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NOTICE BIBLIOGRAPHIQUE

Auteur(s)	**Maekawa, N.**
Titre	**Maekawa scientific apparatus : n° 570**
Adresse	**Tokyo (Japon) : Maekawa, [1950]**
Collation	**1 vol. (126-11 p.-5 f.) : ill. ; 26 cm**
Nombre d'images	**156**
Cote	**CNAM-MUSEE IS0.4-MAE**
Sujet(s)	**Mesure -- Instruments** **Physique -- Instruments** **Chimie -- Appareils et matériels** **Astronomie -- Instruments** **Biologie -- Matériel didactique**
Thématique(s)	**Catalogues de constructeurs** **Machines & instrumentation scientifique**
Typologie	**Ouvrage**
Note	**Fonds Brieux ; Date d'après A. Brieux ; Contient une liste dactylographiée des tarifs (année 1959) ; Cachet de l'agent exclusif de Saïgon.**
Langue	**Anglais**
Date de mise en ligne	**15/03/2013**
Date de génération du PDF	**21/01/2021**
Permalien	http://cnum.cnam.fr/redir?M9918

Note de présentation des catalogues de constructeurs du fonds Brieux

Le musée des arts et métiers a acquis en 2004 une partie de la bibliothèque personnelle d'Alain Brieux, libraire, expert, spécialiste des instruments scientifiques, dans le cadre de la vente publique : « Instruments de sciences et médecine de l'antiquité à nos jours : deux siècles de catalogues de fabricants français et étrangers (1739-1939) & Livres sur les instruments de collection de la fin du XIX^{e} au début du XXI^{e} siècle ».

Un ensemble de 186 catalogues de constructeurs a ainsi rejoint la collection du centre de documentation du musée . Le fonds Brieux, incontournable pour les historiens des techniques est aussi un outil précieux pour les chargés de collection du musée puisqu'il documente les objets concernant les domaines de la communication, de l'énergie, de l'instrumentation scientifique, de la mécanique. Hormis le catalogue de Van Musschenbrœk datant de 1739, l'ensemble couvre la période 1815-1970. Y figurent des constructeurs français (Adnet, Alvergniat, Brewer, Charrière, Chauvin, Deleuil, Lerebours, Nachet...), anglais (Amadio, Arnold & sons, Beck, Becker...) et allemands (Brückner, Geissler Nachfolger, Schlecher, Zeiss...). Ces documents se présentent sous forme de catalogues détaillés, notices techniques ou publicitaires. Riches en contenu, abondamment illustrés, ils sont le plus souvent accompagnés de tarifs, parfois de courriers.

Le choix de numériser ces catalogues s'est imposé de lui-même, de par l'homogénéité de ce lot et surtout devant l'intérêt historique qu'il représente : 182 volumes libres de droit sont désormais disponibles en ligne.

Notons que des catalogues de ce type, numérisés par d'autres institutions et accessibles sur Internet, sont recensés par The Scientific Instrument Commission.

Thierry Lalande
Musée des arts et métiers

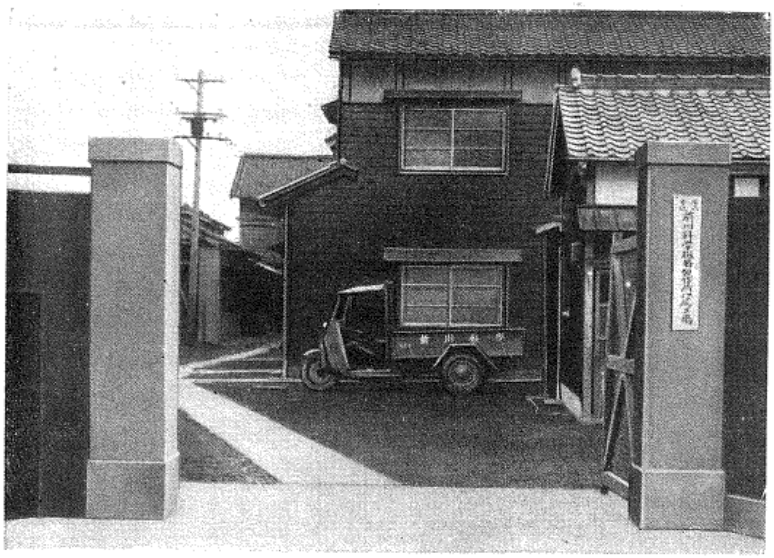
SCIENTIFIC APPARATUS

No. 570

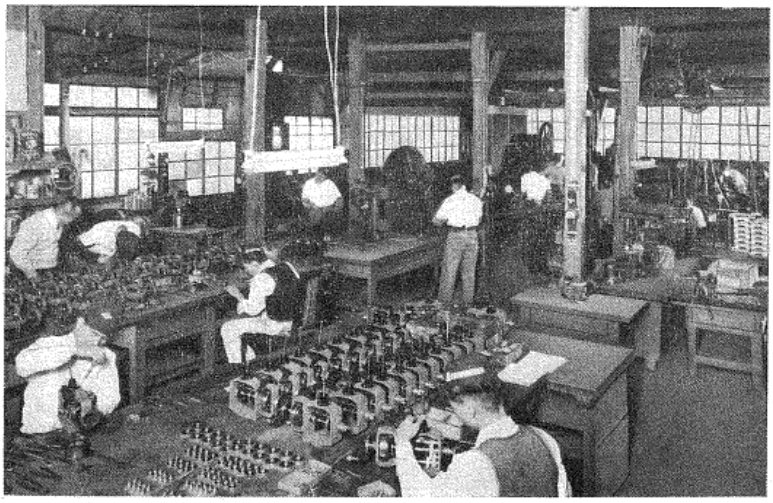
Maekawa Scientific Apparatus Mfg. Co., Ltd.
OSAKA · TOKYO
JAPAN

