

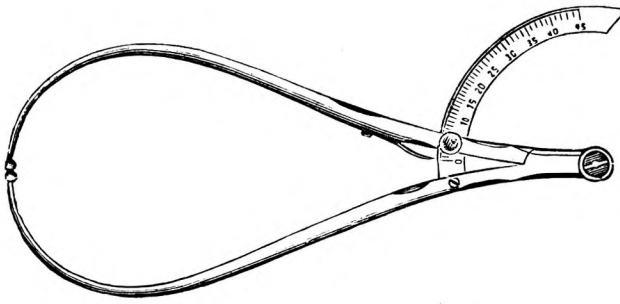
Psychological Equipment

Catalog No. 48

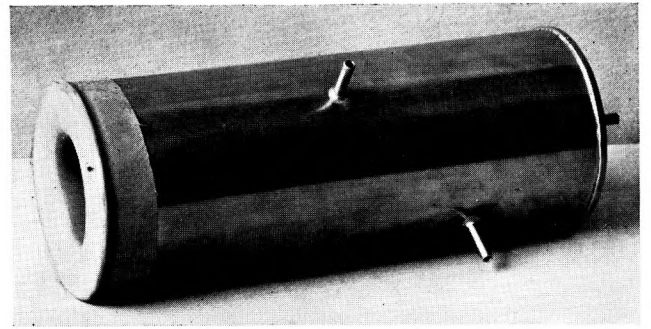


Marietta Apparatus Company

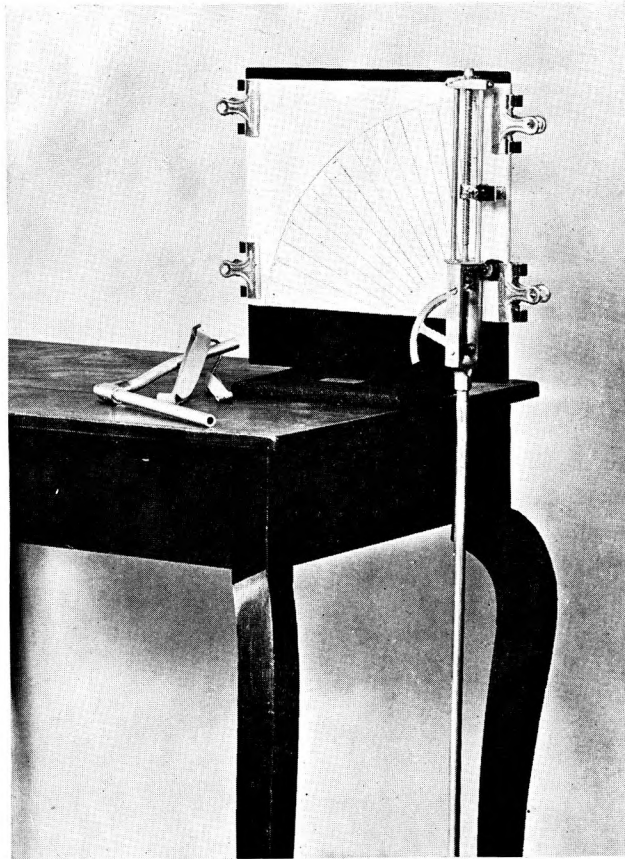
Marietta, Ohio



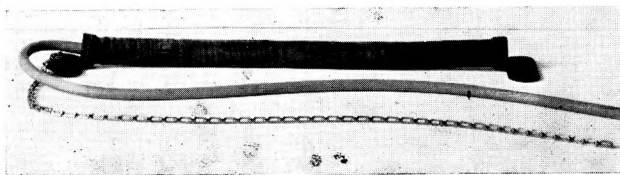
1-3 Head Caliper \$25.00



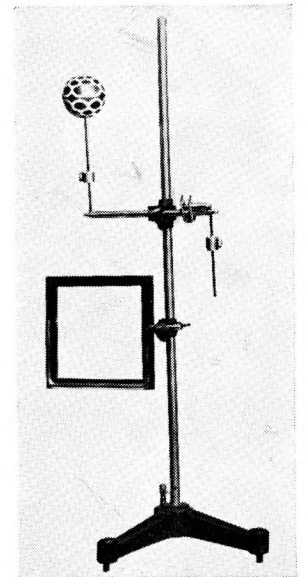
2-2 Plethysmograph \$15.00



2-5 Patellar Reflex Apparatus
Price on Application



2-1 Pneumograph \$20.00



2-6 Wink Reflex
Apparatus
\$30.00

1-3 HEAD CALIPER. This is a standard instrument, with fixation nut, operating conveniently and accurately in inches or in centimeters. Stainless steel finish.

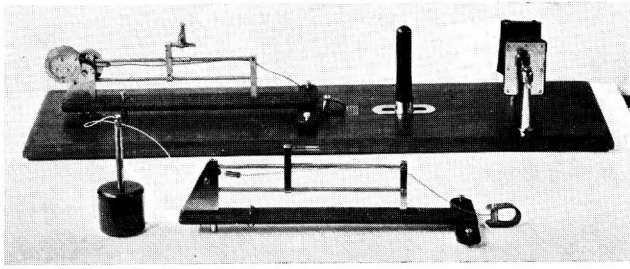
1-5 WET SPIROMETER. (Not shown.) Used to measure total quantity of air that can be forcibly expired after a maximal inspiration. It is graduated in cubic decimeters and cubic inches, and can be used with either glass or wood mouthpieces. **Price \$80.00**

2-1 PNEUMOGRAPH. This is the Standard Marey type of Pneumograph consisting of a length of one inch rubber tubing supported by a flexible wire coil. The rubber tubing for attachment to tambour is standard thick wall. The instrument is supported around the chest or abdomen by means of a small chain.

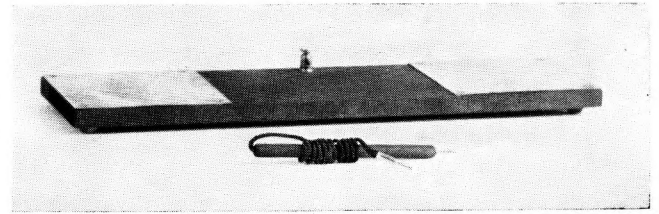
2-2 PLETHYSMOGRAPH. This is the standard Vochoer type consisting of metal cylinder suitable in size for the injection of hand and forearm. The space around the arm is filled by a heavy rubber dam. The water volume and connection to tambour are provided for by means of three small protruding metal tubes for the attachment of the appropriate rubber tubing.

2-5 PATELLAR REFLEX APPARATUS. As suggested by the cut, the subject sits on the table, and the lower end of the lever is propelled by a simple metal rod attached to and extending sideways from the foot. The upper end of the lever carries a stylus which traces the excursion of the lever at each kick. The stylus is carried by a holder which is moved a short distance toward the pivot point of the apparatus by means of a ratchet mechanism, so that each successive movement of the lever, is traced on a fresh line. By this means a considerable number of records can be obtained on a single sheet of paper. The writing unit is quickly reset to the original position by releasing the ratchet. Record forms are provided with the equipment, and are easily attached. The apparatus can be mounted so as to record movement of either right or left leg.

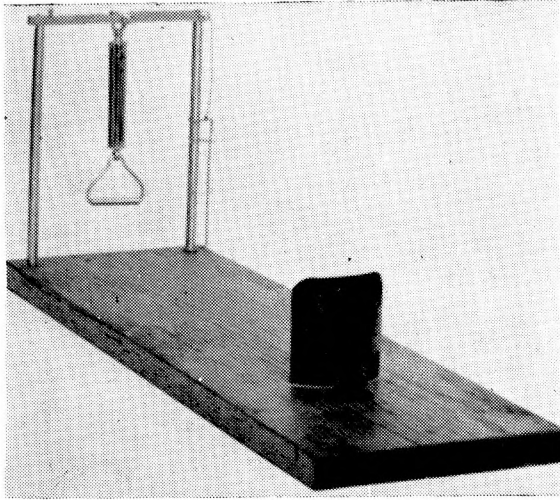
2-6 WINK REFLEX APPARATUS. The Wink Reflex Apparatus consists of three parts: (1) Tripod support and two right angle clamps. (2) Framed rectangle of plate glass. (3) Wink stimulus in the form of a hollow rubber ball. This is pivotally supported in such a way that two counterbalances can be adjusted to give a considerable range of speed of movement when the trigger release permits the ball to fall from above against the glass.



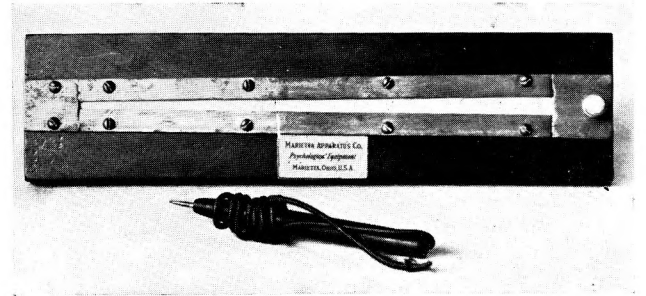
3-1 Finger Ergograph



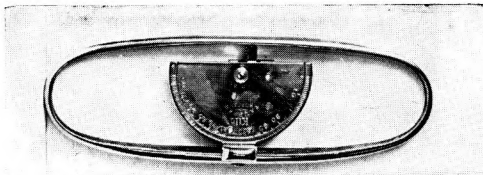
4-1 Tapping Test \$10.50



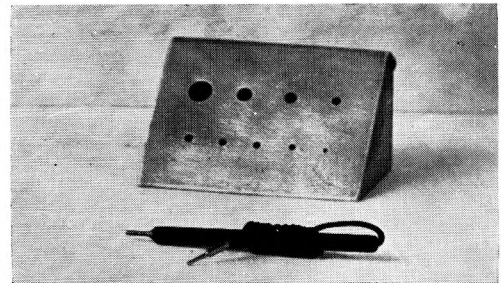
3-3 Finger Dynamometer \$25.00



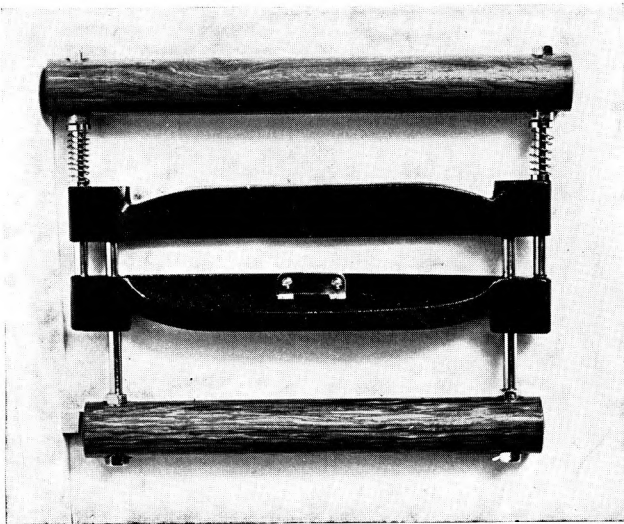
4-2 Precision Test \$10.50



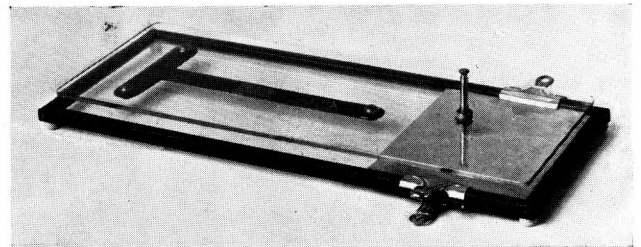
3-4 Hand Dynamometer \$36.50



4-3 Nine Hole Steadiness Test \$10.50



3-5 Arms and Chest Dynamometer \$50.00



4-6 Automatograph \$32.00

3-1 FINGER ERGOGRAF. This Finger Ergograph consists of (1) A base with rubber feet. (2) A hand grip upright adjustable forward and backward. (3) A pair of adjustable cushion supports for the wrists. (4) A finger grip piece connected by flexible cable to (5) Coiled spring unit. (6) A recording unit consisting of a roller which carries paper strip and a pencil carrier which moves across the paper tape with each movement of the finger. The tape is moved forward with each movement and the sequence of lines provides record of finger movement. In this type as shown the total amount of working movement is recorded in meters, centimeters and millimeters on a dial. This spring work unit may be replaced by a simple weight attachment which for some purposes is more satisfactory.

3-3 FINGER DYNAMOMETER. This is the standard Titchner type. It consists essentially of a saddle piece for the finger and a calibrated spring with sliding markers suitable for recording on Kymograph. The capacity of the spring is thirty pounds.

3-4 HAND DYNAMOMETER. This is the standard elliptical spring type which is calibrated for both compression and extension and can be used with suitable holder for both push and pull with arms and chest muscles.

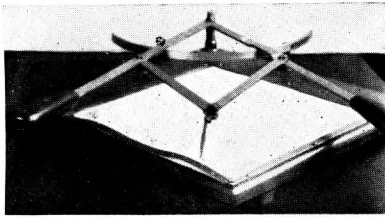
3-5 ARMS AND CHEST DYNAMOMETER. As indicated in the cut this two purpose holder is to be used with the 3-4 Hand Dynamometer. The hand pieces are so formed that pushing inward or pulling outward are both provided for without change of arrangement.

4-1 TAPPING TEST. Designed to measure speed of voluntary movement. Standard type with wooden base and two metal plates. The plates are $4\frac{1}{4}$ inches square and are appropriately wired for stylus and electric counter.

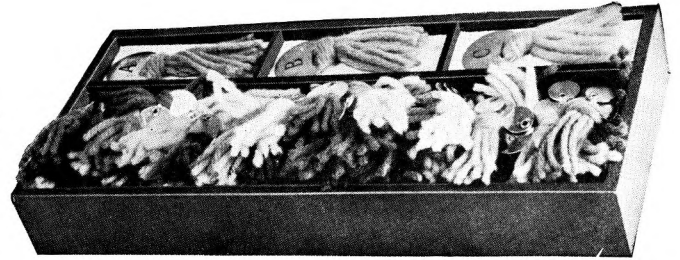
4-2 PRECISION TEST. A tracing board with metal contact plates $7\frac{7}{8}$ inches long and separated at the ends by .140 in. and .340 in. The stylus is moved along a glass plate covering an appropriate scale. There are the usual connections for electrical counter.

4-3 NINE HOLE STEADINESS TEST. Designed to measure control of muscular tremor. Consists of an aluminum casting with nine holes for appropriate stylus. The hole diameters are as follows: $\frac{1}{2}$, $\frac{5}{16}$, $\frac{1}{4}$, $\frac{13}{64}$, $\frac{11}{64}$, $\frac{5}{32}$, $\frac{9}{64}$, $\frac{1}{8}$, $\frac{7}{64}$ (inches). On the back is the connection for the electric counter.

