed directly below and to the left. Both tambour and lever support are adjustable at right angles to the rod. (J.E.P.:149, 151; S.P.:201)	**25.00**



No. 59415.

59415.	**Moist Chamber.** This apparatus consists of a low-rimmed, metal pan with two right angle supports carrying four adjustable rubber holders for boot electrodes, and an adjustable split-screw muscle clamp. The pan is supplied with four double, insulated binding posts, so that connections can be made inside and outside the chamber; and a hole near the split-screw muscle clamp so that the muscle can be attached to the lever usually placed beneath the chamber. The apparatus is supplied with a rod for attaching to a support by means of a right angle clamp and is covered with a transparent shade for retaining the moisture. (B.E.E.P.:18; C.U.; J.E.P.:57; K.H.P.:121; S.:Fig. 270; S.P.:815; Z.L.E.P.:35)	**9.60**

No. 59607.



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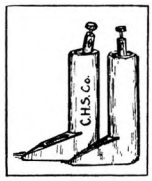
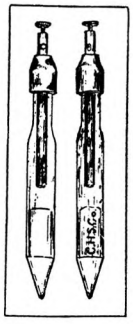


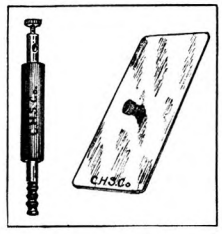
No. 59609.

Number		Price
59605.	**Electrodes, Platinum.** A rubber handle with detachable tip, carrying two insulated platinum points attached to a silk-covered flexible cord terminating in two round metal connecting tips. (S.:Fig. 280; S.P.P.:169; Z.L.E.P.:20)	$ 3.00
59607.	**Electrodes, Shielded.** Consists of a hard rubber mount, in which are encased two insulated electrodes terminating in exposed platinum wires, at right angles to the mount, which are passed over the deep-lying nerves. A sliding cover clamped by a thumbscrew serves to hold back the overlying tissues. The electrodes are furnished with metal-tipped detachable cords. (J.E.P.:38; S.:Fig. 271; S.P.P.:303; Z.L.E.P.:20)	7.50
59609.	**Electrodes, Boot, Porcelain, Nonpolarizable.** Used with the leg half filled with a saturated solution of zinc sulphate and a normal saline solution in the well on the instep. Per pair	1.60
59610.	**Zincs;** with attached binding posts. For use with No. 59609. Per pair	.75



No. 59615.

No. 59619.



No. 59629.

No. 59653.

59615.	**Electrodes, Clay Point, Nonpolarizable.** Consists of a small glass tube with straight, tapered clay points at one end and a rubber-tube-connected zinc rod with binding posts in the other. (B.E.E.P.:83; H.E.P.:232; L.S.:675; S.:Fig. 272-273; S.P.:705; S.P.P.:232-233.) Per pair	3.00
59619.	**Electrodes, Brush, Nonpolarizable,** Fleischl's. These electrodes consist of glass tubes with a fine camel's-hair brush imbedded with the quill in clay at one end of the tube and a rubber-tube-connected zinc rod with binding post in the other end. (B.E.E.P.:83; H.E.P.:232; L.S.:675; S.P.P.:233, 236-237.) Per pair	3.00
59629.	**Electrodes.** A 3x6 cm. brass plate with binding post, and a rubber-tube-covered cylindrical stimulating electrode ringed at one end and supplied with a binding post at the other	2.75
59653.	**Nerve-Holder.** A brass rod in which is inserted a flexible lead wire attached to a spring clip holding a microscope slide. The brass rod may be attached to a support by means of a right angle clamp	1.40

ERGOGRAPHY
(See Nos. 19400-19499)

REACTION
(See Nos. 23300-23399)

DIGESTION—ABSORPTION—EXCRETION
(Any kind of cannulae made to order according to specifications.)

CALORIMETRY
(Special equipment of this type made to order according to specifications.)

VISION
(See Nos. 12000-12899, 27000-27199)

AUDITION
(See Nos. 14000-14699)

OLFACTION
(See also Nos. 15000-15299)

Number		Price
67010.	**Speculum, Nasal, Bi-valve,** Hartman's. (265:C1-2)	$ 3.35
67010A.	**Speculum, Nasal, Bi-valve;** electrically illuminated. The lamp is located well back on the left blade and does not interfere in any way with the use of applicators, probes, etc. It has a condenser or "bull's eye" blown on the end of the globe, and throws the light well forward into the cavity. The narrowness of the blades permits its use in the ear as well as in the nose. (265:C1-2)	6.70

GUSTATION
(See Nos. 16000-16299)

PHONETICS
(See also Nos. 17000-17299)