Osaka Head Office

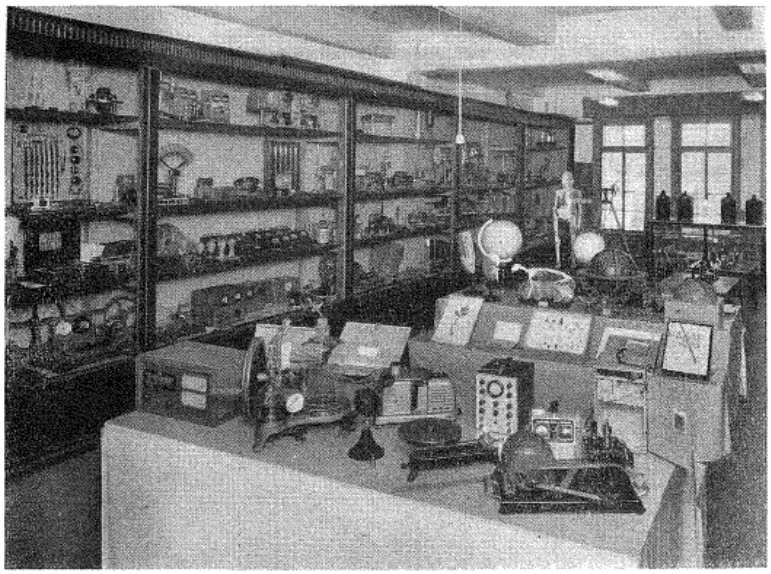
Tokyo Branch Office



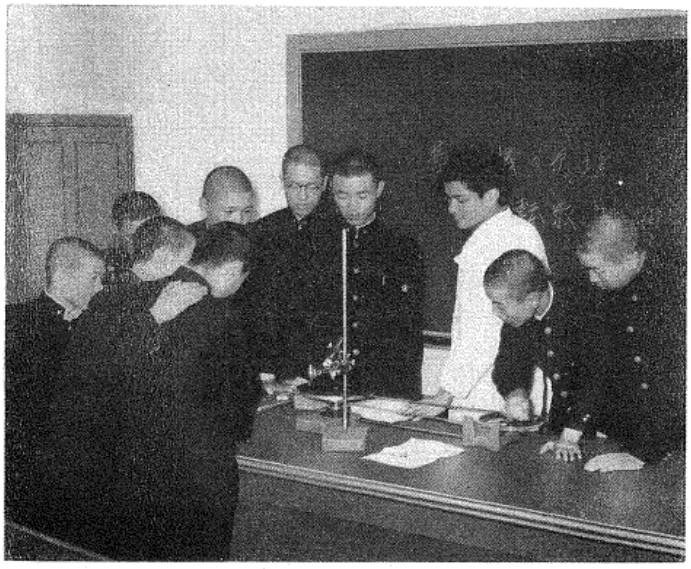
Yao The 1st Factory



One Cut of Factory



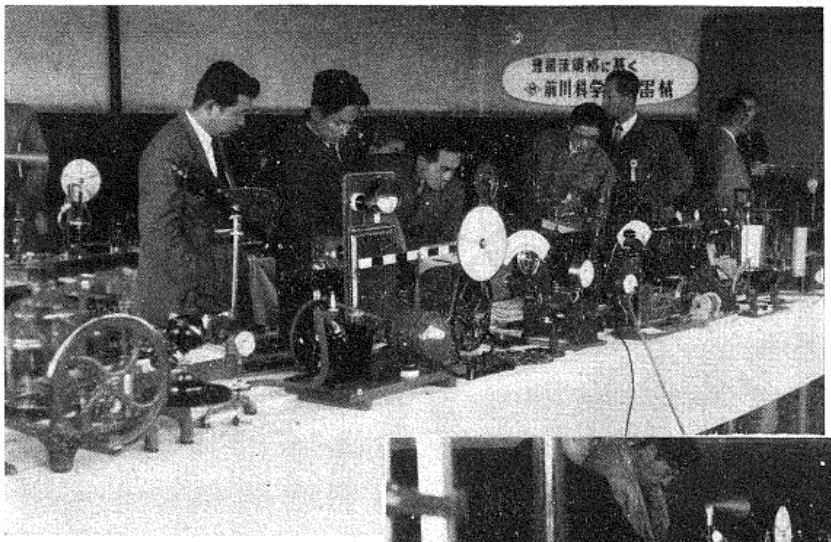
Show Room of Head Office

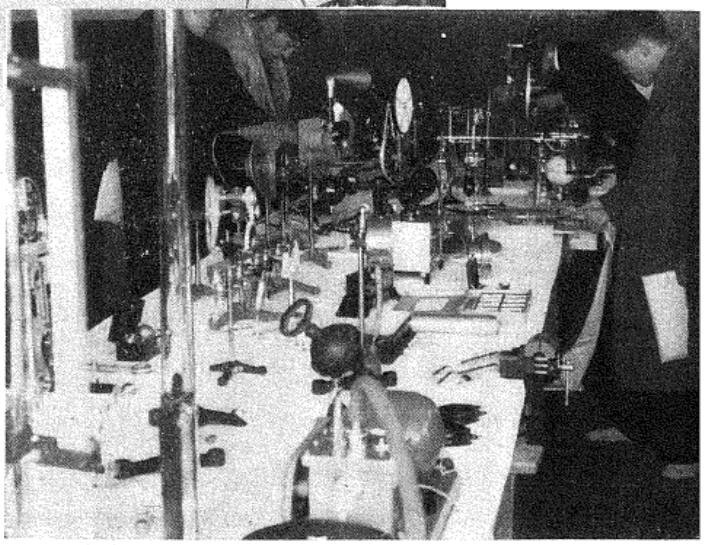


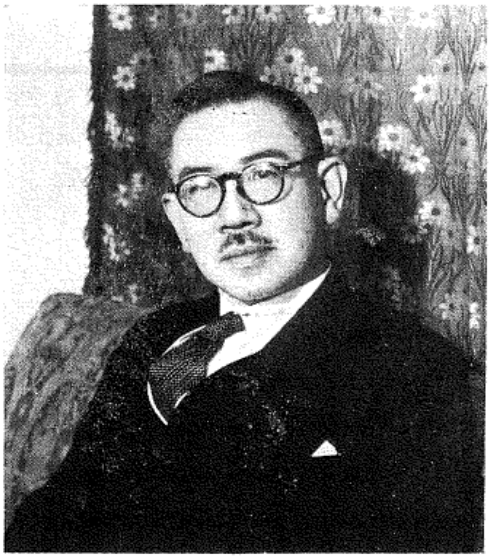
A Cut of Science room of High School;
with useing our manufactures.

In the desire to elevate the general standard of science in this country and in order to make thorough and effective the laboratory work of those teachers who are in charge of science subjects, our company, under a close cooperation with the Educational Department, is carrying on experimental lecture meetings and exhibitions of our products throughout the whole country.

The photograph shows a scene of an exhibition of the company products.







A Nation's Cultural standard can be inferred by the spread of science education among the people. To raise the scientific standard of the nation everyone should cultivate science through as many experimental programs and equipments as possible.

These past eighty years we have devoted our efforts in Japan to the construction, the sale, and the importation of scientific implements and apparatus.

So that with the improvement of social living it is now possible for us to offer many exquisite articles at the lowest possible prices. Thus we are able to meet your needs and demands.

The frequency of inquiries from abroad have recently increased; we, thus, felt it necessary to make the following catalogue for the convenience for our customers abroad.

All order and inquiries are welcome.

Maekawa Scientific Apparatus mfg. Co., Ltd.

N. Maekawa

Agent Exclusif
COMPTOIR de PRODUITS CHIMIQUES
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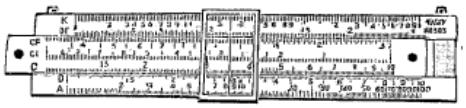
INDEX

Prices calculated by C. I. F. will promptly be sent to you upon your request and order. Inquiries on articles which are not catalogued below are also welcomed and you will receive prompt information about them.

Remember to put the catalogue numbers on orders or when inquiring about items listed.

(O) INSTRUMENTS FOR GENERAL MEASUREMENTS

General Measurements



0-1 (1 : 18)

0-1 Sliding rule; for instructing use, 1 metre long, AB system.

0-2 Sliding rule; for instructing use, 1 metre long, DF system.

0-5

0-5 Sliding rule; "RELAY BRAND" No. R-801, 8 inches long, with one side scales.

0-6 Sliding rule; "RELAY BRAND" No. 80, 8 inches long, with one side scales.

0-8 Sliding rule; "RELAY BRAND" No. 82, 8 inches long, with one side scales.

0-9 Sliding rule; "RELAY BRAND" No. R-821, 8 inches long, with one side Precision scales.

0-10 Sliding rule; "RELAY BRAND" No. R-816, 8 inches long, with one side precision scales.

0-15 Sliding rule; "RELAY BRAND" No. B-1006, 10 inches long, with one side scales.

0-16 Sliding rule; "RELAY BRAND" No. T-1031, 10 inches long, with one side scales.

0-17 Sliding rule; "RELAY BRAND" No. A-1005, 10 inches long, with one side scales.

0-18 Sliding rule; "RELAY BRAND" No. DT-1015, 10 inches long, with both side scales.

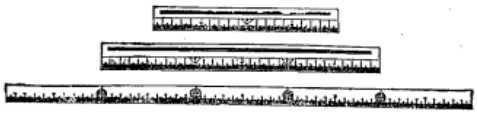
0-25 (1 : 2)

0-25 Number counter; 0~9,999.

Measurements for Length

0-50 (1:18.8)

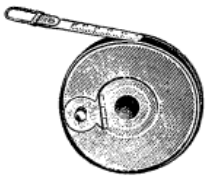
0-50 Metre scale; of wood, 1 metre long divided in mm.



0-53 (1 : 8)

0-53 Metre scale; of bamboo.

20 cm.	30 cm.	50 cm.	100 cm.
length			



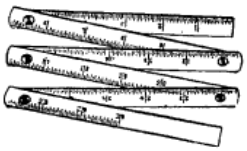
0-61

0-60 Steel tape measure; in fiver case.

2 m.	10 m.	20 m.	30 m.	50 m.
length				

0-61 Linen tape measure; in fiver case.

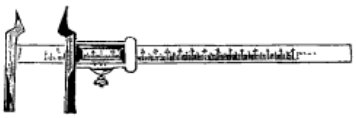
2 m.	10 m.	20 m.	30 m.	50 m.
length				



0-66 (1 : 6)

0-65 **Folding scale**; type No. 8, 1 metre long, with metre and inch scale, 8th folding.