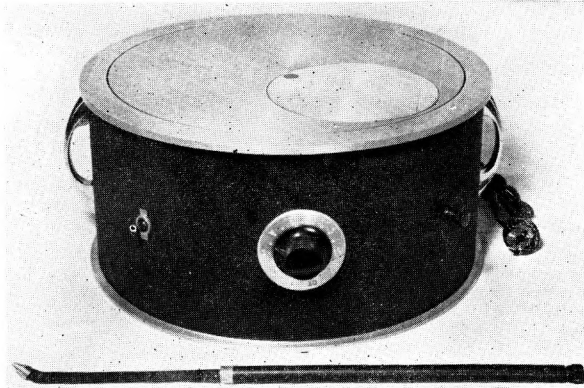
4-6 AUTOMATOGRAPH. This automatograph consists of two glass plate units separated by ball bearings. The lower glass is suitably framed and is provided with grips for holding the record paper. The forearm rests on the upper plate which moves very freely on the ball bearings and the lower glass. The slightest involuntary movements of the arm are recorded by a stylus holder which is supported by flanges on the upper plate drilled for this purpose. Shipped in Masonite case.



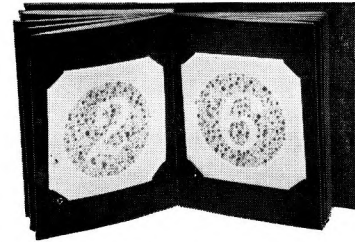
5-1 Two Arm Tracing Apparatus \$25.50



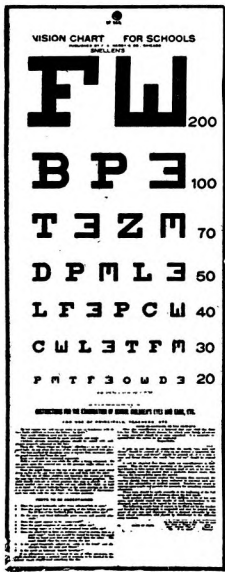
6-4 Holmgren Color Sense Test \$10.00



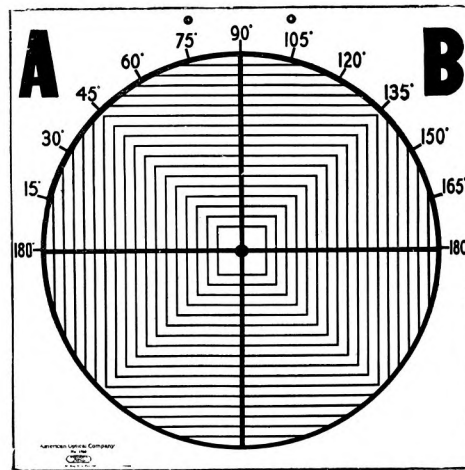
5-6 Epicycloid Pursuit Meter \$130.00



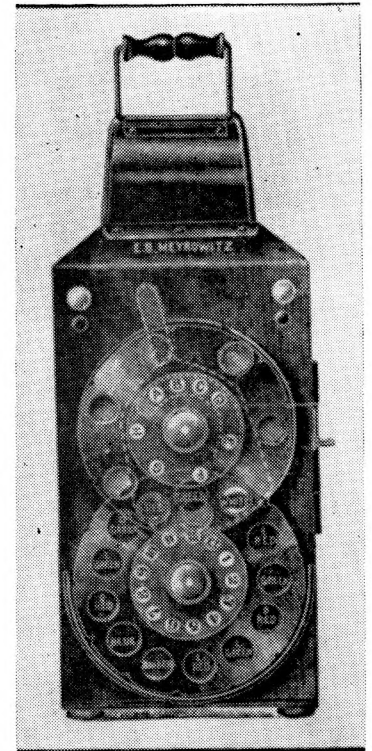
6-5 Pseudo-Isochromatic Color Plates \$14.00



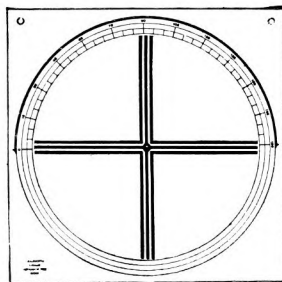
6-2 Test Type Cards \$1.50



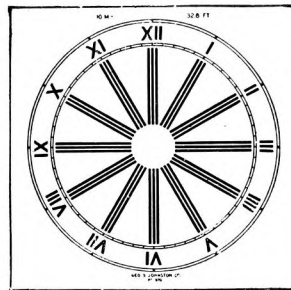
6-3 Verhoeff Astigmatic Test Chart \$2.25



6-6 Williams Color Sense Test \$100.00



6-3 Thomas Astigmatic Test Chart \$2.25



6-3 Clock Dial Astigmatic Test Chart \$2.25



6-7 Spectroscope—Pocket Size \$50.00

5-1 TWO ARM TRACING APPARATUS. The appearance and method of operation of this device are sufficiently clear from the illustration. Proximal distal movements are controlled by moving the two arms toward or away from each other, while movements in the lateral dimension are controlled by moving both arms in the same direction.

5-6 EPICYCLOID PURSUIT METER. In this device the target follows an epicycloid path provided for by the rotation on its own center of a small disk carried by the large disk. The target is an insulated spot about one half inch in diameter. Errors are to be recorded by electrical means when the pointer is in contact with the metal plate. Reference to this device will be found in Vaughn "General Psychology" First edition pp. 36-37. Revised edition pp. 592-594. See also article entitled "A New Pursuit Meter" by Freeman and Oldroyd, American Journal of Psychology, 1937, 49, 476-477.

6-2 TEST TYPE CARDS. These are samples of a wide range of distance test types. Please indicate needs.

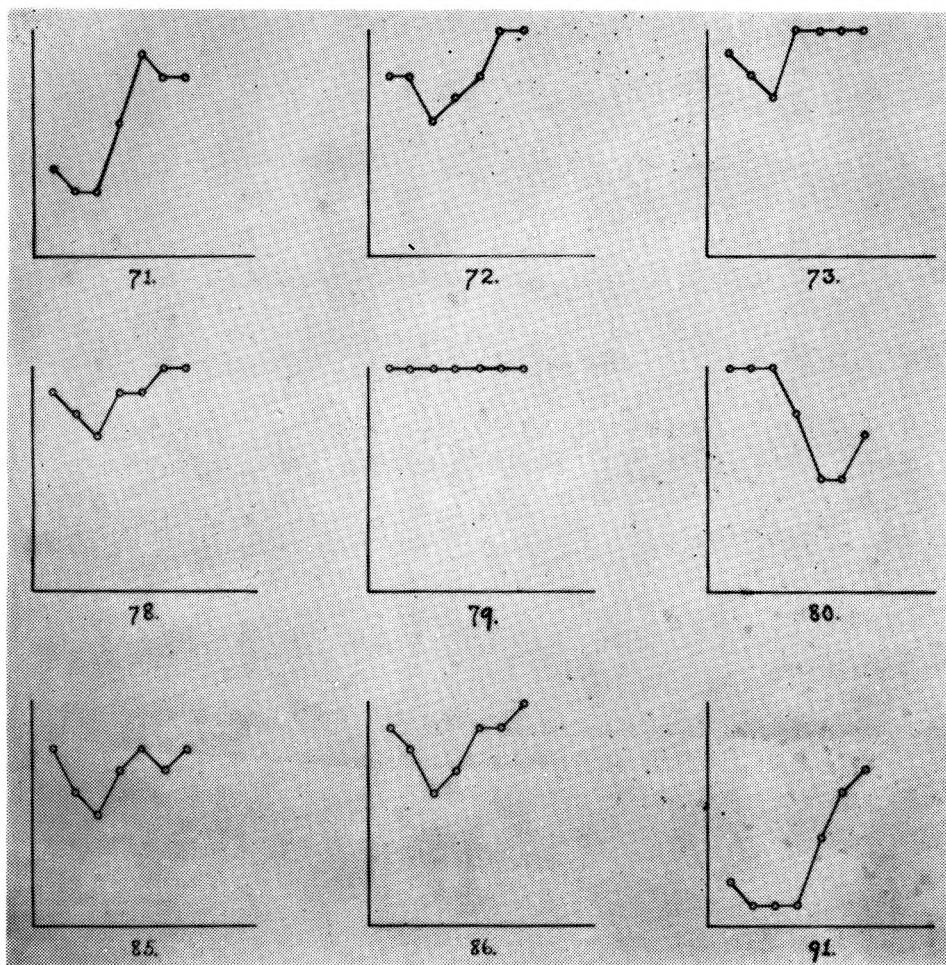
6-3 ASTIGMATIC CHARTS. These are samples of a wide range, simple clock dial types, rotatable types, etc.

6-4 HOLMGREN COLOR TEST. A set of colored yarns with metal tags. The odd numbers on the tags denote match skeins and even numbers confusion skeins. Skeins 1 to 20 consist of various shades and tints of green alternating with confusion colors, grays, tans, light browns, etc. Numbers 21 to 30 indicate darker shades or rose alternating with blues and numbers 31 to 40 indicate reds alternating with browns, sages and dark olives.

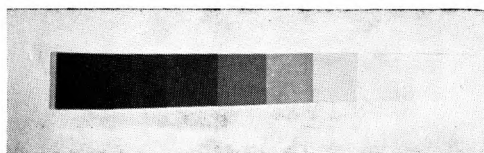
6-5 PSEUDO-ISOCHROMATIC COLOR PLATES. These 18 plates test color perception and are the substitute for the Ishihara Color Test for color blindness. Score sheets included.

6-6 WILLIAMS COLOR SENSE TEST. This is a recently improved model of a standard instrument long used by railroad companies for testing color sensitivity of locomotive engineers, etc.

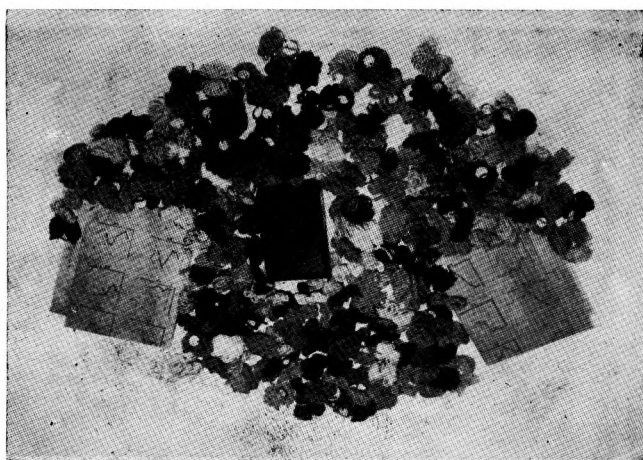
6-7 SPECTROSCOPE—POCKET SIZE. Consists of a train of prisms so arranged as to disperse the light without bending it appreciably away from the axis of the instrument. The prisms are mounted in a metal tube 100 mm. long and 17.5 mm. diameter with a slit at one end and an eye-piece at the other. By pointing the slit towards any source of light, such as the sun or an incandescent salt like sodium, the spectrum may be observed at the eye-piece end.



6-8 Color Profile Chart



6-9 Gray Scale



6-10 Woolen Color Samples

This is probably the best example in the use of color that our apparatus affords. Cuts Nos. 6-8, 6-9, and 6-10 show 3 things: (a) a number of woolen color samples, similar to the Holmgren; (b) a box of seven monochromatic filters; (c) a scale of grays, from black to white. The point of the procedure is this: each sample is viewed temporarily through a color filter against the scale of grays. In each case the color sample and some one of the grays appear to be exactly the same. The color sample is then given a number corresponding to the gray scale. The collection of the results from this procedure make possible a description of the color in terms of a profile. Samples of these profiles are shown in Cut 6-8. After some training, a student can select a color in terms of a profile or, conversely, pick out the appropriate profile for a given sample.

Write for further information.

“HYPNOTIC TECHNIQUE” ON PHONOGRAPH RECORD. By Dr. G. H. Estabrooks, Colgate University.

Dr. Estabrooks, an expert in hypnosis, has recorded an hypnotic technique on a double twelve-inch plastic Victor record. A pamphlet accompanies the record.

The content of the record is addressed to the listener, as operator addressing subject. “You are falling into a deep, deep sleep,” etc.

The procedure provides for the taking over of control by an operator if one is present and prepared to assume the responsibility. Otherwise the procedure secures return to the waking state at the end of either part of the record.

Dr. Estabrooks has offered the following suggestions for the benefit of persons using the records:

(1) The subject should recline on a couch, or in an easy chair, lying on his back with right arm free.

(2) The individual using these records should realize that the best success will probably be attained only after six or seven trials, since most of the authorities on the subject, such as Bernheim, would claim that six or seven trials were necessary to reach the deepest states.

(3) The individual should play the record over several times in order to familiarize himself with it. This applies to both sides of the record.

(4) If another operator is present he should bear in mind that the transference of control as contained in Part II of the record is probably a pretty serious matter. He should not assume control unless he is familiar with the literature on hypnotism and has some practical experience along these lines.

(5) In order to get the best results from the record it might be a good plan to remove the record at the pause on the first side and not play the second side until after a lapse of two or three minutes. Many subjects complain that the production of sleep requires a longer time than an average operator is willing to give.

(6) If the control is taken over by a second operator, as in Part II of the record, and if the operator finds that hypnosis has not actually been produced, as will often be the case, he should nevertheless go through the form of waking up the subject whether the subject appears wide awake or otherwise. Sometimes a subject who apparently becomes wide awake through some of the tests of hypnosis is really still in a semi-hypnotized condition and a long way from being in a normal waking state. If the operator simply takes the precaution of counting to ten and using the ordinary waking technique this cannot occur.

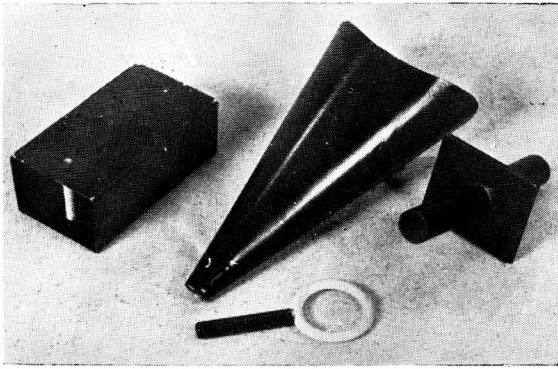
(7) It must be remembered that this is strictly a piece of experimental apparatus which should be used only by accredited psychologists, psychiatrists or medical men. It is not distributed to the general public and should be handled only by people who are willing to use it cautiously, and who, at least, have a good reading knowledge of the phenomena to be expected.

Price \$10.00

Pamphlet only, 60 cents

“PSYCHO-PHYSICS OF COLOR.” Twenty-seven paged pamphlet with appropriate diagrams.
By A. C. Watson, Ph.D.