69010.	**Head Mirror,** 3 in.; with adjustable leather head-band. (K.H.P.:717; L.S.:637; S.P.:305; 265:C1-2)	5.00
69015.	**Mouth or Guttural Mirrors,** Metal. Set of 6, with handles. (K.H.P.:717; L.S.:637; S.P.:305; 265:C1-2)	4.75
69019.	**Diagnostalite,** Cameron's. A special outfit which includes an extra diagnostalite for use as a handle of a non-luminous laryngoscope, also as an extra diagnostalite for emergency; and a current controller that may be attached to any incandescent lamp socket. (265:C1-2)	47.00
69020.	**Light, "Bull's Eye," Bracket.** Devised especially for eye, ear, nose, and throat work. The 5 ft. adjustable bracket can be raised or lowered or closed and swung to the wall when not in use. (265:C1-2)	17.00
69022.	**Tongue Depressors,** Bosworth's. Made of rustless metal. (265:C1-2)	2.80
69023.	**Tongue Depressors.** Uniform sizes: ¾x6¾ in. Made of selected wood. (265:C1-2.) Per 100	.50
69030.	**Armamentarium,** West's. This set of equipment includes all of the apparatus and tests recommended by Dr. Robert West in his "Diagnosis of Disorders of Speech"—a clinical manual of methods and apparatus: Nos. 69020, 69010, 69015, 67010A, 69019, 69022, 54060, 25351, 20207, 56332, 14021, 14073, 42060, 37065, 10205, 46631, 37088 (100), 27185, 27170, 27183, 33304, 34364, 27179, 32317, 31029 (100), 27129 (100), 27130 (100), 27131 (100), 27133 (100), 44045 (25), 24500 (100), 24503, 30070 (100), 14301, 25117, 14305, 17112 (25), 17110, 17111, 17002, 17002-S, 1702-W, 17113 (25), 17114 (25), 10407 (100), 12227B, 46475, 56459, 22005, 22207 (see pages 103, 106, 107 for kymograph accessories and supplies), 22023, (6 ft.), 22021 (1 sq. ft.), 22009, 20008, 22061, 54018, 57115, 57203, 57207 (100), 56313, 56315, 24507 (100), 46755. (265)	1,129.05
69035.	**Apparatus,** Scripture's. For the study of speech and song by the graphic method. This set of equipment includes the following: Nos. 22211 (See pages 103, 106, 107) for accessories and supplies), 17150, 54013 (2), 25651 (3), 57111 (2), 22009 (4), 22023 (12 ft.), 22005 (2), 20010, 22061, 25552 (4), 17152, 17156, 17159, 17153, 17157, 17160, 17154, 17155, 17158, 17162, 17161, and 46565. (193)	503.55
69036.	**Strobilion,** Scripture's. For visualizing the sound of the voice or musical instruments. This set of equipment consists of the following: Nos. 17164, 17175, 54013, 25659, 17165, 17153, 17154, 17155, and 17167	212.40

CUTANEOUS SENSE
(See Nos. 18000-18299)

MODELS—CHARTS—LANTERN SLIDES
(See Nos. 45000-45399)

BOOKS—PERIODICALS
(See Nos. 46000-46899, 74000-74099, pages 202-207)

INDEX

D

E

F

N

O

P

Q

R

U

V

W

TESTS are instruments of precision only if correctly made and used strictly in accordance with the prescribed technique and under proper conditions. Even minor variations in their construction must not be considered trivial and inconsequential. The psychiatrist, psychologist, or psychometrist who attempts to economize by having testing material copied locally, or produced by inexperienced and unauthorized people, is likely to discover that the data secured with these tests do not agree with the norms secured by other testers using standard equipment. Scientific accuracy demands that psychometric tests conform rigidly to the specifications of the original tests with which the norms were established, so as to provide a proper basis of comparison for work done in other localities. Refinements of technique and increased accuracy in prognosis and diagnosis are achievable only by the collection and study of a large amount of reliable data secured from testers working in widely distributed localities with uniform equipment.

We spare no time, effort, or expense in securing unvarying uniformity in the production of the psychometric tests which we manufacture and publish; our name on a test is a guarantee of its correctness.

The economical manufacture of apparatus and tests is of interest to both manufacturer and consumer; hence, we wish to bring to the attention of those who devise apparatus and tests some of the unnecessary expenses incurred by the manufacturer in making the results of their labors available to others. The most frequent sources of trouble and expense are the mechanical and electrical devices, toys, pictures, and household specialties so often used by the psychologists. As a rule the experimenter selects material that seems to meet requirements, and then, without a thought for the future, proceeds to devise the tests. In the natural course of events, if something of value has been produced, it is not long before others wish to use the same tests. About that time everyone interested discovers that the particular novelty or specialty has had its day and has been superseded by something else. Often the item that takes its place is quite different and unuseable. The original was probably a commercial failure and so the producer "junked" plates or tools. Under these circumstances, we may have to go to the expense of making new tools or plates, or, as more frequently happens, pay the original producer a heavy royalty for the patented mechanical or electrical devices or copyrighted plates. After a thing is taken off the market, the original producer can rarely be induced to supply it at anything like a reasonable price in the comparatively small quantities used for psychological tests.

Under the conditions of an ever changing commercial supply, economy would dictate greater care in the selection of material. It would be advisable to try to determine in advance how long the item one contemplates using will probably be on the market in its present form; or, perhaps make some arrangements with the original manufacturer for a continuance of the supply. If neither course is possible, it would be more economical in the long run to produce at the start the exact type of experimental picture, device, or other material desired.