0-66 **Folding scale**; type No. 6, 1 metre long, with metre and inch scale, 6th folding.

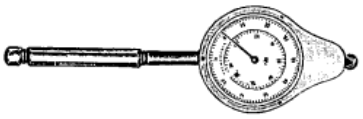


0-70 (1 : 5.5)

0-70 **Vernier calliper**; with sliding vernier, 15 cm. long divided in $\frac{1}{20}$ mm. and 60 in. long divided in $\frac{1}{200}$ inch.

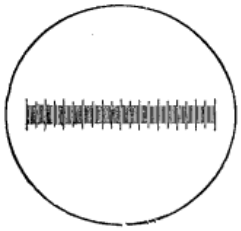
0-71 (1 : 4)

0-71 **Micrometer Screw gauge**; with ratchet stop, range 0 to 25 mm., reading to $\frac{1}{100}$ mm. in.



0-73 (1 : 2.3)

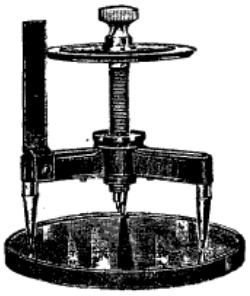
0-73 **Curvi metre**; in 1 cm. degree, 1 metre.



0-76 (1 : 0.65)

0-75 **Object micrometer**; for microscope use, the scale being 10 mm. divided into 100 parts.

0-76 **Eye-piece micrometer**; for microscope use, the scale being 5 mm. divided into 100 parts.



0-78 (1 : 4.5)

0-78 **Spherometer**; reading to $\frac{1}{100}$ mm. in, with glass plate.

Measurements for Capacity

0-90

0-90 **Graduated cylinder**;

Capacity	10 cc.
Capacity	20 cc.
Capacity	25 cc.
Capacity	50 cc.
Capacity	100 cc.
Capacity	200 cc.
Capacity	250 cc.
Capacity	500 cc.
Capacity	1,000 cc.

0-91

0-91 **Graduated cylinder**; with stopper.

Capacity	10 cc.
Capacity	25 cc.
Capacity	50 cc.
Capacity	100 cc.
Capacity	200 cc.
Capacity	250 cc.
Capacity	500 cc.
Capacity	1,000 cc.

0-93

0-95

0-93 **Measuring glass;** cylindrical shape, with handle.

200	500	1000	2000 cc.

capacity

0-95 **Measuring glass;** conical shape.

20	100	200	500	1000	2000 cc.

capacity

0-98

0-98 **Graduated pipettes;**

1	2	5	10	20	50 cc.

capacity

0-99

0-99 **Measuring pipettes;**

1	5	10	20	50 cc.

capacity

0-100

0-100 **Burettes;** Mohr's, with a jet tube.

10	25	50 cc.

capacity

0-101

0-101 **Burettes;** with stopcock.

10	25	50 cc.

capacity

0-105

0-105 **Measuring flasks;** with stopper.

25	50	100	250	500	1000 cc.

capacity

0-110 **Syringes;** with graduate.

2	5 cc.

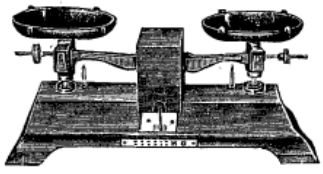
capacity

Measurements for Dimension

0-120 (1 : 5.5)

0-120 **Planimeter;** Amsler's, with fixed index for measurements in square cm.

Measurements for Mass



0-130

0-130 **Table balance;** with weight.

100	200	500	1000 gr.

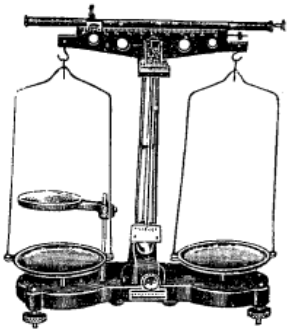
capacity

0-132

0-132 **Table balance;** with cover and weight.

100	200	500 gr.

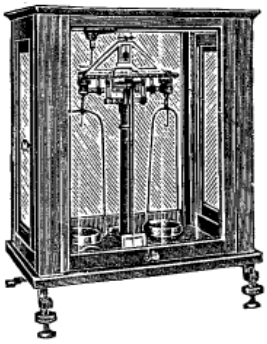
capacity



0-135

0-135 **Physical balance**; with weight and extra pan for hydrostatic experiment.

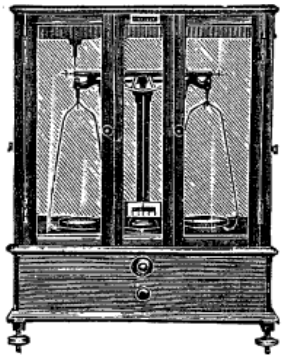
capacity	200 gr.	500 gr.
sensibility	200 mg.	500 mg.



0-140

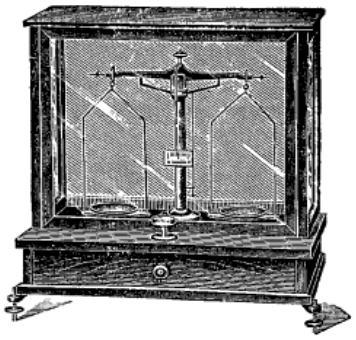
0-140 **Analytical balance**; with weight and rider apparatus.

capacity	100 gr.	200 gr.
sensibility	1 mg.	1 mg.



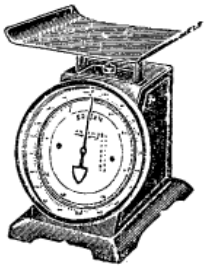
0-142 (1:7.5)

0-142 **Analytical balance**; with weight and rider apparatus, for student use, simple type, capacity 100 gr. sensibility 1 mg.



0-145 (1:9)

0-145 **Druggist's balance**; with weight, capacity 50 gr. sensibility 10 mg.

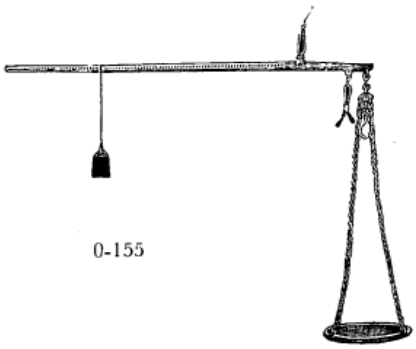


0-150

0-150 **Table automatic balance**;

3.5 kg.	7 kg.

capacity



0-155

0-155 **Lever balance**; with weight, in wooden case.

10	20	50	100	200 gr.

capacity

0-158

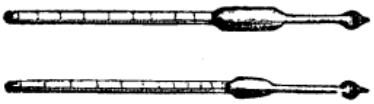
0-158 **Spring balance**;

3 kg	7 kg

capacity

0-160 (1:5.5)

0-160 **Spring balance**; for stress experiments of dynamics, about 200 gr., divided in 5 gr.



0-165 & 0-166 (1 : 5)

0-165 **Baume's hydrometer**; for liquids heavier than water.

0-166 **Baume's hydrometer**; for liquids lighter than water.

0-170 **Twaddell's hydrometer**; 6 kinds a set, in case, with thermometer.

0-172 (1:9.5)

0-172 **Hydrometer set**; 0.700 to 2,000, 7 kinds a set, in case.

0-175 (1:21)

0-175 **Jolly's spring balance**; for the determination of specific gravity of liquids and solids, with 2 springs and mirror glass.

0-177

0-178

0-177 **Pycnometer**; Gay Lussac's.

25	50	100 cc.	capacity

0-178 **Weighing tube**;

diameter	30	30	40	40 mm.
height	45	60	40	60 mm.

Measurements for Temperature

0-180 ~ 0-188

0-180 **Thermometer**; celsius, filled with mercury, in wooden case.

reading from	-5°	0°	0°
up to	105°	200°	360°

0-185 **Thermometer**; celsius, filled with alcohol, in wooden case.

reading from	-30°	-5°	0°
up to	50°	105°	200°

0-187 **Thermometer**; fahrenheit's, filled with mercury, in wooden case.