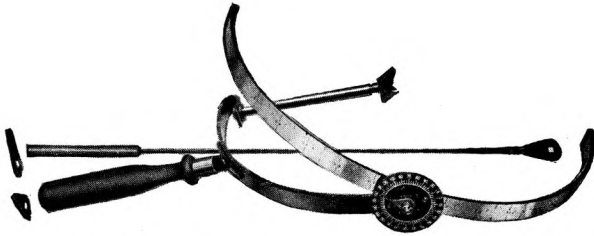
Price \$1.00



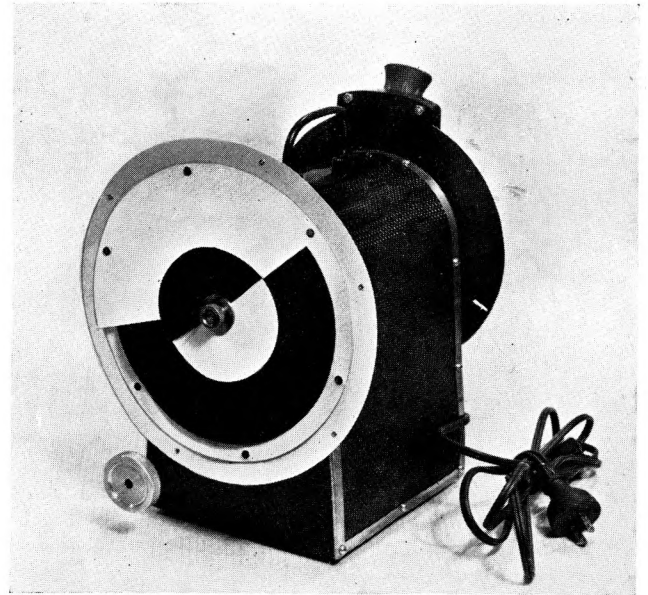
6-11 Crider Eye Dominance Test \$15.00



8-2 Simple Color Rotator \$46.00



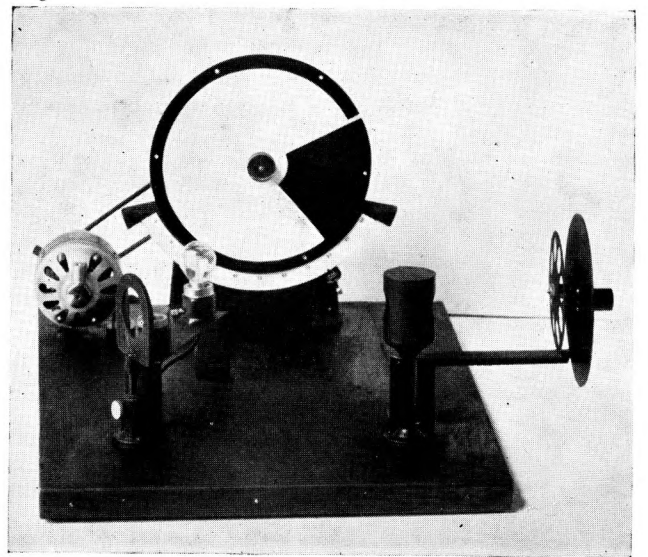
7-1 Schweigger Perimeter \$38.00



8-4 Differential Color Rotator (front) \$175.00



7-3 Registering Perimeter \$80.00



8-6 Marietta Color Analyzer
(Price on Application)

6-11 CRIDER EYE DOMINANCE TEST. A complete battery of tests for determining the dominant eye. Included in the battery are seven different tests, as well as recording sheets and directions for administering. May be used with any age group. The reliability, validity, clinical usefulness of the tests were determined experimentally. Journal references to the original research are available on request.

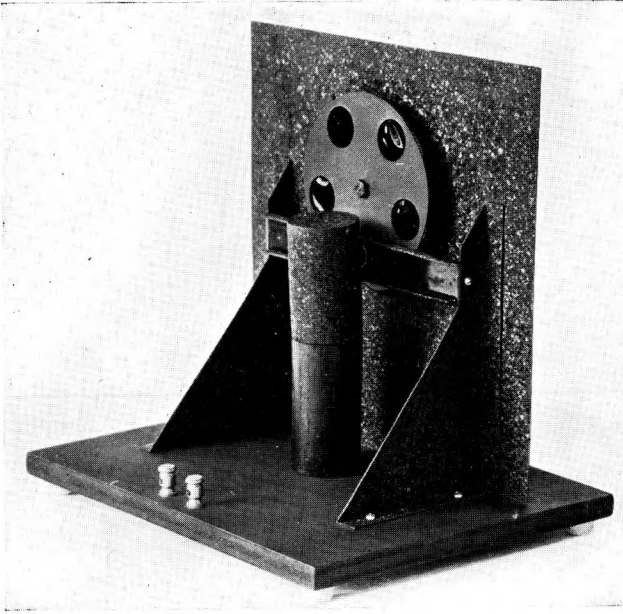
7-1 SCHWEIGGER PERIMETER. The Schweigger Perimeter provides for control of eye position by means of a small mirror at the pivot point of the radial measuring arm. The V-shaped cheek rest is placed against the face just below the eye. The subject fixates the image of his eye in the mirror and is thus helped to resist the tendency to turn the eye toward the color target.

7-3 REGISTERING PERIMETER. The registering perimeter has the advantage of providing a chart carrier which rotates with the meridian arm. This arrangement enables the operator to record the "latitude" position of the color target with more accuracy with respect to its "longitude". The sight hole is through the center of rotation. The object carrier slides on a broad metal arc, and holds color targets 5 mm. in diameter. There are the usual four standard colors and white. A steel handle is also provided for use with the color objects as in the Schweigger Perimeter.

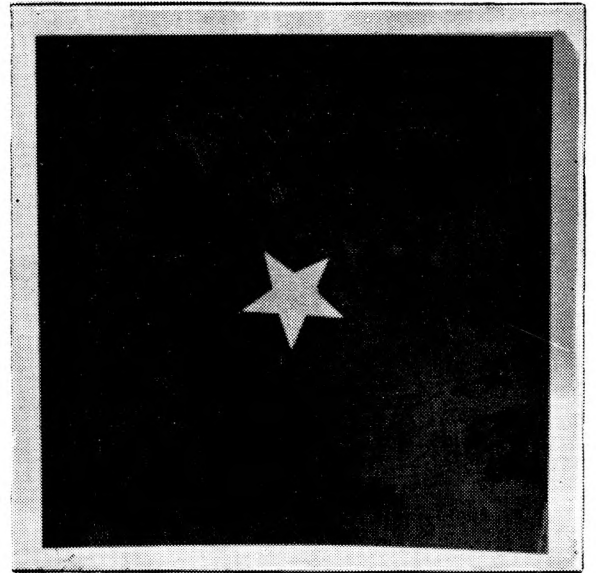
8-2 SIMPLE COLOR ROTATOR. This rotator is a variable speed universal electric motor weighing approximately 8 pounds and is supported on a cast iron base which contains a rheostat for varying speed. Speed adjustment from standstill up to 10,000 R. P. M. Five foot attachment cord and plug. The motor can be operated with the shaft at a horizontal position or at various angles to 45°. This motor can also be used for other laboratory purposes. There is a 5/16-inch shaft with a 3/4-inch shaft extension at each end of the motor for a single groove pulley. Cardboard disks not included.

8-4 and 5 MARIETTA DIFFERENTIAL COLOR ROTATOR. The differential mixer has many advantages over the simple rotator. It makes a very effective means for class demonstration of the principle of visual synthesis. The percentages of mixture are read from a scale by means of a stroboscopic viewing device, and readings thus obtained may be exceedingly accurate. The shift in proportions can be controlled by either the experimenter or the subject (knobs in rear and in front). This apparatus is therefore useful in demonstrating the several psycho-physical methods. Equipped with a special type of disks which are easily changed and are free from difficulties met with in other types of differential rotators. A set of disks includes two each of Red, Yellow, Green, Blue, Black and White, with a small disk of each color for the center to be used as standard of comparison. Accurate measurements of discrimination of hue, brilliance and saturation may be made by means of this apparatus.

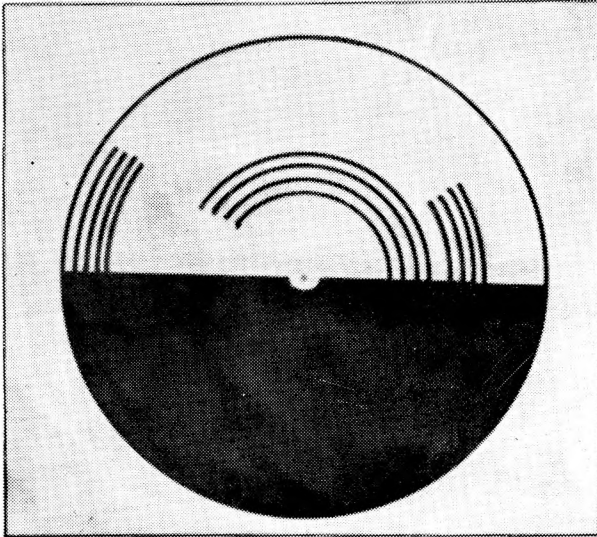
8-6 MARIETTA COLOR ANALYZER. This device provides a practically useful, rapid and inexpensive means of color analysis. It uses a set of approximately monochromatic filters and standard white light. It eliminates much of the tedium and inexactness of suspended judgment which occurs in the equality of brightness method. To this end, a "ladder" effect is secured in the comparison field, by introducing a short neutral tint wedge, the surface of which is crossed by narrow opaque strips producing three horizontal fields of slightly different brightnesses. The judgment of equality is thus facilitated by the judgments of "greater" and "less" which the upper and lower fields arouse when the central field is balanced with the test field. Black and white disks of known reflection coefficients, controlled by differential rotator, are used. The point source of light may be moved as close as necessary to the sample, if it is too dark. The reading for percent of white is afterward corrected to compensate for the differences in distance between the light and the two surfaces. Further description will be furnished on request.



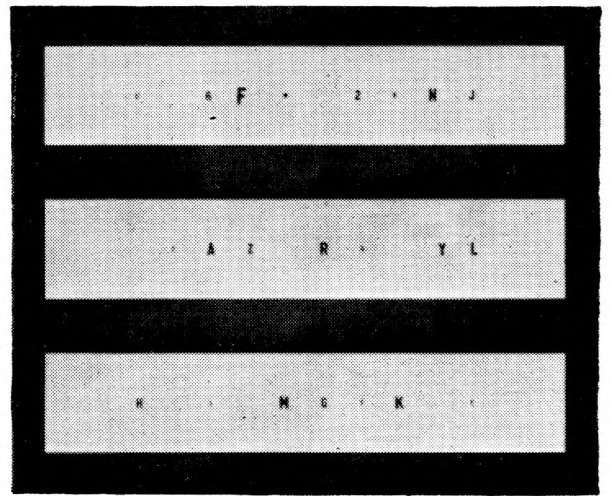
8-7 Photochromatic Interval Apparatus
(Price on Application)



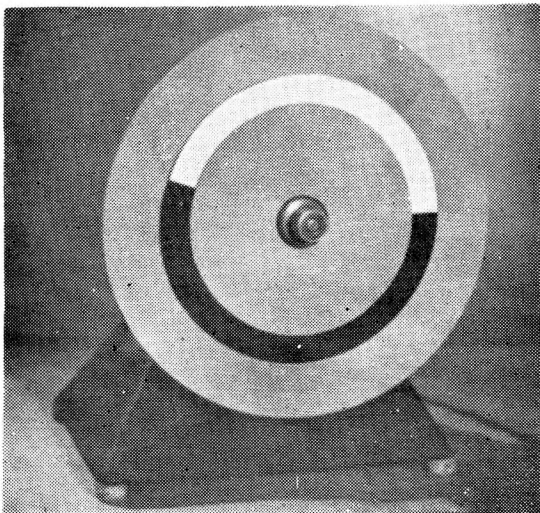
9-6 Simultaneous Induction Card \$4.00



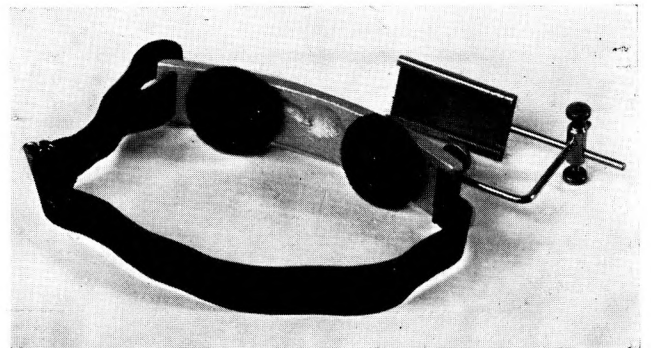
9-3 Benham Disc \$1.00



10-3 Stereopsis Test Card
(List and Price on Application)



9-5 Simultaneous Induction Discs



10-4 Freeman Eye Movement Mirror \$15.00

8-7 PHOTOCROMATIC INTERVAL APPARATUS. This consists of a small lamp house, with iris diaphragm, and rotatable disk carrying gelatine covered apertures through which the light from a small electric lamp shines. Between the light and the iris diaphragm opening is a movable neutral tint glass wedge giving light transmissions from total down to one one-thousandth. The light is accordingly measurable in either intensity or area. The colored gelatine filters have definite wave length transmission values, red 700-600 mm., yellow 700-500 mm., green 600-500 mm., blue 500-400 mm.

9-3 BENHAM DISK. The "flight of colors" or "color decay" characteristic of strong positive after-images of white is exemplified in this disk in which the different durations of after-images resulting from different lengths of circular lines are shown to produce variations in hue. The components of white "decay" at different rates.

9-4 BEZOLD FIGURE CARD. This figure is about 5 inches in diameter and when placed at about 20 feet distance and viewed monocularly, fixation on the center, there appears a variety of faint colors on the edges of the white rings. (See Titchner, Experimental Psychology.)

9-5 SIMULTANEOUS INDUCTION DISKS. This equipment is suitable for class room demonstration. It consists of simple rotator with set of standard color disks. A large and small disk (uncut) of each color is provided, with which a black, white pair (cut) of intermediate diameter is used. The gray zone thus produced may be rendered more or less equal in brightness to the color surface, illustrating the increased intensity of the induction effect on the gray zone under approximate equality of brightness.

Cardboard \$3.25; Celluloid \$4.25

9-6 SIMULTANEOUS INDUCTION CARDS. A very simple device for illustrating this effect. The white surface below the card should be illuminated by a variable source (i. e. moving nearer to or farther from a light) and the surface of the card is kept at constant brightness (or the card surface may be varied and background white kept constant). By this simple means the star-shaped neutral area viewed through the aperture may be made equal to the colored surface in brightness, under which condition the induced hue on white (gray) star surface is at maximum. Standard red, yellow, green, and blue cards are provided in a set. Package contains three each of four colors in celluloid.

10-3 STEREOPSIS TEST CARD. This is one of the Keystone stereoscopic cards. (Half of the card shown in our illustration.) It provides an exceedingly accurate and measurable test of stereopsis.

10-4 FREEMAN EYE MOVEMENT MIRROR. As represented in the illustration this is a simple means of observing eye movement in reading. It consists of a head-band having bracket support for mirror in which subject's eye movements can be seen by an observer from behind. (See Freeman's "Experimental Education.")

CARDBOARD COLOR DISKS. Set of 14 disks, consisting of one large and one small each of the following colors: red, yellow, green, blue, purple, black and white. With cardboard measuring disk.

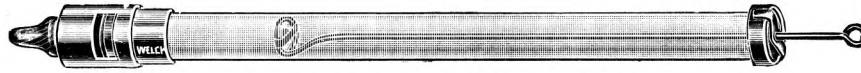
Price \$3.25

CELLULOID COLOR DISKS. Similar to above cardboard disks, with purple omitted.

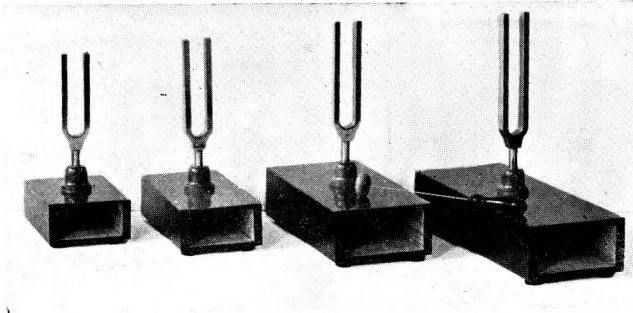
Price \$4.25

NEGATIVE AFTER-IMAGE CARDS. Set of twelve cards, 3 each of 4 colors.

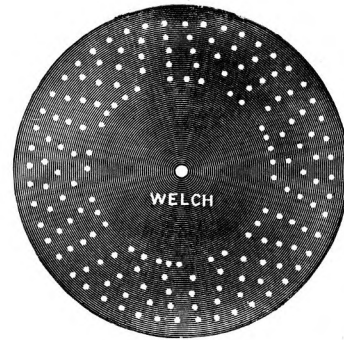
Price \$4.00



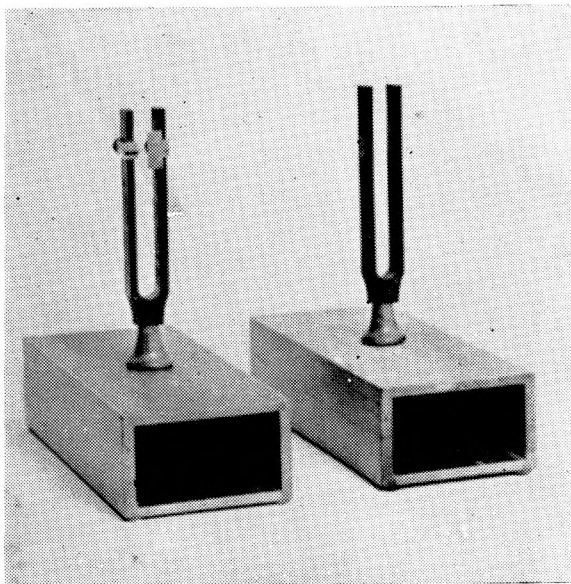
11-1 Organ Pipe \$15.00



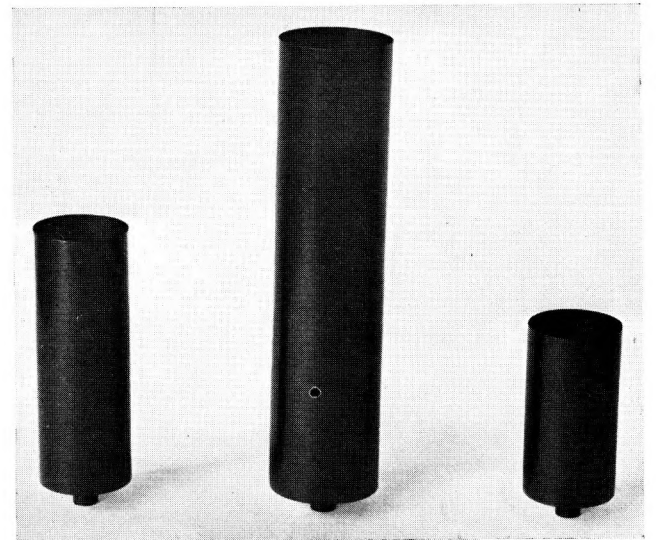
11-2 Set of Tuning Forks \$40.00



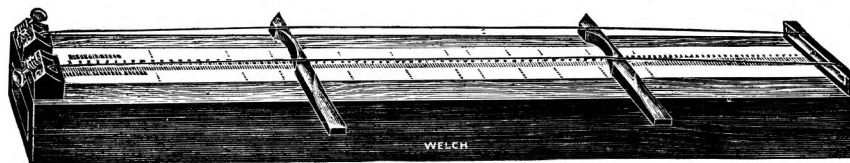
11-5 Disc Siren \$5.00



11-3 Differential Tuning Forks \$20.50



11-6 Resonators
(Price on Application)



11-4 Sonometer \$22.00

11-1 ORGAN PIPE. Made entirely of metal. It shows the change in pitch due to a change in effective length by the use of a piston; also the effect of changing from an open to a closed pipe. In addition, the air-jet adjustment makes it possible to produce several overtones besides the fundamental. Furthermore, by shifting the position of the air-jet control as the piston is pulled out, a perfect fundamental is obtained for each position, a thing which is impossible with a pipe having a fixed air-jet. The correct positions for tones and semi-tones and a centimeter scale are marked on the piston rod. Two octaves, 90 cm. long.

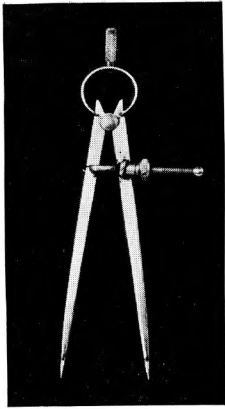
11-2 SET OF TUNING FORKS. A set consists of four forks, pitches C, E, G, C', mounted on carefully-made, highly-polished resonance boxes, correctly adjusted to increase the volume of sound. Supplied with hammer.

11-3 DIFFERENTIAL TUNING FORKS. A pair of massive Tone-Alloy forks mounted on resonators which are tuned to give sympathetic vibrations. On account of the large size of the forks and the use of Tone-Alloy, the vibrations persist for a long time. The energies and resonance are such that the pick-up of sympathetic vibrations is sufficient to be easily heard by an entire class. A pair of adjustable weights makes possible the adjustment of the forks to show beats and to make clear that the rapidity of the beats depends upon the difference of the vibration rates of the two forks. With instructions. Complete with two weights and rubber hammer.

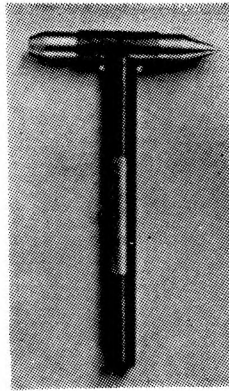
11-4 SONOMETER. For illustrating and proving the laws of vibrating strings. The sounding box is a little more than one meter long, fitted with two tension keys, two movable bridges and a meter scale graduated in millimeters. The scale gives the lengths of strings for both tempered and diatonic scale between C, (128) and C' (512). The bridge is so shaped that the exact position of the wire on the V-edge may be read on the scale below. This is a very desirable low-priced sonometer. Complete with set of wires.

11-5 DISC SIREN. The disk has a diameter of 25 cm., smooth edge, five rows of holes, four giving a major chord and the fifth unequally spaced producing noise only.

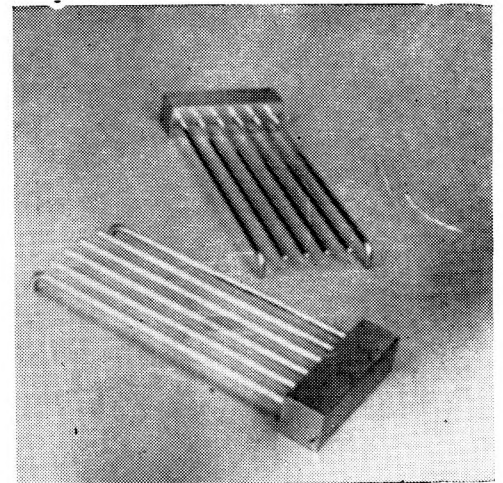
11-6 RESONATORS. These resonators are standard type and can be provided only on special order at specified pitches.



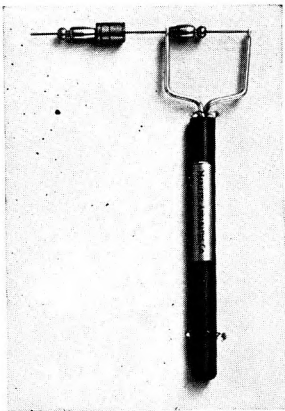
12-3
Two Point
Aesthesiometer
\$3.00



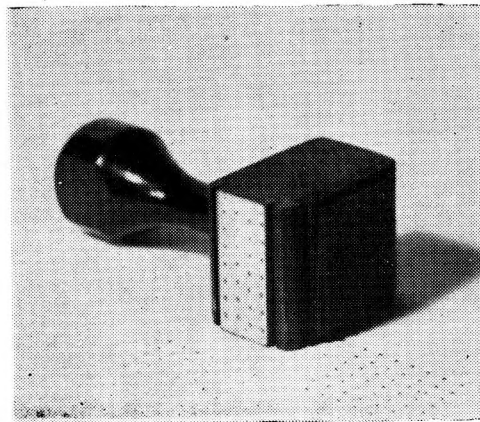
12-5
Temperature
Cylinders
\$6.00



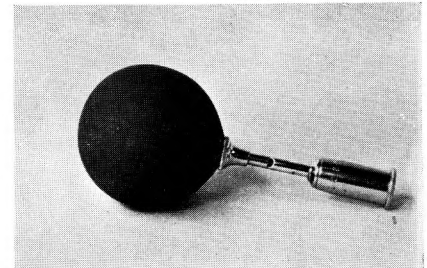
12-7 Heat Grill \$6.00



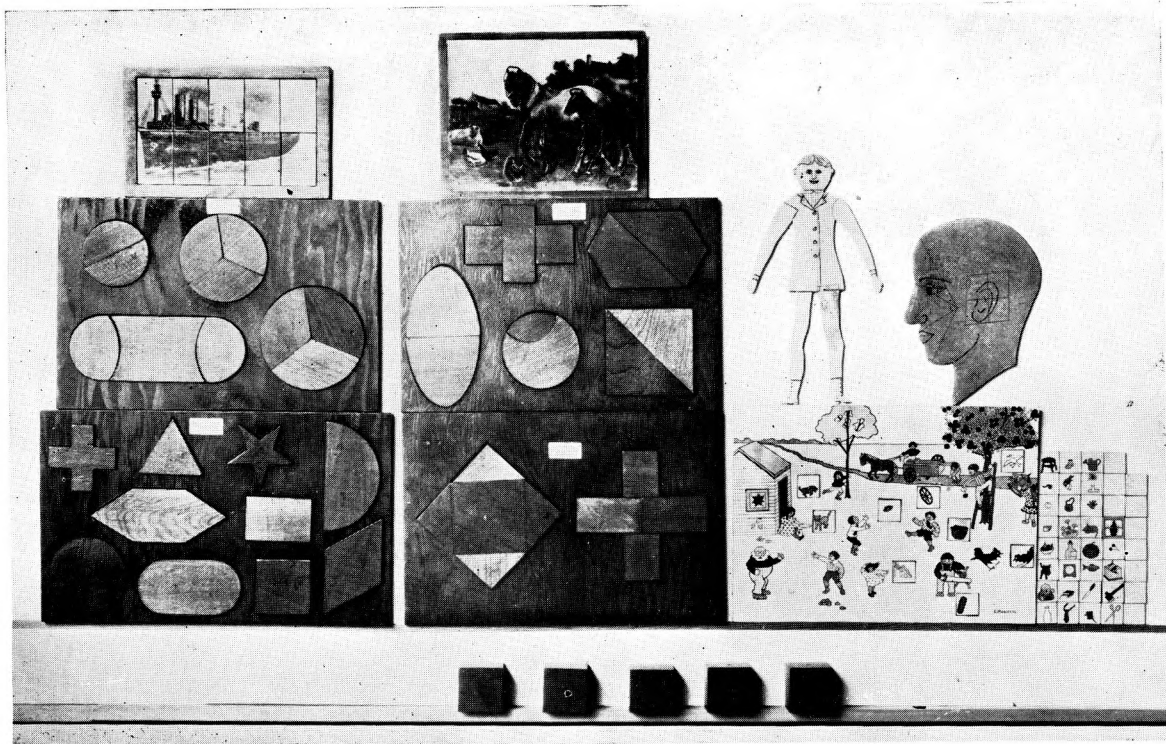
12-6 Algometer
\$7.50



12-9 Cutaneous Sense Stamp
\$1.25



13-1 Galton Whistle \$15.00



22-1 Pintner-Patterson Performance Scale \$82.00

12-3 TWO POINT AESTHESIOMETER. This is a simple ungraduated instrument, separation of the points being controlled by spring and adjustment nut.

12-5 TEMPERATURE CYLINDERS. This consists of a set of six cylinders and one holder. One end of the cylinder is pointed; the other end has a surface of about 5 mm.

12-6 ALGESIOMETER. This instrument consists of a two pronged holder and a needle point element to which may be attached weights of several different sizes. The needle moves freely in two eyelets. Since the friction element is negligible, the pressure of the point is the sum of the weights and the weight of the needle.

12-7 HEAT GRILL. This device is offered through the courtesy of Harold Schlosberg, Brown University. For discussion see the American Journal of Psychology, January 1931, from which the following description has been condensed. The cut is reproduced through the courtesy of this journal. "The new grill consists essentially of two comb-like elements, one of which may be warmed, and the other chilled, by immersion in pans of water (about 40° and 20°). By inter-meshing the teeth and placing them on the surface of the skin (wrist or palm), alternate warm and cold spots are stimulated. An experience of heat is almost invariably reported."

13-1 GALTON WHISTLE. This is the standard inexpensive type. The length of the air column ranges from 0 to 15 mm. Rotation of the control unit through five mm. changes the length of the air column by 1/10 mm.

13-7 THE CROCKER-HENDERSON ODOR CLASSIFICATION SET. 31 Standards, with seven empty vials, in wooden block, with transparent plastic cover. Permits description of the odor of any liquid or solid in terms of the odors of standard reproducible substances. A complete odor formulation may be obtained as a 4-digit number which can be duplicated from person to person usually within one unit for each of the digits. Each digit refers to the strength of a characteristic of odor relative to that characteristic displayed by a scale of standard substances; the first to *fragrance*, the second to *acidity*, the third to *burntness* and the fourth to *caprylicness* (goatiness).