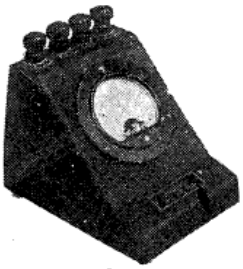
reading from	0°	0°	0°	0°
up to	110°	212°	400°	600°

0-188 **Thermometer**; reaumur, filled with mercury, in wooden case.

reading from	0°	0°
up to	80°	100°

0-190 **Standard thermometer**; filled with mercury, reading up to 100°C, in $\frac{1}{10}$°C degree, with wooden case.

Measurements for Electricity



0-200 (1 : 6.5)

0-200 **Voltmeter**; for direct current, diameter 65 mm, 10 V. and 50 V.

0-201 **Voltmeter**; for alternating current, diameter 65 mm, 15 V. and 150 V.

0-202 **Voltmeter**; for direct current and alternating current, diameter 65 mm, 15 V.

0-204 (1 : 6.5)

0-204 **Precision voltmeter**; from 1 V to 1000 V.

0-208 **Ammeter**; for direct current, diameter 65 mm, 1 A. and 5 A.

0-209 **Ammeter**; for alternating current, diameter 65 mm, 1 A. and 10 A.

0-210 (1 : 6.5)

0-210 **Ammeter**; for direct current and alternating current, diameter 65 mm, 10 A.

0-211 **Precision ammeter**; from 1mA. to 10A,

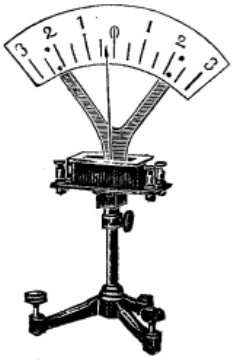
0-215 (1 : 6.5)

0-215 **Volt-ammeter**; for direct current, diameter 65 mm, 300 V. and 300 mA.

0-216 **Volt-ammeter**; for alternating current, diameter 65 mm, 110 V, 1 A. and 10 A.

0-220 (1 : 6.5)

0-220 **Galvanometer**; diameter 65 mm, sensibility voltage 2×10^{-4}V, sensibility ampere 3.5×10^{-6}A.



0-222 (1 : 11)

0-222 **Vertical galvanometer**; length of scale plate 24 cm, for lecture use.

0-223 (1 : 6.5)

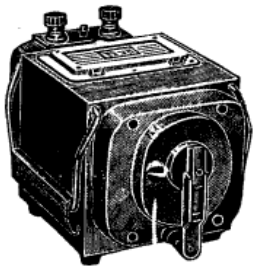
0-223 **Vertical galvanometer**; for student use, simple type.

0-226 (1 : 5.5)

0-226 **Key-universalmeter**; moving coil system, applicable for galvanometer, voltmeter and ammeter, 10 V. 100 V. and 10 A. in wooden case.

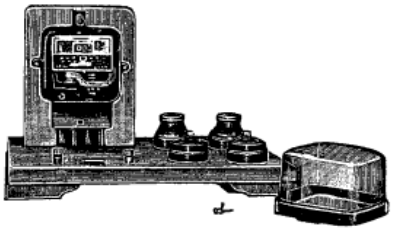
0-228 (1 : 4.5)

0-228 **Universal circuit tester**; direct and alternating voltage on 10 V. 100 V. and 500 V. direct and alternating ampere on 1.250 mA, 1,100 kΩ.



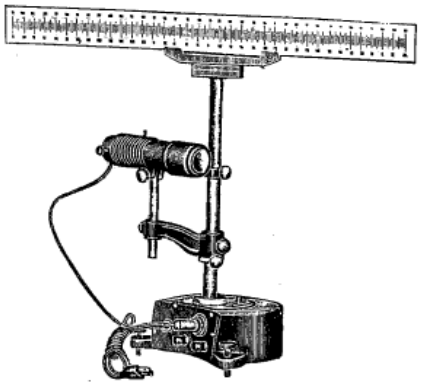
0-230 (1 : 10)

0-230 **Insuration resistance tester**; 50 V. 100 MΩ.



0-235 (1 : 10)

0-235 **Integrating wattmeter for demonstration**;

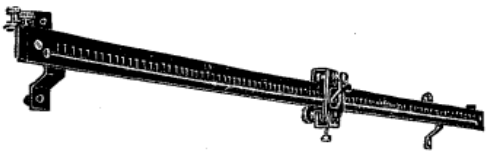


0-237 (1 : 10)

0-237 **Lamp scale apparatus**; with transformer.

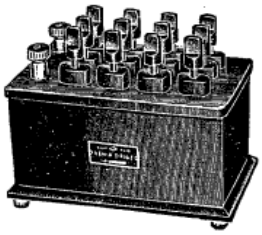
0-240 (1 : 7.5)

0-240 **Wheatstone's bridge**; Post office pattern with 23 plugs.



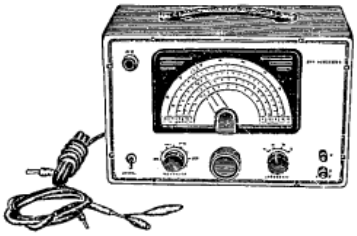
0-241 (1 : 15.6)

0-241 **Wheatstone's bridge**; high resistance wire metre long, graduated in mm.



0-245 (1 : 7)

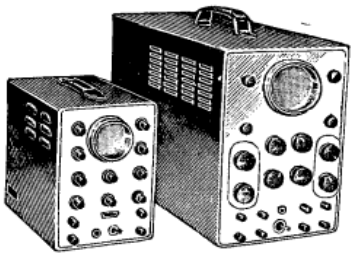
0-245 Resistance box; with 12 plugs, total combined resistance 1,110 ohm.



0-248 (1 : 11)

0-248 Low frequency oscillator; CR, range of frequency 50 cycle ~ 30 k/cycle per second.

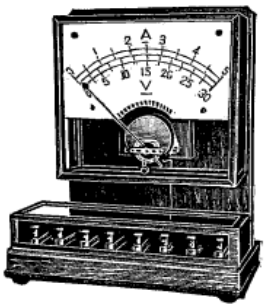
0-249 All wave test oscillator; 6 band, A···10~30MC, B···4~12MC, C···1.5~4.5 MC, D···500~1,500KC, E···200~650KC, F···100~320 KC.



0-252 & 0-253 (1 : 10)

0-252 Cathode-ray csilloscope; type No. 50, diameter of fluorescent screen 50 mm.

0-253 Cathode-rey osilloscope; type No. 75, diameter of fluorescent screen 75 mm.



0-260 (1 : 9)

0-260 Universal meter for lecture use; moving coil system, length of scale 20 cm.

(1) PHYSICAL APPARATUS

"MARIS" Combination Set for Physical Experiment;

Our Combination Set are the newly-contrived physical experimental apparatus which are quite different in character from the common ones manufactured under the guidance of the authorities, the specialists, and the professors concerned, and also in conformity with 'The Essential Points for Guidance in Phsics' published by the Japanese Ministry of Education in order to avoid the inconveniences and abuses originating from the facts that the physical apparatus in general have been apt to be utilized only by the professors and teachers in physics, with their experimental merits and effects to a limited extent.

Each Single Set can be utilized in all the experiments made by the possible ways of its own assembly, and the combinations of several kinds of these sets can bring forth far more experiments.

Both the teachers and students who are engaged in experiments will be able to obtain various combinations according to their own abilities, producing unexpected and more interesting results in experiments.

Our Combination Sets are contrived and manufactured chiefly for the benefit of the students who make physical experiments with these sets.

Special Features are as follows:

1) Simplicity and Correctness in the method of experiment.
2) Solidness in materials.
3) Suitableness in grade and sphere of assembly.
4) Detailed illustrations are attached to protect the parts from their losses.
5) Immediate supply of even a part made, in case of it being lost.
6) Various physical experiments can be made according to the ability of users.

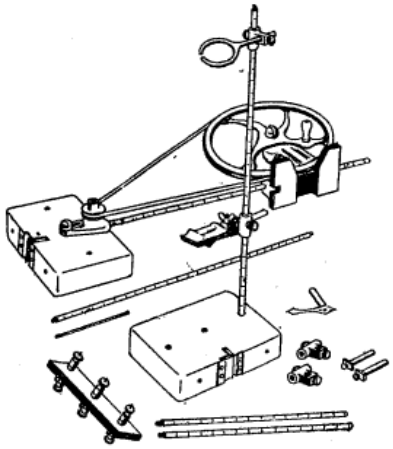
In addition to the above, the greatest feature is:

Throughout the whole sets, the standardization of parts is made for interchangeability.