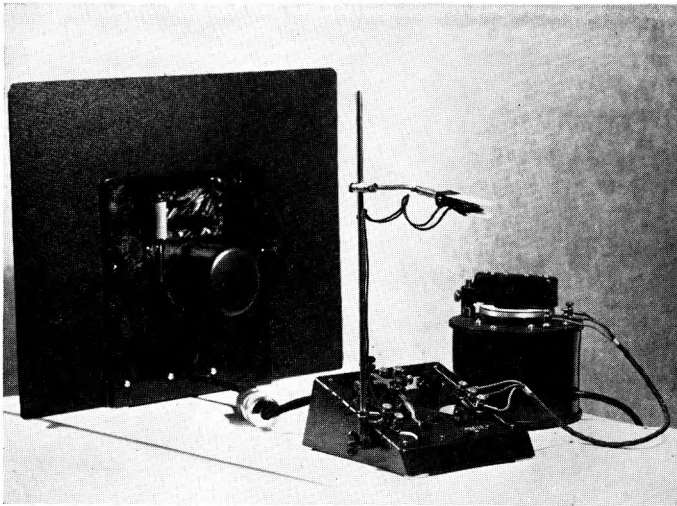
Price on Application

22-1 PINTNER-PATERSON PERFORMANCE TEST. This well known test described in the author's "A Scale of Performance Tests" consists of the following parts:

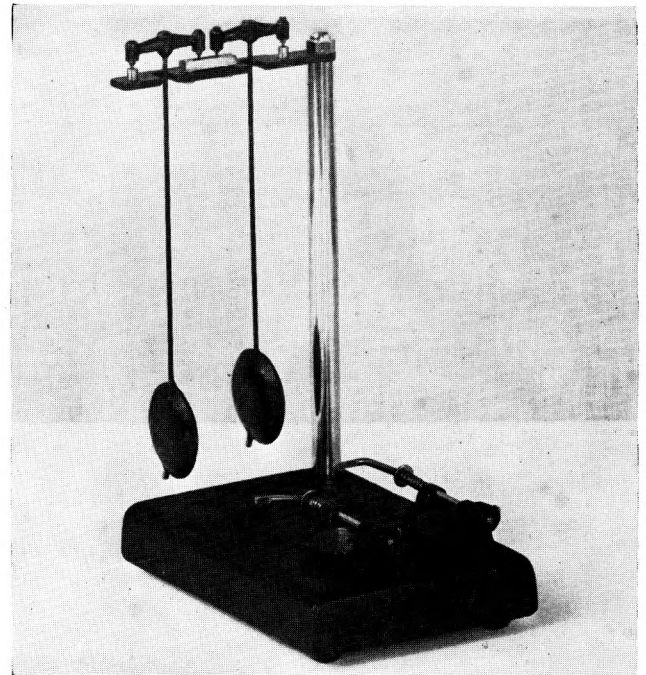
- | | |
|-------------------------------------|----------------------------------|
| 1. Mare and Foal | 2. Sequin Form Board |
| 3. Paterson Five Figure Form Board | 4. Pintner Two Figure Form Board |
| 5. Casuists Form Board | 6. Mannikin |
| 7. Feature Profile | 8. Ship Form Board |
| 9. Healy Pictorial Completion No. 1 | 10. Cube Imitation Test |

The above 10 tests are shipped in a strong Masonite and wood housing case. Manual included.

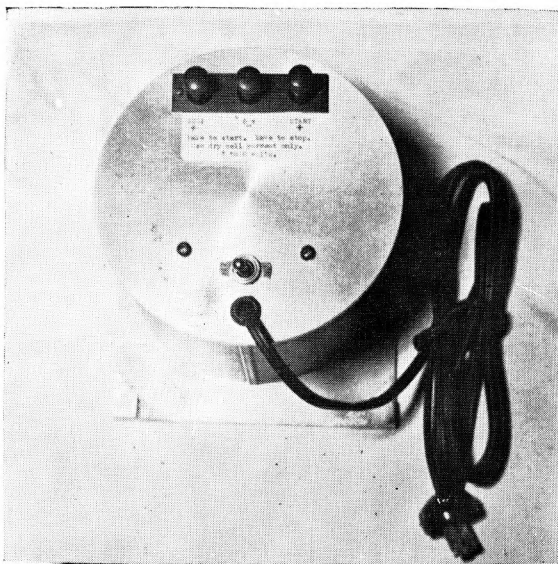
SCORE SHEETS. For Pintner-Paterson Performance Test. **\$1.50 per 100**



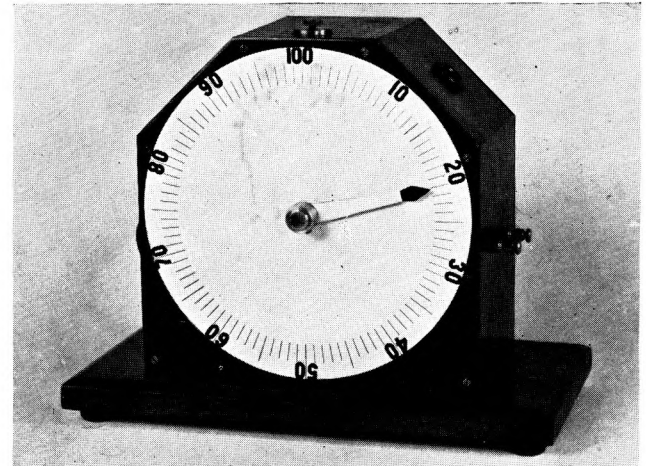
14-1 Marietta Reaction Time Set
(Price on Application)



14-4 Vernier Chronoscope \$50.00



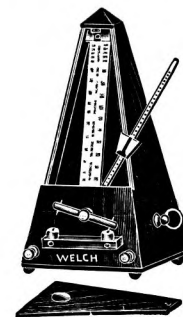
14-3 Marietta Chronoscope (rear) \$75.00



14-5 Complication Clock \$90.00



**14-3A
Marietta
Chronoscope
with Accumulator
\$80.00**



14-6 Metronome

14-1 REACTION TIME SET. This apparatus consists of: (1) A Marietta Chronoscope (14-3). (2) Stimulus unit: (a) Finger key and connections wired for simple, discrimination, and choice reaction experiments, (b) Visual stimulus; white, red, and blue lights, (c) Auditory stimulus; buzzer type, (d) Visual verbal stimulus; simple exposure unit with set of association test word cards (Kent Rosanoff list), (e) Lip key for verbal stimulus. (3) Reaction unit: (a) Finger keys for simple and choice reactions, (b) Lip key for verbal reactions. (4) Each unit equipped with brackets for fastening to table or base if desired. The units may be disconnected and handled separately for convenience in transportation or storage. (5) Lamps, switches, wiring, and all necessary parts complete, but without battery. (Six volt storage battery recommended.) Also furnished without lip keys or word exposure window. Selection of the type of stimulus and response is by means of two rotary switches mounted on the panel in front of the experimenter. Each switch is independent of the other, so any combination of stimulus and response is possible. After the selector switches are set a button is pressed to give the stimulus and start the chronoscope. Operation of the subject's key stops the chronoscope. If the circuit is arranged for a choice reaction, a red light flashes if the wrong response is made.

14-3 MARIETTA CHRONOSCOPE. This Chronoscope is an improved form of our earlier design. It is operated by a small synchronous motor (110 volts, 60 cycles—other frequencies on special order). The readings are made by means of displacement of a pointer disk on a counter disk which occurs during the reaction interval. The wiring circuit is from make to make. When so ordered this chronoscope is provided with a mechanism for counting seconds as well as hundredths. Where A. C. is not available, the chronoscope can be furnished with 110 D. C. motor having an electric governor. This D. C. motor operates when set for specified voltage at a constant speed within voltage fluctuations of about 5%.

14-4 VERNIER CHRONOSCOPE. This improved form of the Verier Chronoscope is offered through the courtesy of Forrest L. Dimmick, Hobart College. For discussion see the American Journal of Psychology, July 1929. The essential modifications described in that article have to do with the method of suspending the pendulums. This new form is represented in our illustration. Marietta Apparatus Company has further modified this design by changing the method of releasing the pendulums. The present form is shown in the illustration.

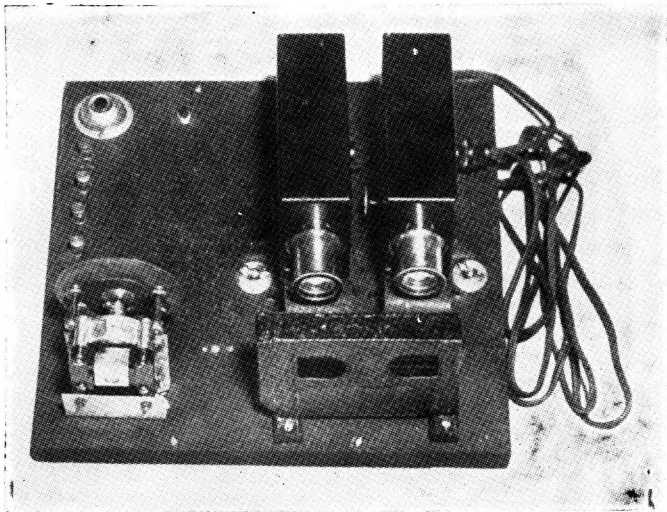
14-5 COMPLICATION CLOCK. This instrument is operated with variable speed electric motor. The timing unit provides for auditory stimulus at any desired position of the indicator on the dial. Variables of loudness and brightness of dial illumination can also be provided on request.

14-6 METRONOME. With electrical contacts. Similar to No. 14-7, except that it is fitted with mercury-cup contact points and binding posts. This provides a means for closing a circuit and operating a sounder, thus giving a distant signal. In this manner one metronome may supply a number of tables or rooms with accurate time intervals (40 to 208 beats). It may also be used with a Time Marker to record time intervals. 110 volts, 60-cycle, A. C.

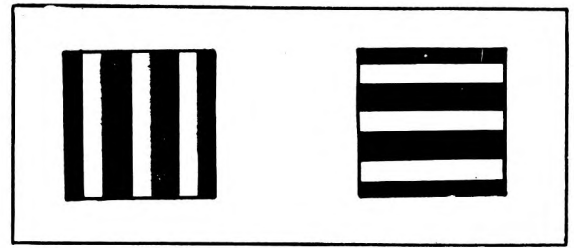
Price \$20.00

14-7 METRONOME. For marking intervals of time. Consists of a clock mechanism which makes a click at the end of successive equal time intervals, the length of which may be accurately set for any period between one-third and one and one-half seconds. Very useful in determining coincidences in the laboratory. For class demonstration it may be used in place of a seconds pendulum, as it gives a loud tick at the end of each stroke.

Price \$12.50



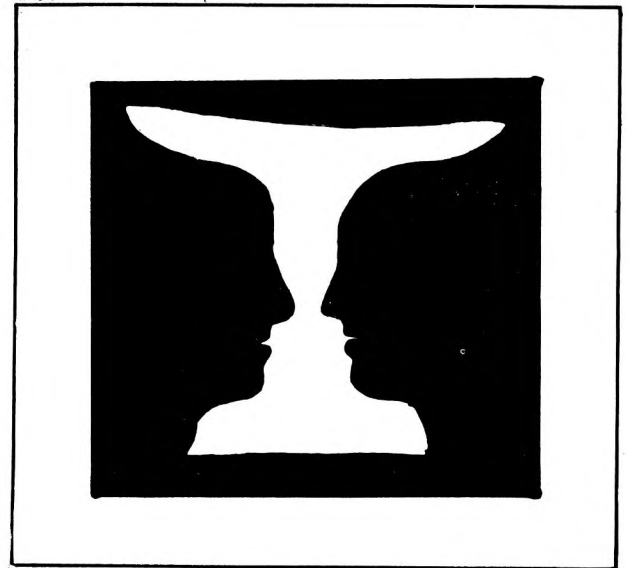
15-5 Projection Tachistoscope
(Price on Application)



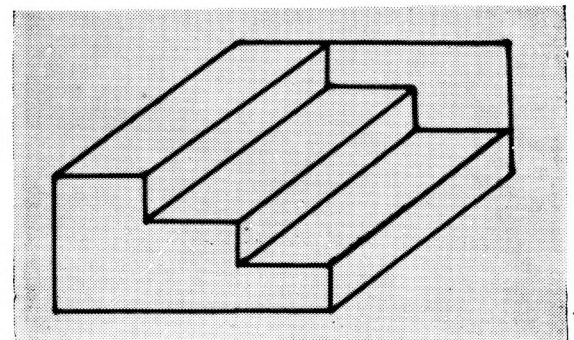
17-2 Rivalry Cards \$1.00



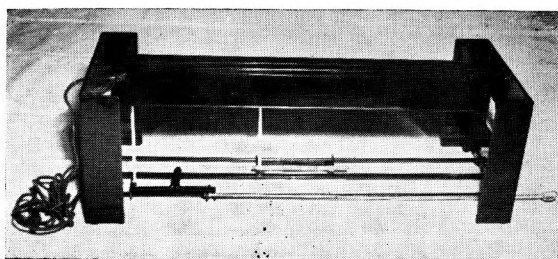
16-1 Tichner Sound Cage
(Price on Application)



17-3 Figure and Ground Card \$1.00



17-4 Reversible Steps Card \$1.00



16-6 Monocular-Binocular Test
\$45.00

15-5 PROJECTION TACHISTOSCOPE. This instrument consists of a pair of film projectors and a special arrangement of Venetian blinds which makes the shut-off and turn-on practically simultaneous. The exposure material is printed on non-inflammable standard width film, and consists of about 150 "frames" of digits, letters, non-sense-syllables and words. The double projector method provides for accurate control of relative brightness of pre-exposure and exposure field. Especially suitable for group use. See also No. 18-8.

16-1 TITCHNER SOUND CAGE. This apparatus follows closely the original Titchner design. The essential parts are: (1) Chair or stool with back and head rests. (2) Under the seat a rotating ball bearing unit having an extension to one side which supports a vertical post which carries pivot and scale for sounder arm. (3) A scale on the unit under the seat. (4) High grade sounder unit with appropriate connections.

16-6 MONOCULAR-BINOCULAR DISTANCE APPARATUS. This device consists of two vertical rods supported on bases which may be moved forward and backward on parallel tracks. Judgment of relative distance is made with one eye and with two eyes, and the greater accuracy of binocular perception can be clearly demonstrated.

17-1 MASSON DISK. (Not shown.) This disk provides a simple means of demonstrating fluctuations in "attention" and the resulting rhythmic changes in the absolute visual threshold. Two forms of disk are available: (a) The ordinary type in which the black radial marks are equal in actual width and (b) the Carmichael type in which the radial marks are equal in angular width. The disk is the usual size.

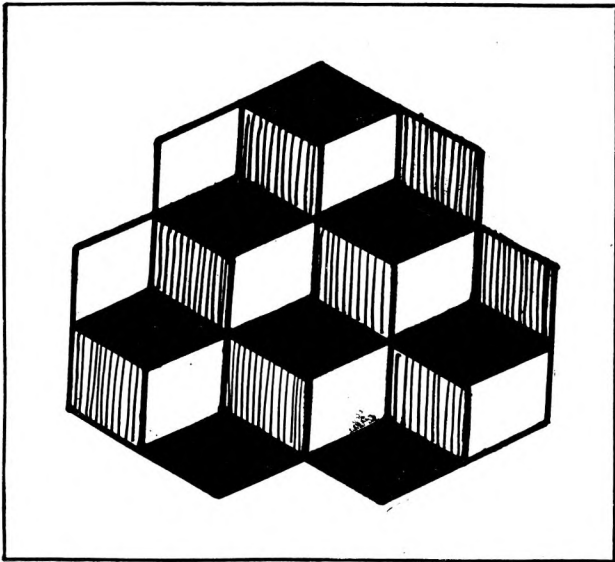
17-2 RIVALRY CARDS. The illustration shows a type of stereoscopic card which demonstrates satisfactorily the phenomenon of binocular rivalry.

17-3 FIGURE AND GROUND CARD.

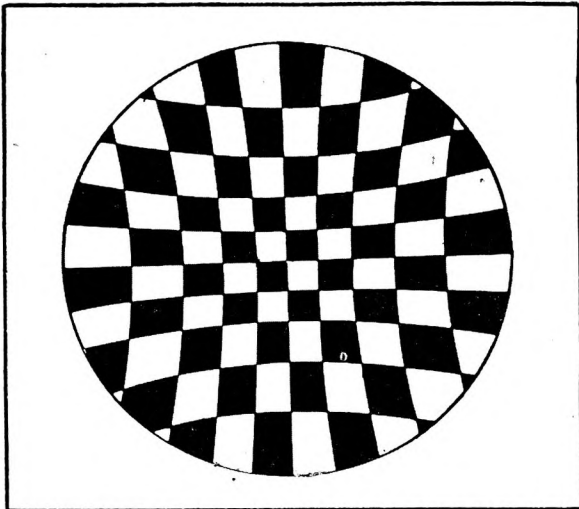
17-4 REVERSIBLE STEPS CARD.

17-5 REVERSIBLE BLOCKS PATTERN CARD.

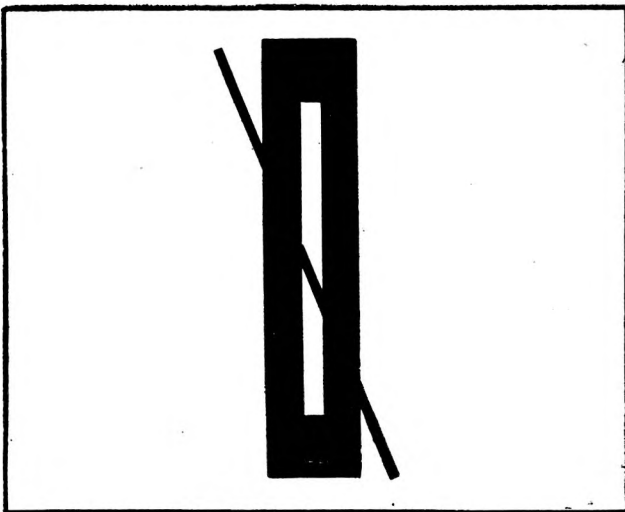
These are cards illustrating reversible perception due to subjective changes. The cards are slightly larger than the illustration and are intended for classroom use.



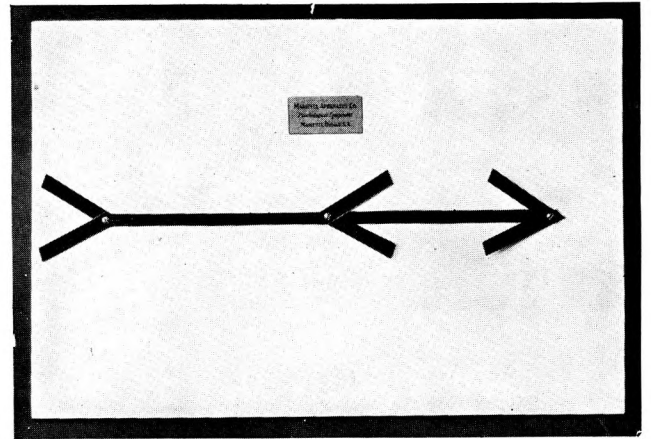
17-5 Reversible Blocks Pattern Card \$1.00



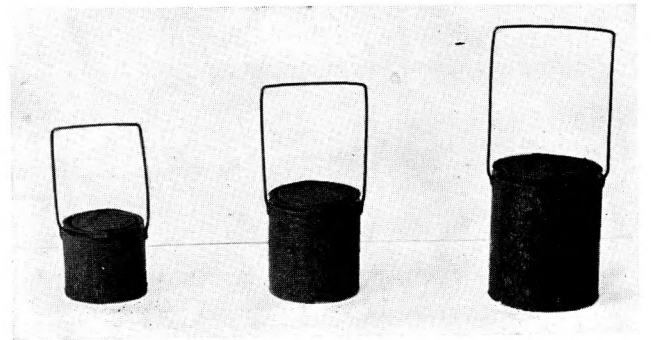
18-1 Helmholtz Checker Board \$2.00



18-2 Poggendorf Illsion Card \$1.00



18-3A Muller-Lyer Illusion Card \$1.00
18-3B Muller-Lyer Illusion Board
(Demonstration Size) \$15.00



18-6 De Moors (Size-Weight) Illusion Set
\$10.00

18-1 HELMHOLTZ CHECKER BOARD. This card is about 15 inches square. When held close to the eye the curved lines appear straight.

18-2 POGGENDORF ILLUSION CARD. An effective demonstration of this illusion. The cross piece is movable and may be used to show the development of the illusion from the right angle position up to nearly zero angle.

18-3 MULLER-LYER ILLUSION CARD. This demonstration card has the arrowheads attached by eyelets, so that the direction of the illusion may be shifted by reversing the position of, for example, the middle arrowhead.

18-6 DEMOORS (SIZE-WEIGHT) ILLUSION SET. This consists of metal containers of equal weight finished in black crystalizing lacquer.

18-10 ANAGLYPH Anaglyph Materials. This name was first used when about 15 years ago the French magazine L'ILLUSTRATION printed several stereoscopic pictures in the two colors of ink known as Stereoscopic Red and Stereoscopic Green. Readers were also provided with viewing filters composed of the same colors. These are strictly complementary colors, so that what is printed in Red is not visible to the right eye, and what is printed in Green is not visible to the left eye. These pictures are, of course, true stereoscopic views of a given object or scene. The printing is directly superimposed.

The beauty of this method consists in the fact that the appropriate pairs of "crossed" and "uncrossed" images are clearly discernable to the unaided vision, whereas they are clearly seen in third dimension when viewed through the proper filters. This device was at first mostly used as an advertising device, and the samples provided by the company herewith are copies of such advertisements.

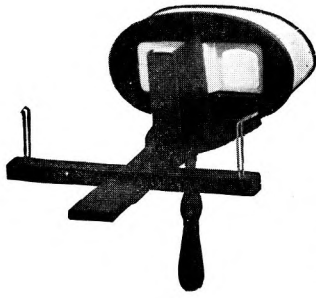
Recently the use of these complementary colors, and the stereoscopic principles were adopted on a large scale in the projection of maps by aerial photography. (See SCIENCE ILLUSTRATED, September, 1948, page 46—second column, middle paragraph.)

One dozen pictures and one dozen viewers, \$5.00

18-11 DEFLECTION PRISM TACHISTOSCOPE. Uses only *one* projector. Material on filter or plate. Exposure time controlled by gravity or synchronous motor. Write for further information.

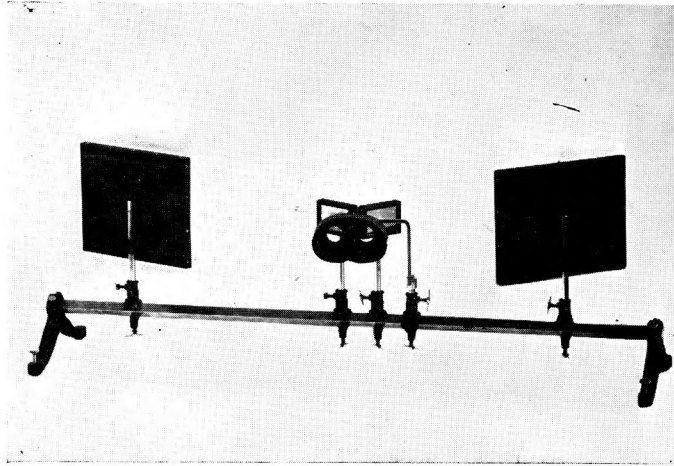
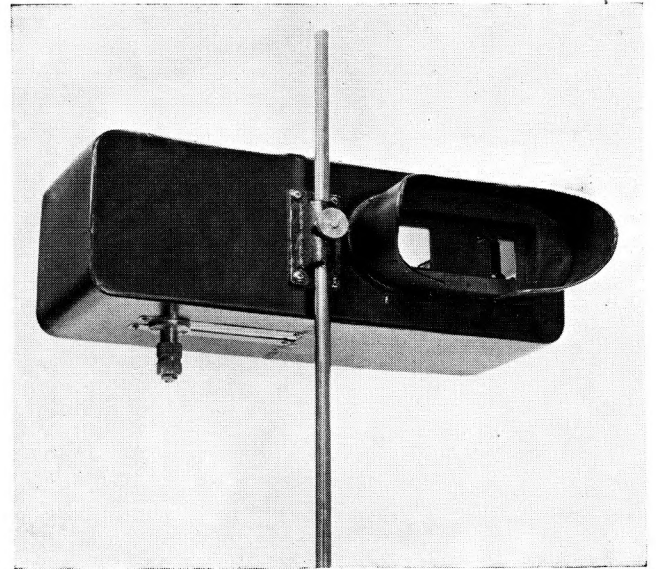
18-12 BLIND SPOT CARDS. Set of 5 cards (red on blue, blue on red, yellow on green, green on yellow, and one with all four colors and hole in center.

Price per Set \$2.50

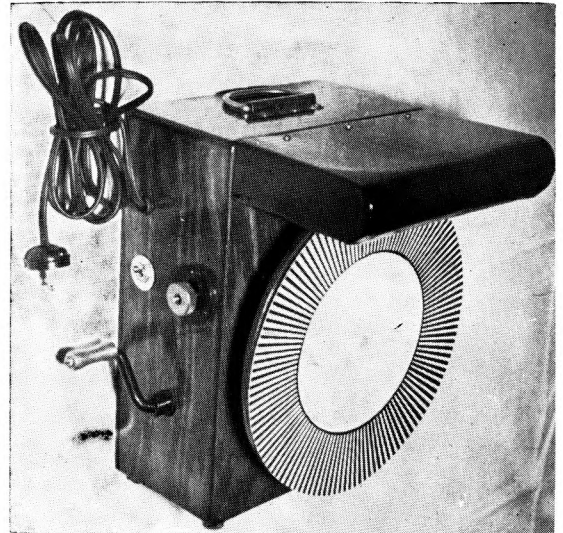


19-1
Brewster
Stereoscope
\$7.00

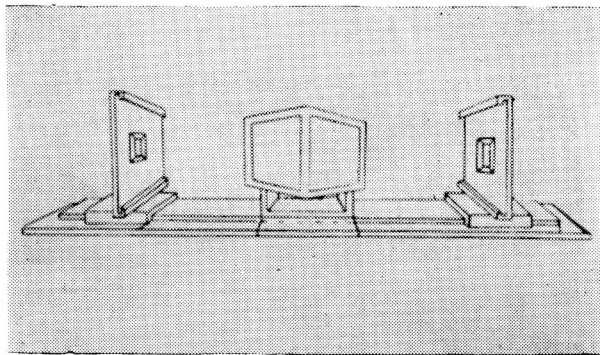
19-5
Pseudoscope
(front)
\$50.00



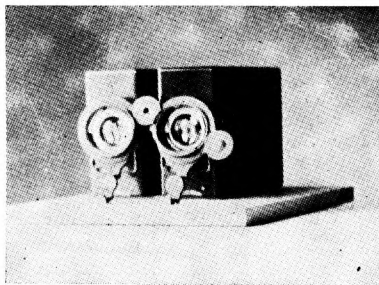
19-2 Titchner Demonstration Stereoscope



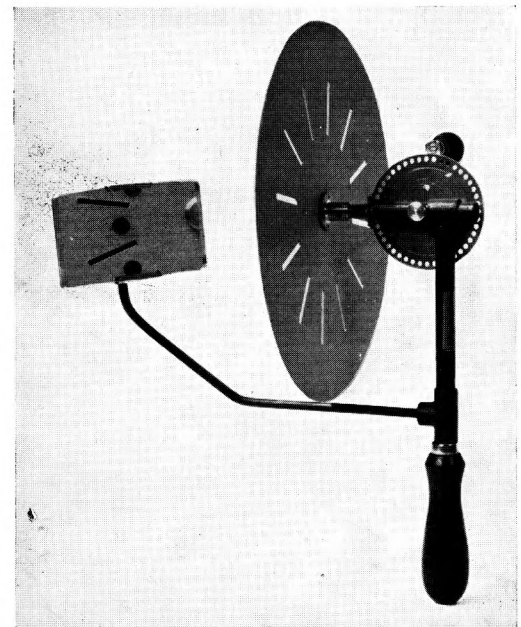
20-1
Radial
Stripes
Illusion
of
Motion
\$35.00



19-3 Wheatstone Stereoscope



19-4 Polarizing Stereoscope



20-2
Centrifugal
Dots Illusion
of Motion
\$25.00

19-1 BREWSTER STEREOSCOPE. This is the standard commercial design, well made and attractive in appearance.

WELLS STEREOSCOPIC CHARTS. Fifty black and white and twenty-one colored charts compiled by Dr. David W. Wells, comprising best charts of Javal, Kroll, Dahlfeld, Hale, Keystone, and Bausch & Lomb, and aviation department of U. S. government. Designed to cultivate binocular vision and treatment of hetrophoria.

Price per Set \$5.00

19-2 TITCHNER DEMONSTRATION STEREOCOPE. This is the standard instrument for demonstrating stereoscope, telestereoscope, and pseudoscope.

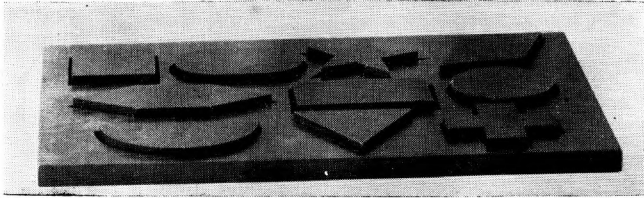
19-3 WHEATSTONE STEREOSCOPE. This is of historical interest, and is built only on special order.

19-4 POLARIZING STEREOSCOPE. Uses a pair of projectors and two pairs of polaroid films. The projected pictures here used are true stereoscopic views of a given object. By appropriately combining the projected filters and the viewing filters, a proper combining of views can be provided, so that the right eye sees only the right picture, and the left eye sees only the left picture. When suitable screen is used, the average diversion of the reflected beam is such that several individuals, located at various angular positions, may view the same lantern screen at the same time.