"MARIS" Combination Sets are authorized with excellent admiration as unique physical apparatus by Judging Committee of Scientific Apparatus in the Japanese Ministry of Education.

Set—5 Set of Stand;

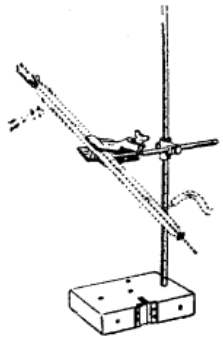
This set is used independently in few cases as a single experiment set, but is usually utilized in experiments in combination with the verious experiment apparatus of our combination sets together with Set of Measurement Scale (Set-10). It is available in many experiments, joining together the parts of the existing experiment instruments. According to the creative ability of utilizers, this set can be applied to a wide range of experiments.



Contents

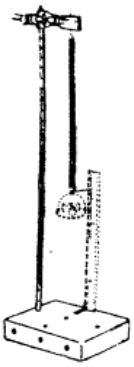
(1)	Square base	2 pcs.
(2)	Iron pillar (60 cm. long)	3 pcs.
(3)	Iron pillar (30 cm. long)	2 pcs.
(4)	Adjustable clamp	1 pc.
(5)	Ring clamp	1 pc.
(6)	Clamp holder	4 pcs.
(7)	Bracket and Pulley (large)	1 pc. each
(8)	Bracket, Pulley, and Stopping screw	1 pc. each
(9)	Belt	1 pc.
(10)	Connecting plate with terminals	1 pc.
(11)	Indicator	1 pc.
(12)	Supporting rod with square plate	2 pcs.
(13)	Driving rod	1 pc.

Examples for the experiment made by this set only



Use this set independently as a stand for condenser, flask, and etc. in chemical experiments.

Use it in the experiment for Hygrometer by holding hair, cellophane paper, and etc.

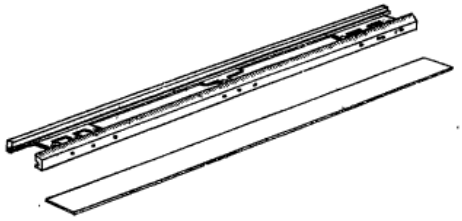


Use it in the experiment of Jolley's spring balance with the help of an iron spring.

Set—10 Set of Measurement Scale;

This set is the essential part of "MARIS" Combination Set for Physical Experiment as Set of Stand (S—5) is. Both sides of this Scale bench are made of Bakelite scale with 1 mm. graduation in order to make all the experiments correctly and precisely. These two pieces of Scale are jointed with the highest grade plated rails and metal plates, so that the Carrier for Optical Experiment and the Cart for Inclined Plane Experiment can be smoothly worked on the rails and at the same time the strength of scale can not only be kept but also the direct defacement of the graduation of Scale can be prevented.

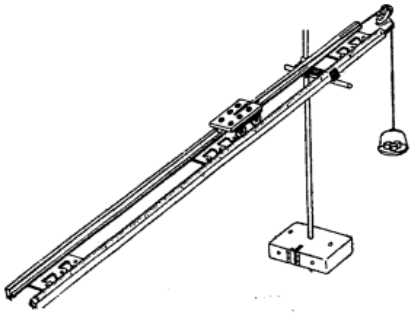
Furthermore, Bakelite Sheet is furnished as a Resonance plate for the convenience of the experiments for Sound, or as the plane for the experiments on the Friction on an inclined plane, for the stretch of Resistant wires in case of comparing Electric Resistances, and for the construction of Wheatstone's Bridge.



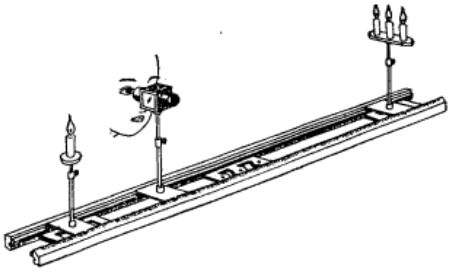
Contents

(1) Scale bench ..... 1 pc.
(2) Bakelite sheet ..... 1 pc.

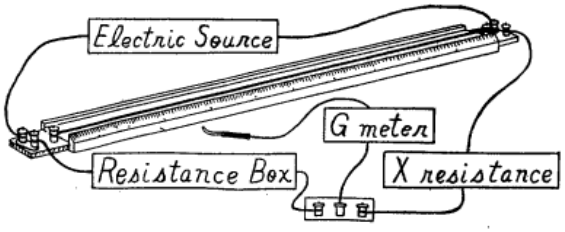
Examples of the experiments in combination with the parts of other sets



In combination with Set of Stand (Set—5), the inclined plane is constructed for the experiments on an inclined plane and friction.



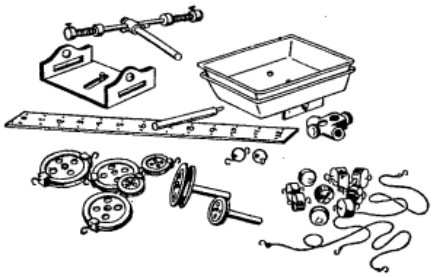
Photometry can be carried out by combining this set wit hSet of Optical experiments (Set—133).



By stretching resistance wires varied in quality and/or thickness, the resistances can be measured in comparison with the brightness of an electric bulb.

Set—101 Set of Experiment in Dynamics;

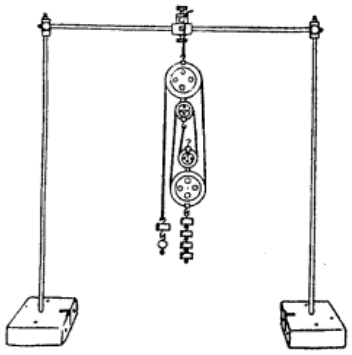
In combination with Set of Stand (Set—5), this set can be used for the experiments on a Single pulley & double pulley (a fixed pulley & a movable pulley), Lever, Centrifugal force, and all other experiments in fundamental dynamics. The most precise experiment on Lever is achieved by combining this set with Set of Measurement Scale (Set—10).

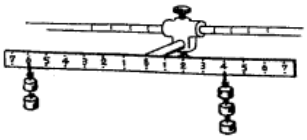


Contents

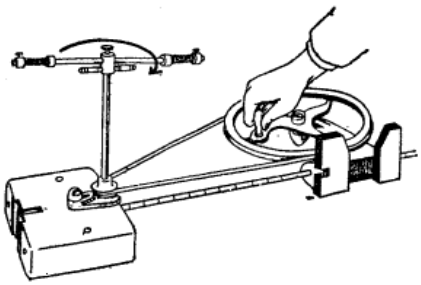
(1)	Pulley (single)	1 pc.
(2)	Pulley (double)	2 pcs.
(3)	Pulley with a handle (large & small)	1 pc. each
(4)	Lever	1 pc.
(5)	Weights	10 pcs.
(6)	Balance weights (½•¼)	1 pc. each
(7)	Watt's governor	1 pc.
(8)	Lever holder	1 pc.
(9)	String with hooks	2 pcs.
(10)	Scale bench holder and screw	1 set
(11)	Weight pan with carrier	2 pcs.
(12)	Spare clamp holder	1 pc.

Examples of the experiments with other sets





After assembling an apparatus, as illustrated with the Set of Stand (Set—5) with clamps, the Supporting rod with a square holder and the pulley, carry out the experiments on a fixed and a movable pulley, or various experiments Lever, and etc.



The experiments on centrifugal force are made by installing Watt's governor, Elastic rings and others made by the students themselves.

Set—102 Set of Experiment on Inclined planes;

This set is our unique one and its combination with Set of Stand (Set—5) and Measurement Scale (Set—10) makes an incline plane. As this carriage has the special construction which is quite different in the effect of an experiment from the common ones of this kind, the force that pulls the carriage from all directions is worked only on the centre of gravity. Accordingly, the experiments which the existing experimental instruments for inclined planes can not accomplish, are made possible in the following cases: the carriage is pulled by the force not parallel to the inclined plane, namely—the force horizontal to the inclined plane, and the forces from other directions such as from above the inclined plane and so on. The experiment in Friction can be made by overturning the carriage with the wheels upward.

The Ratio of the Inclined plane can easily be calculated by reading the graduations of both Measured Scale Bench (Set—10) and Iron Pillar.

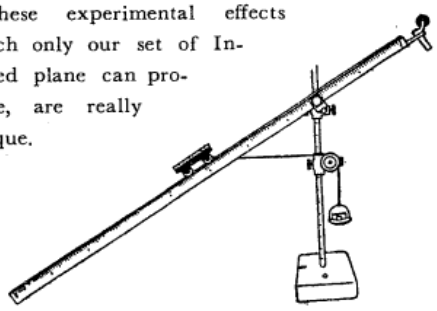
Contents

(1)	Scale Bench Holder	1 pc.
(2)	Carriage	1 pc.
(3)	Pulley fixed to Bench	1 pc.
(4)	Pulley with handle	1 pc.
(5)	Scale	1 pc.
(6)	Ball weight	6 pcs.
(7)	String with hooks	2 pcs.
(8)	Weight	9 pcs.

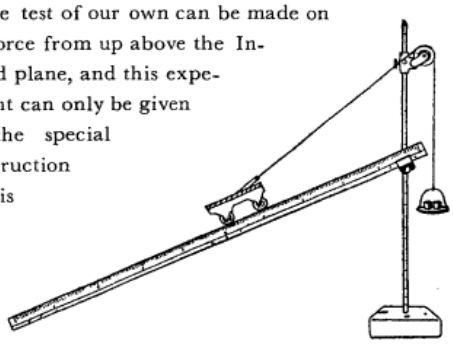
Examples of the Experiment

The experiments can be made on the carriage pulled (horizontally) by the force from the lower place against the inclined plane, to which other experimental instruments of this kind except ours can not make any experiment.

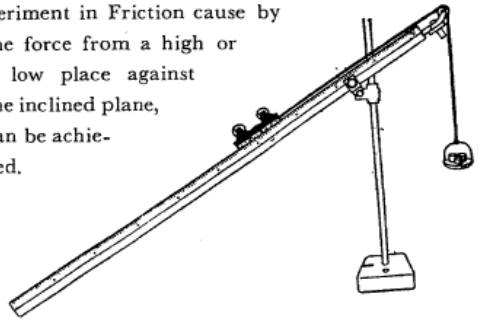
These experimental effects which only our set of Inclined plane can produce, are really unique.



The test of our own can be made on the force from up above the Inclined plane, and this experiment can only be given by the special construction of this set.

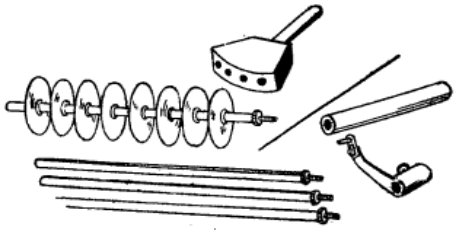


The experiment in Friction can be made by overturning the carriage. In this case, the experiment in Friction cause by the force from a high or a low place against the inclined plane, can be achieved.



Set—110 Set of Experiment in Heat;

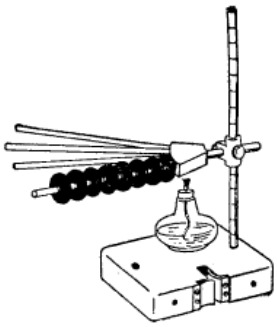
This set can make an experiment not only on the conduction and expansion of Heat, but also on the effects of a radiating plate and a keeping-warmth pipe, and can extend the explanation of the Experiment in Heat to the Management of Heat in the present industry.



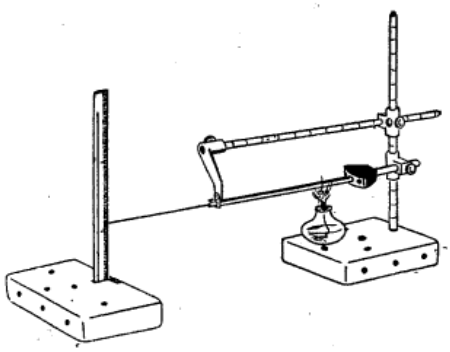
Contents

(1)	Holder of testing rod	1 pc.
(2)	Testing rod (aluminium, copper, iron)	1 pc. each
(3)	Testing rod with radiating plates (copper)	1 pc.
(4)	Keeping-warmth piple	4 pcs.
(5)	Holder for indicating needle	1 pc.
(6)	Indicating needle	1 pc.

Examples of Experiment



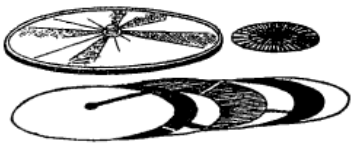
Make an experiment on the effect of radiation by heating the copper rods with and without radiating plates at the same time.



The expansion of metal rods can be compared by reading the graduation of the Bamboo rule standing on the square base of Set of Stand.

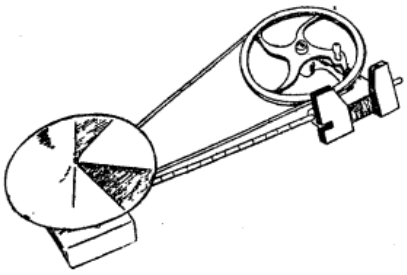
Set—130 Set of Experiment on Colour;

After constructing the horizontal rotary base out of Set of Stand (Set—5), make an experiment on Newton's Seven-Colour Plate by its rotation. Both the brightness of colour scheme with Seven celluloid colour discs, and the sensibility of eyes to the mixed colour are able to be examined by the experiments of complementary colours. By calculating the speed of Rotation with Strobo-scope disc, the colour sensibilities in each speed can be compared with.



Contents

(1)	Newton's colour disc	1 pc.
(2)	Celluloid colour disc (each colour)	7 pcs. a set
(3)	Strobo-scope disc	1 pc.
(4)	Spindle	1 pc.

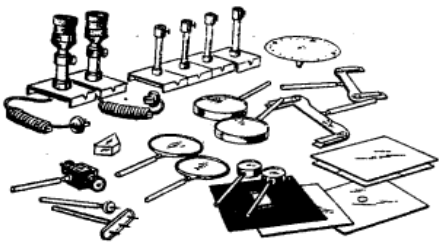


Examples of Experiment

Their own mixture of Colour scheme desired by students can be studied with the Celluloid colour scheme discs.

Set—133 Set of Experiment in Optics;

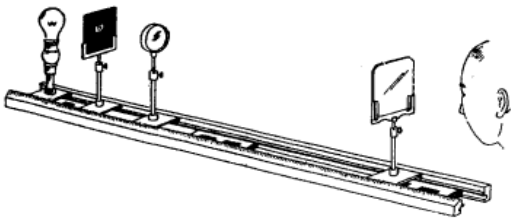
By combining the parts of this set with Set of Measured Scale Bench (Set—10), the scale bench can be constructed into the Optical base, with which all the fundamental experiments in light (Optics) such as the experiments on the principle of Optical instruments can be made, namely—the measurement of Focuses of lens and mirrors, the comparison of Intensity of light, the refraction and reflection of light. With the 1 mm. graduation engraved on the scale bench, more precise experiments can quantitatively be made than any other existing experimental instrument can do. This set, therefore, can be used in the experiments from primary school to university.



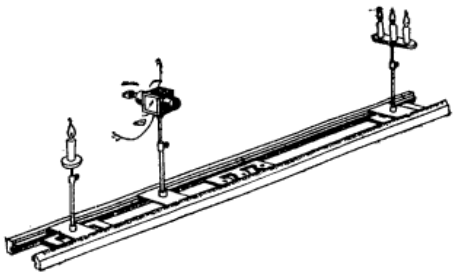
Contents

(1)	Prism	1 pc.		
(2)	Double convex lens (large & small each 1 pc.)	1 set		
(3)	Double concave lens (large & small each 1 pc.)	1 set		
(4)	Mirror (convex & concave)	each 1 pc.		
(5)	Jolly's photometer	1 pc.	(6) Carrier	4 pcs.
(7)	Socket of electric bulb	2 pcs.		
(8)	Candle-stick	2 pcs.	(9) Screen holder	2 pcs.
(10)	Screen	2 pcs.	(11) Plane mirror	2 pcs.
(12)	Slit plate	3 pcs.	(13) Graduated disc	1 pc.
(14)	Measuring rod	1 pc.	(15) Pointed rod	1 pc.