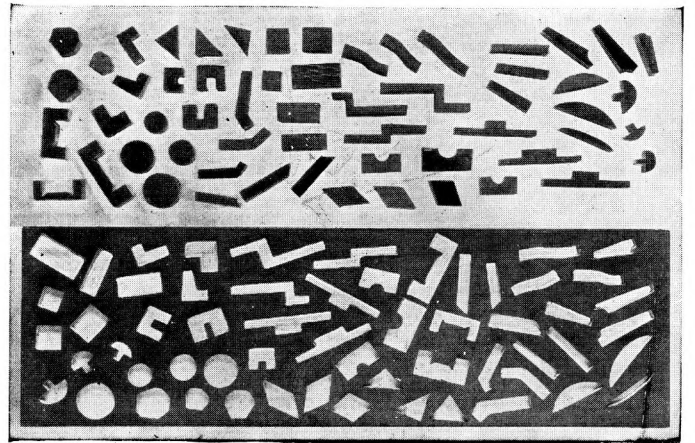
19-5 PSEUDOSCOPE. This follows an original Titchner design. The angle of one mirror and the position and angle of the other are adjustable. It provides a very effective demonstration when used with appropriate objects.

20-1 RADIAL STRIPES ILLUSION OF MOTION. This apparatus is suitable for class room demonstration. Uses stroboscopic radial stripe disk which utilizes a variable speed motor suitably mounted. The upper half of the disk is shielded from daylight, and is illuminated by neon lamp, which on 60 cycle A. C. current gives 120 clean cut flashes per second. With proper regulation of the rotation rate of the disk, the stripes appear to move slowly forward, slowly backward or stand still.

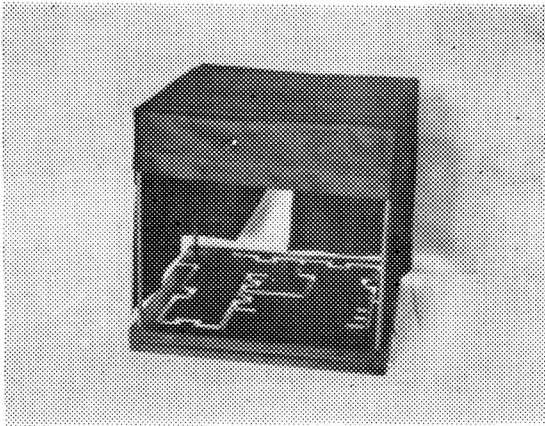
20-2 CENTRIFUGAL DOTS ILLUSION OF MOTION. The character of this simple device is probably obvious enough from the drawing. The dots follow a spiral pattern and are seen in the mirror through the slits. The illusion is of centrifugal or of centripetal motion rather than circular.



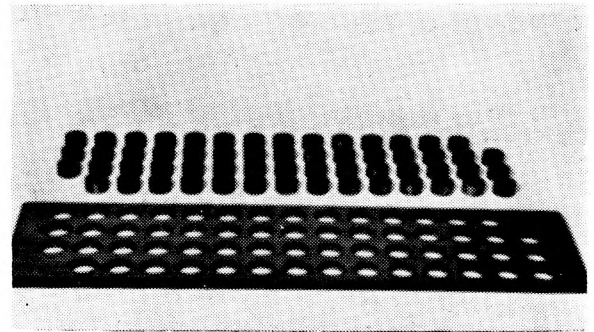
21-1 Goddard Form Board \$12.00



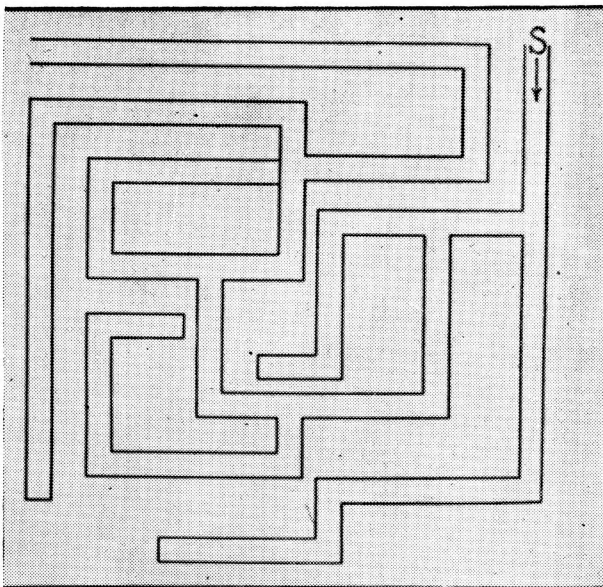
23-1 Minnesota Spatial Relations Boards
A, B, C and D \$55.00
A and B or C and D \$28.00



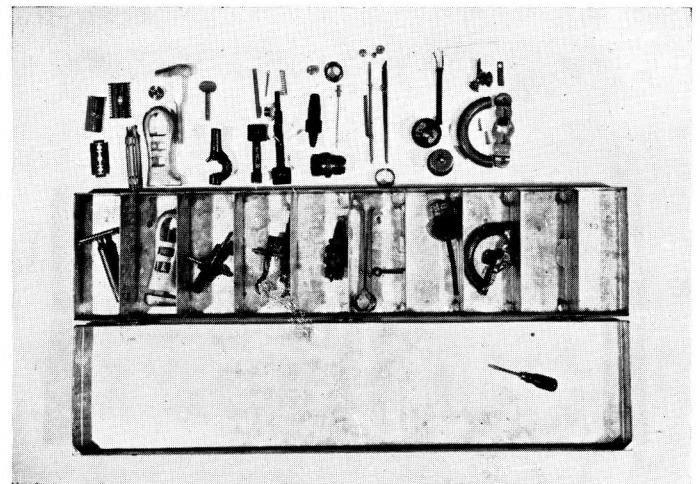
21-3 Stylus Maze \$25.50



23-2 Minnesota Manual Dexterity Test
\$20.00



22-4 Porteus Maze, Age 9, \$1.00 per Pad



23-3 Minnesota Assembly Test \$25.00

21-1 GODDARD FORM BOARD. Masonite board, 18 x 12 inches, with wooden blocks that project $9/32$ inches above the surface. Test of form perception and rate of movement; it quickly gives the experimenter a general idea of the child's powers of recognition, discrimination, memory, and coordination. Either the visual method or the tactual method may be used, as explained in the directions.

21-3 STYLUS MAZE. Now made as a Masonite case, 15 x 15 x 10, open at rear for instructor and curtained in front for admission of subject's hand. The grooved maze is removable, so that a paper might be inserted beneath it and the bottom of the case. The pattern begins at one side and ends at the other. Copy of pattern sent on request. Special patterns can be provided when desired.

22-4 PORTEUS MAZE. This test which has been in use for about 25 years has been revised by the author. (See "Maze Tests and Mental Differences," Porteus, 1933.) The maze pattern shown in the illustration is for year 9. The complete set (12 mazes) are for year 3 through year 14 with one additional maze for adults. Sold only in pads of 100 copies.

23-1 MINNESOTA SPATIAL RELATIONS TEST. A set of four standard form-boards jigsawed out of Masonite. A and B Boards have one set of 58 wooden blocks to fit the forms cut out; C and D Boards have another set of 58 blocks to fit them. The task is to put each of these 58 pieces in its proper space. A strong case of Masonite houses the tests.

The test is used to measure speed and accuracy in discriminating sizes and shapes. It is suitable for testing adults, as well as pupils in the upper elementary grades and in secondary schools.

A high score is taken as indicative of one of the aptitudes contributing to ability in the quick perception of sizes and forms such as is thought to be of value to sculptors, architects, designers, dressmakers, pattern-makers, sheet-metal workers, engineers, dentists, surgeons, auto mechanics, sorters, and others who manipulate objects and have to observe the spatial relations of these objects. Its use is indicated as an aid in ascertaining a person's aptitude for such an occupation; or his probability of success in a course of training or apprenticeship leading to such an occupation; or his likelihood of being able to carry a school subject such as descriptive geometry or machine design, in which ability to deal with shapes and sizes is known to be an asset.

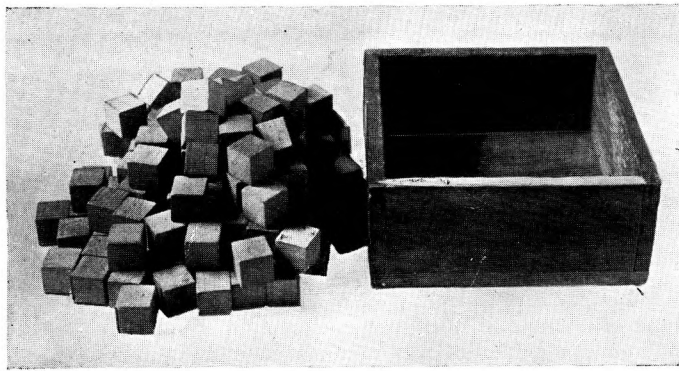
Incidentally, this test, like other form-boards, furnishes an admirable standard situation within which to make observations regarding certain traits of personality and tendencies of behavior such as a person's systematic or unsystematic way of attack, and his energy, persistence, and self-control in such a situation.

23-2 MINNESOTA MANUAL DEXTERITY TEST. This test measures the speed with which a person picks up and places cylindrical blocks, all of the same size, in holes in a board. Performance in this simple task depends neither on judgment of differences in size or shape, nor on precision in eye-hand coordination, but on speed of gross hand and arm movements. It has been useful chiefly in ascertaining aptitude for semi-skilled factory operations which place a premium on manual dexterity of this particular sort. Food wrappers and packers, for instance, do well on the test. This kind of manual dexterity is occasionally found to characterize workers in occupations not primarily manual—for example, that of bank teller.

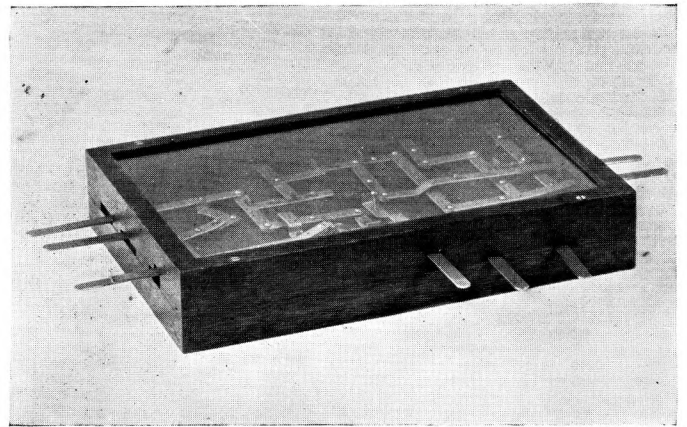
This aptitude matures early. The Standard Norms for adults are applicable to children as young as thirteen.

Masonite board and wooden blocks housed in strong Masonite case.

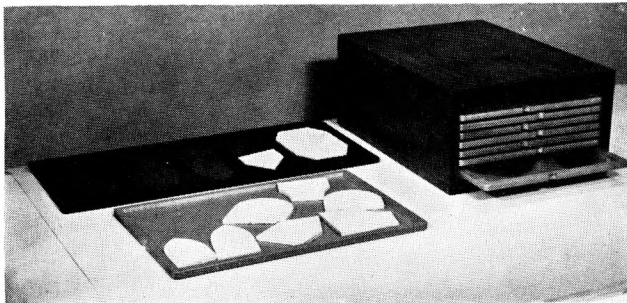
23-3 MINNESOTA MECHANICAL ASSEMBLY TEST. (Description on page 29.)



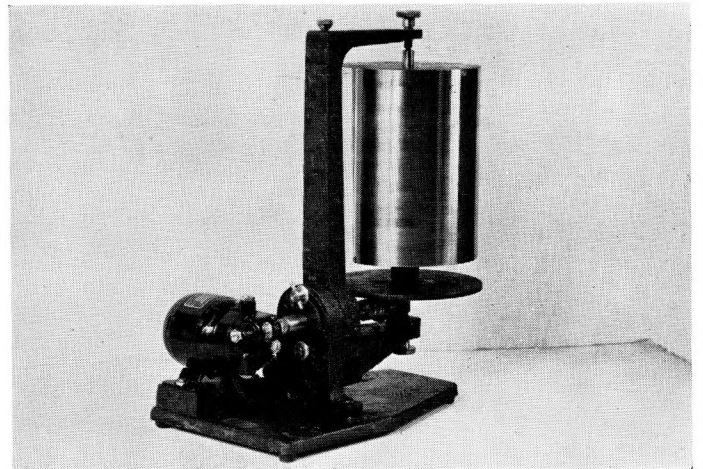
23-4 Minnesota Packing Blocks Test \$10.50



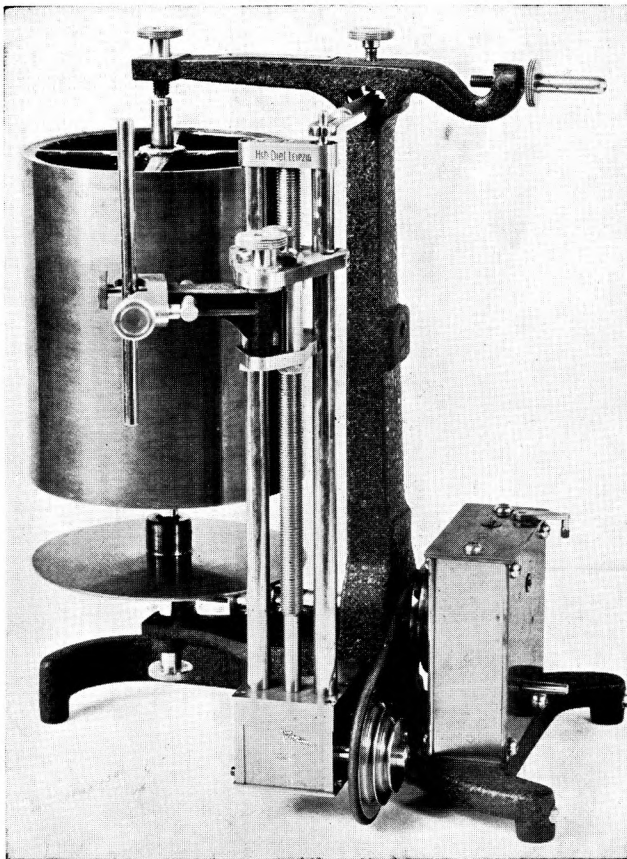
23-6 Freeman Puzzle Box \$50.00



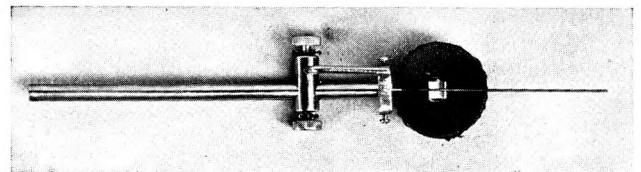
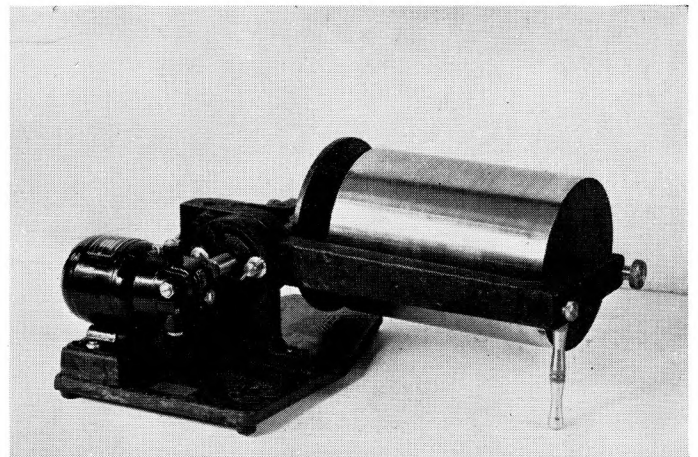
23-5 Kent-Shakow Spatial Relations Test \$65.00



24-1A Kymograph with Electric Motor



24-1 Kymograph with Spring Motor



24-2 Tambour \$25.00

23-3 MINNESOTA MECHANICAL ASSEMBLY TEST. (Illustration on page 26.) This test is now offered in only its "Short Form," consisting of Boxes I and II, made of sturdy Masonite and wood. It measures a person's ability to put together the parts of mechanical devices: for example, a bicycle bell, a Corbin rim lock, a spark plug. The 20 parts are conveniently placed in the compartments of the boxes. A specified time is allowed for putting together each device. Each item correctly assembled within the time allotted receives a score of 10, and partial credit is given in proportion to the amount of work correctly done.