Examples of Experiment



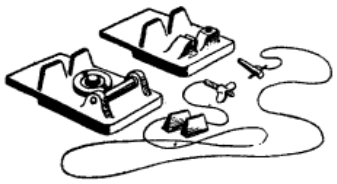
The focuses of lens can be measured by a slit plate.



The experiment on Intensity of Light is made in combination with the candles of either the same or different size.

Set—140 Set of Experiment on Monochord;

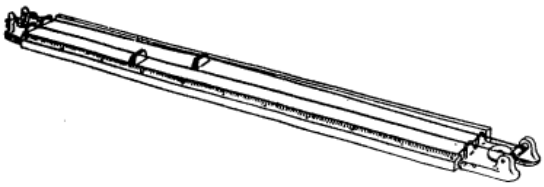
A two-stringed musical instrument can be constructed by inserting the stretchers of strings at both ends of Scale bench and also the Bakelite sheet at the bottom of Scale bench as a resonance plate. By playing this musical instrument, three foundamental elements of acoustics can be tested, namely—the strength of sound by filliping it strongly or weakly, the pitch of sound by changing the strength of stretch, and the comparison of tones by stretching a thick or a thin string.



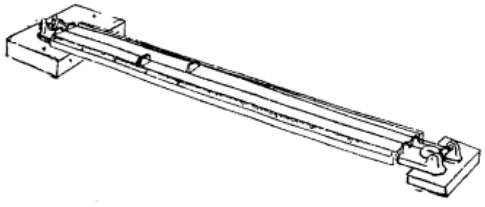
Contents

(1)	Stretcher of string	2 pcs.
(2)	Bridge	2 pcs.
(3)	String (thick & thin)	2 pcs. a set

Examples of Experiment



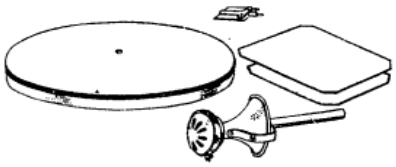
By fixing the stretchers at both ends of Scale Bench and putting the Bakelite sheet at the bottom of Scale Benc has a Resonance plate, the monochord can be constructed.



The effect of the experiments is increased by inserting books under both ends of the Monochord constructed.

Set—143 Set of Experiment on Gramophone;

As the experimental instruments regarding acoustics, Tuning fork, Monochord, and others have been the fundamental instruments; but lately Gramophones within our easy reach in our daily life have been adopted as the important means of educational materials for the experiment. This set is made in consideration of this fact, and with Set of Stand (Set—5) which is used as Rotary base, Hand-worked Gramophone can be easily constructed. By utilizing this gramophone, the various experiments can be made such as the study of sound by the different articles of Vibrating plate and box, Sound box, and others, the change of tone by the speed of Rotation, the principle of reproducing sounds, and the comparison of rotating speed by making use of Strobo-scope. These experiments can not be expected from other existing instruments.

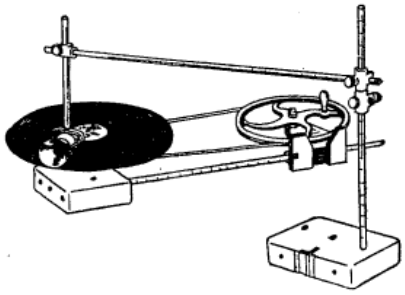


Contents

(1)	Turn-table	1 pc.
(2)	Sound-box & its holder	1 set
(3)	Vibrating plate & Recording needle-holder	1 set

Examples of Experiment

A simple gramophone for experimental use is constructed by making use of Set of Stand (Set-5).



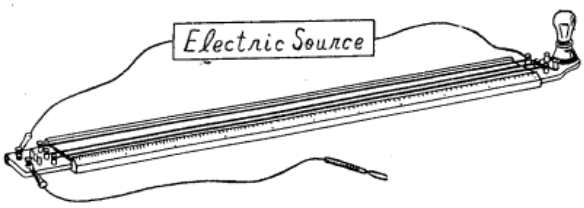
Set—160 Set of Experiment in Resistance;

This set is manufactured to make experiments on Electric Resistances caused by the differences of materials and in length, and also on the law of Ohom in combination with Set of Measured Scale (Set —10), and in this case the precise graduation on the Scale Bench is very convenient to the quantitative experiment. As the materials are made of Bakelite, the experiment can safely be made even by the pupils with little knowledge of electricity.

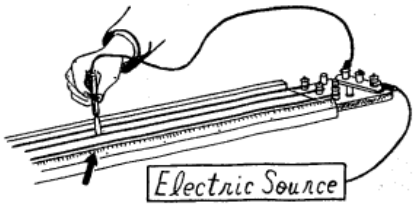
Contents

(1)	Bakelite plate with terminals & socket	1 pc.
(2)	Bakelite plate with terminals	1 pc.
(3)	Knife-edge	1 pc.
(4)	Resistance wire	3 kinds a set
(5)	Cord with tip	1 pc.
(5)	Electric bulb (6 V.)	1 pc.

Examples of Experiment



A rheostat is constructed by fixing a bakelite plate with terminals and the one with terminals and socket at both ends of Scale Bench and stretching the line of resistance.

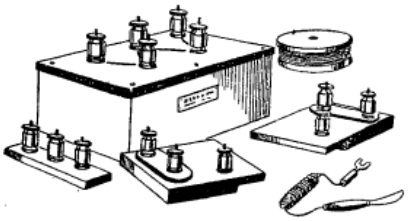


The brightness of the Electric bulb can be tested by sliding a cord with knife-edge along the wire of resistance reading the graduation of Scale Bench.

Set—162 Set of Experiment on Wheatstone's Bridge ;

This set is made for the simple and easy explanation of the experiment on Wheatstone's Bridge which is indispensable for the measurement of electric resistance. The precise experiment on measurement can be achieved by combining standard resistance box with both this set and Scale Bench.

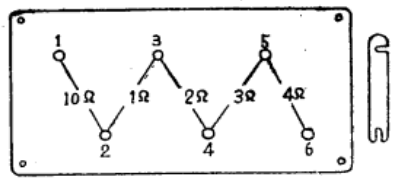
Registance box is never affected by the resistance of touching, because Manganese wire is used as the line of registance on the Bakelite panel, the thick edging is given, and the terminal's type is adopted.



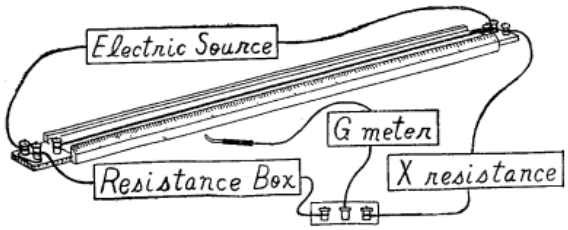
Contents

(1)	Standard resistance box	1 pc.
(2)	Bakelite plate with terminals (right & left)	1 pc. each
(3)	Bakelite plate with terminals	1 pc.
(4)	Knife-edge with a cord	1 pc.
(5)	Resistance wire	1 pc.

Examples of Experiment



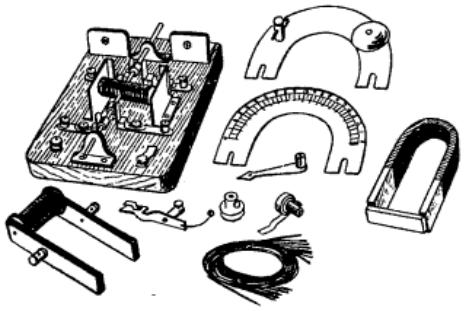
On the panel surface of Standard resistance box, the resistance values, as illustrated above, are engraved. By using the Short circuit plate, the resistance desired can be measured every ohm up to 20 ohms.



An experiment on Wheatstone's Bridge can be made by sliding a knife-edge along the line of resistance stretched between two terminals on the Bakelite plates of the Scale Bench.