Facility in correctly assembling these devices is related to mechanical intelligence. It has been construed as one indication of aptitudes for such trades as woodworker, ironworker, machinist, toolmaker, sheet-metal worker, and auto mechanic. When given in combination with other tests in junior high school, it improves considerably the accuracy with which quality of work in shop courses can be predicted.

23-4 MINNESOTA PACKING BLOCKS TEST. The wooden box contains 147 1-inch wooden cubes which are to be packed into a wooden box. The blocks are put in with both hands as quickly as possible.

23-10 MINNESOTA PAPER FORM BOARD. The Paper Form Board is one of the Minnesota Mechanical Ability Tests, dealing directly with form and with two-dimensional space perception. The test consists of two forms of 56 items each. Each problem consists of a large geometrical figure into which a number of smaller figures are to be fitted. This is accomplished by drawing lines in the large figure so as to reproduce the smaller ones, and fill up completely the space in the large figure. Sample form sent on request. Form A and Form B available. State choice.

Package of 100, complete with manual and key, \$4.25

23-11 MINNESOTA INTEREST ANALYSIS TEST. The score is designed to indicate primarily the direction of the subject's interests, whether he is mechanically minded.

Package of 100, \$3.25

23-5 KENT-SHAKOW SPATIAL RELATIONS TEST. This test is sometimes referred to as the Kent-Shakow Industrial Form Board. It is described in "Personnel Journal," August, 1928, 115-120, upon which the following description is based: 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. 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.

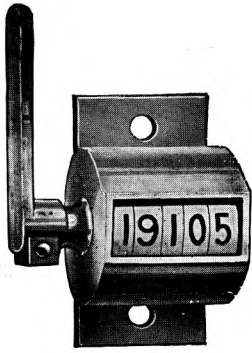
As produced by Marietta Apparatus Company, this test is provided with a set of shelves in which the sets of blocks are conveniently held on trays. This facilitates the giving of the test.

23-6 FREEMAN PUZZLE BOX. This is an exceedingly useful test of mechanical intelligence. It is also useful in the study of learning of the problem solving type. The problem of releasing the small door at the back of the box is solved by moving each of the levers in a certain sequence. (See Freeman, Experimental Education, Chapter 3.)

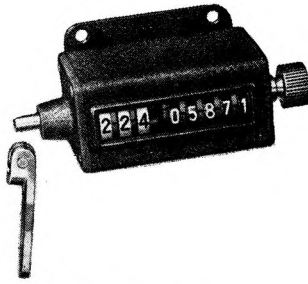
24-1 KYMOGRAPH. A wide range of Kymographs is offered, similar in appearance to those shown in the illustrations.

Prices on Application

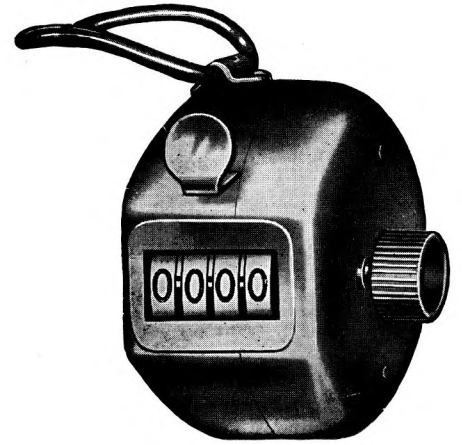
24-2 Tambour. This is the Standard Marey Tambour. Information on other sizes and designs sent on request.



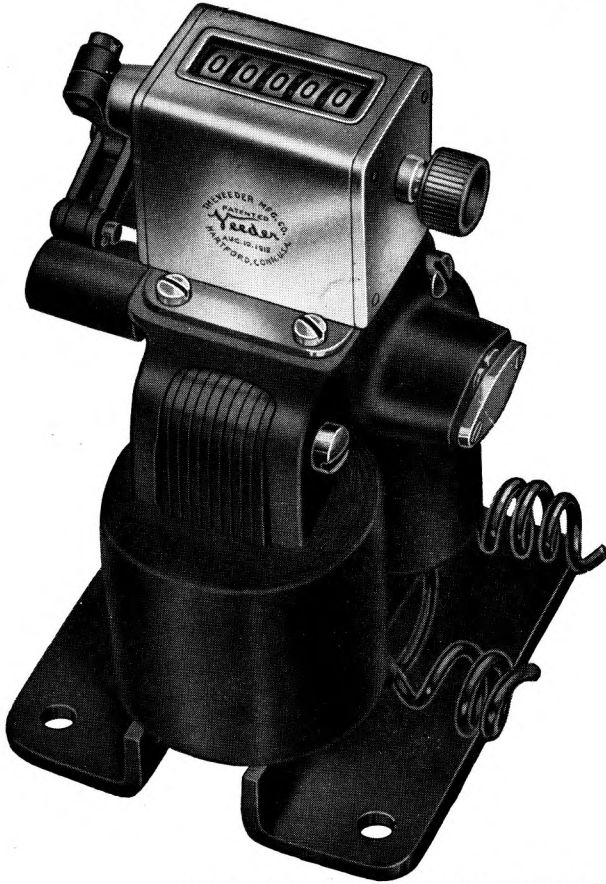
24-5 Revolution Counter
\$5.50



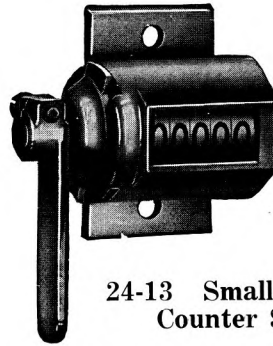
24-7 Small Reset Counter
\$21.00



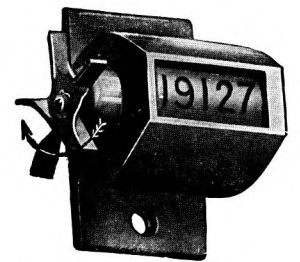
24-10 Hand Tally Counter
\$10.50



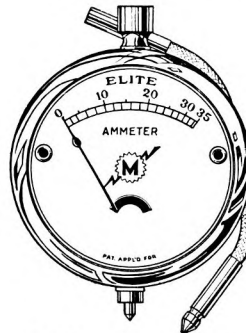
24-6 Magnetic Counter \$40.00



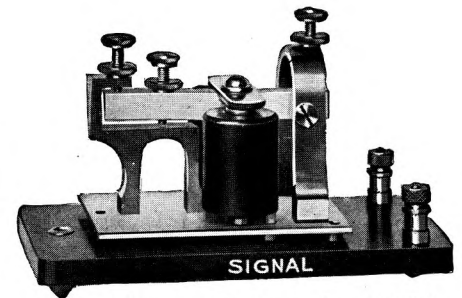
24-13 Small Ratchet Counter \$5.50



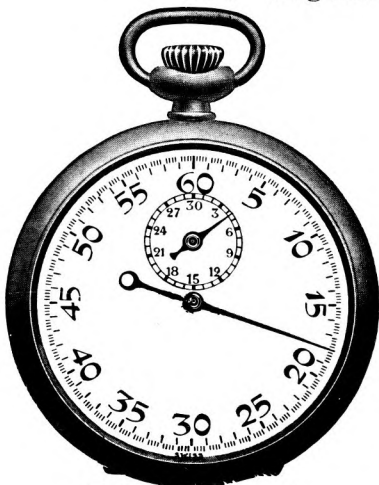
24-14 Star Counter
\$5.50



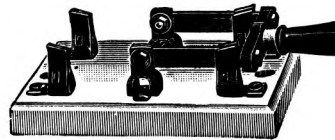
25-1 Ammeter



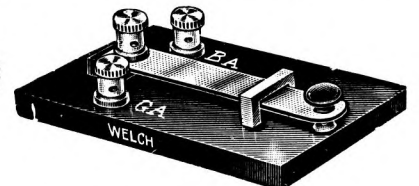
25-2 Telegraph Sounder \$7.50



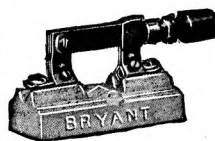
24-8 Stop Watch



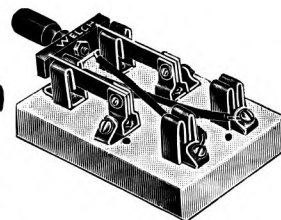
25-3 Knife Switch
\$1.50



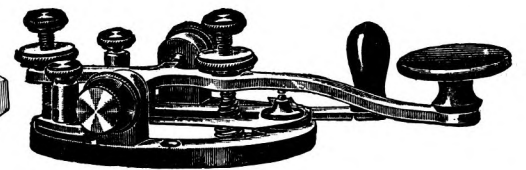
25-4 Short Circuiting Key
\$10.00



25-5 Knife Switch
\$1.25



25-6 Commutator
\$3.00



25-7 Telegraph Key
\$6.50

24-5 REVOLUTION COUNTER. Small flange case and five figures are standard. (If other case-styles and figure-arrangements are requested, special orders may be made.) Adds one for each complete revolution of shaft in one direction. Subtracts one unit for each revolution in opposite direction. Cannot be made in reset type. 1000 R. P. M. of countershaft or 1000 counts per minute, is the maximum recommended. Please designate shaft rotation: Shaft on left Top Coming; Shaft on left Top Going; Shaft on right Top Coming; Shaft on right Top Going.

24-7 SMALL RESET COUNTER. Combined counter, Ratchet or Revolution type. Three figures reset, five figures totalizer. There are two registers in the same case, adding in unison. One is a non-reset totalizer. The other can be reset to zero by a turn of the knob. Ratchet counter adds one for each oscillation of the lever through an angle of 40 degrees. Revolution counter adds one for each turn of the shaft in either direction. Revolution Counter has speed of 1000 R. P. M. or 1000 counts per minute. Ratchet Counter has speed of 500 to 1000 counts per minute, depending on installation. Please designate shaft rotation. (See No. 24-5.)

24-6 SMALL RESET MAGNETIC COUNTER. Dimensions: $2\frac{3}{4}$ " long, $5\frac{1}{4}$ " high, 3" wide. State choice: A. C. for voltages 110, 220 (50 to 60 cycle); D. C. for voltages 6, 12, 24. In A. C., counters can be furnished for any voltages from 12 to 220 at extra charge. Both counters are actuated through electro-magnets, and can be connected in series with any device having a contacting arrangement. In the D. C. current source can be a storage battery, dry cells or D. C. current. The maximum speed recommended is 600 counts per minute in the A. C., and 700 in the D. C.

24-8 STOP WATCH. Swiss movement, seven jewels. Open face, nickle case, one-fifth or one-tenth second divisions. State choice. The sweep hand starts and stops by successive pressures on the crown. A button on side returns hand to zero. The hand on the small dial records the revolutions of the sweep hand and registers up to thirty minutes.

Prices: 1/5 second, \$25.00; 1/10 second, \$28.00

Descriptions and prices of other watches on request.

24-10 HAND TALLY COUNTER. Press the thumb lever once for each unit. Count people, cars, trees, packages—anything you see and want to count. When finished, total can be read directly from face of counter. One turn of knob resets all figures to zero.

24-13 SMALL RATCHET COUNTER. Small flange case and five figures are standard. (If other case-styles and figure-arrangements are requested, special orders may be made.) Adds one for each oscillation of the lever through an angle of 40 degrees. Made with stops which limit lever-movement to 45 degrees. Must oscillate more than 36 degrees to insure correct counting. 500 counts per minute is the maximum recommended speed. Cannot be made in reset type.

24-14 SMALL STAR-WHEEL REVOLUTION COUNTER. Small flange case and five figures are standard. (Special orders for Flange-at-Window with 4 or 5 figures and Gib Case with 3, 4 or 5 figures.) Adds one unit for each one-fifth revolution of the star wheel, or the distance between two of the wheel points. Cannot be made in reset type, but subtracts when run in opposite direction. 200 R. P. M. of countershaft or 1000 counts per minute is the maximum recommended. Shaft on left side only.

Information on other types of counters given on request.

25-1 AMMETER. Pocket Form. Calibrated to register amperes from 0 to 30.

25-2 TELEGRAPH SOUNDER. Standard commercial form. Coils are covered with hard rubber sheet for protection. The sounder is mounted on a metal plate separated a short distance above the base so as to form a sounding board. Brass parts polished and lacquered. Resistance 5 ohms.

25-3 KNIFE SWITCH. Porcelain base, double pole, double throw, 15 amperes.

25-4 SHORT CIRCUITING KEY. A form of key much used with a ballistic or other long-period galvanometer for short-circuiting the galvanometer after a deflection, thus rapidly damping the oscillations. Mounted on a hard rubber base 10 x 15 cm. With platinum contacts.

25-5 KNIFE SWITCH. Porcelain base, single pole, single throw, 15 amperes.

25-6 COMMUTATOR. Knife-switch form. Consists of a double-pole, double-throw knife switch with wiring connections so as to reverse the current when the switch is thrown from one position to the other. Mounted on a porcelain base 7 x 12 cm. Carrying capacity 15 amperes. May be used on power circuits.

25-7 TELEGRAPH KEY. Legless. Standard commercial form which is to be screwed on a table top. Contact points made of non-corrosive metal. Quick-acting spring and hard rubber knobs on levers. Brass, polished and lacquered.

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