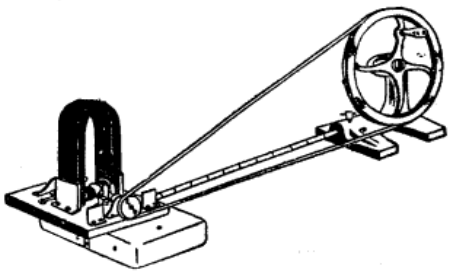
Set—164 Set of Experiment on Motor ;

Being quite different from the existing experimental apparatus of Magneto sold at the market, this set is a really novel contrivance for the experiments, such as the ones on Electric bell by the rotary power of an armature, the principle of the meter of Movable iron plate and coil type, the comparison of the armature according to the varied current, and the comparison of the rotary power of a motor according to the varied strength of a magnetic field. By the construction of Hand-worked generator the various experiments to a wide range can be made, namely—the principle of its generation, the volume of voltage produced by the strength of electric current.



Contents

(1)	Simple motor	1 pc.
(2)	U shaped magnet	1 pc.
(3)	Electro-magnet	1 pc.
(4)	Pulley	1 pc.
(5)	Half circular-graduated plate	1 pc.
(6)	Indicator	1 pc.
(7)	Spring	1 pc.
(8)	Half circular plate for electric bell	1 pc.
(9)	Hammer for electric bell	1 pc.



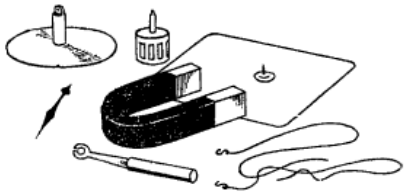
Examples of Experiment

Hand-worked generator is made by constructing the rotary base of vertical type with Set of Stand (Set-5), installing the motor equipped with U shape Magnet, fixing the pulley on the other base, and then stretching the belt as illustrated.

Set—166 Set of Experiment on Eddy Current;

Despite the fact that the experiment on Eddy current comes under a very important department of electricity, students in general find it very difficult to understand the fact. This set is made as the teaching material especially for students to understand easily this difficult matter.

When the base for rotation is constructed with Set of Stand (Set—5), install the U shape permanent magnet in this base and turn it, and the rotary magnetic field can be made. Thereupon, the experiment is made on the rotation of copper disc and copper cage-type rotor electrified by Eddy current, and then the application and the principle are studied.

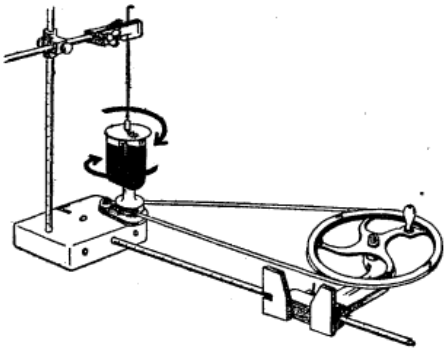


Contents

(1)	Horse-shoe magnet 1 pc.	(2)	Cage-type rotor ··· 1 pc.
(3)	Copper disc ····· 1 pc.	(4)	Stopper for tremble 1 pc.
(5)	Magnet holder····· 1 pc.	(6)	Bar-magnet ····· 1 pc.
(7)	String with hook ··· 2 pcs.		

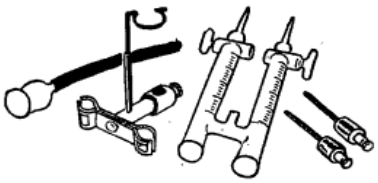
Examples of Experiment

Install U shape magnet on Set of Stand (Set-5) substituted for the base for rotation, hang down the rotary copper disc, and turn the pulley, and the experiment on Eddy Current, Fleming's left-hand rule and the principle for rotation of Rotary disc of Wattmeter are made.



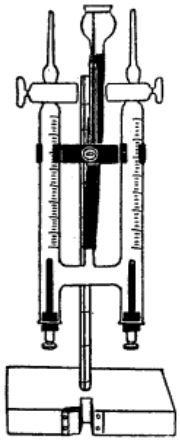
Set—170 Set of Experiment in Electrolysis;

In combination with Set of Stand (Set—5), this set can be used as Electrolysis apparatus for water, salts and others. As the H-shaped Glass tube for common Hofmann's type Electrolysis is adopted as the glass tube, the operation of the experiment is very simple and safe.



Contents

(1)	H-shaped glass tubing (with stopcock & graduation) ·····	1 pc.
(2)	Holder for glass tubing ·····	1 pc.
(3)	Electrodes (carbon with rubber stopper) ·····	2 pcs.
(4)	Glass funnel (with rubber tube) ·····	1 pc.

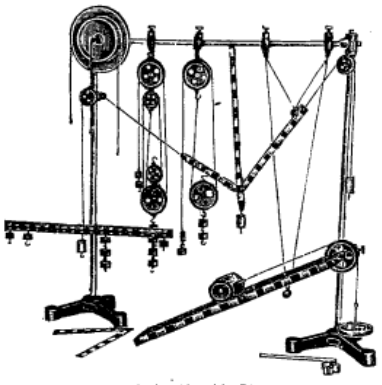


Examples of Experiment

In combination with Set of Stand (Set-5) this set is constructed, as illustrated, and by filling the H-shaped glass tube with the electrolysed solution connecting it with the electric wire of about 6 V. by the lead wire from the lower part of terminal, the solution is electrolysed and the gas comes out.

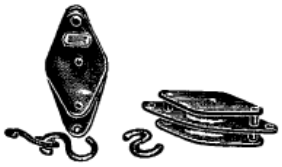
The volume of the produced gas can be measured by reading the graduation engraved on the glass tube.

Apparatus for Dynamics and Properties



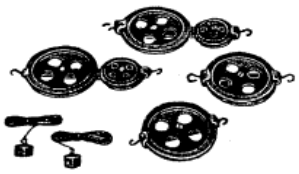
1-1 (1 : 17.5)

1-1 **Set of apparatus for experiments of fundamental dynamics**; with weight, for parallelogram of forces, for lever apparatus, for inclined plane, for pulley, for wheel and axle etc, height of frame 85 cm.



1-4 (1 : 6.5)

1-4 **Pulleys**; for practical use, 2 pieces a set, with ring, able to hang about 80 kg.

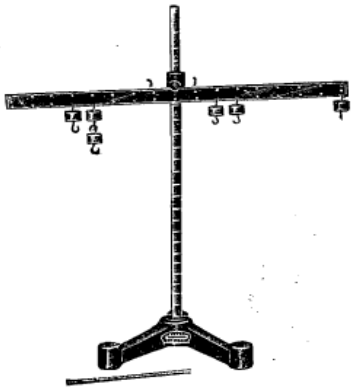


1-5 (1 : 6.5)

1-5 **Pulleys**; of plastic, single and double each 2 pieces a set, with weight for balance.

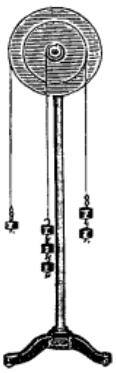
1-6 **Pulleys**; single type, of plastic.

1-7 **Pulleys**; double type, of plastic.

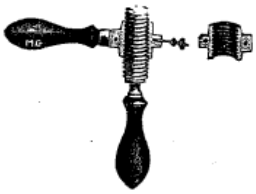


1-10 (1 : 9)

1-10 **Lever apparatus**; with 40 cm. long beam and 6 pieces of weights.



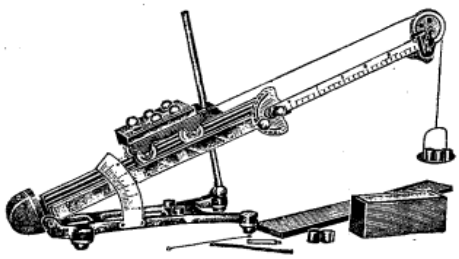
1-13 (1 : 11.5)



1-15 (1 : 6)

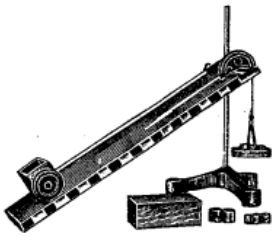
1-13 **Wheel and axle**; of plastic, with metal stand and 7 pieces of weights, ratio of radius 1 : 4 : 6.

1-15 **Model of screw**; of metal.



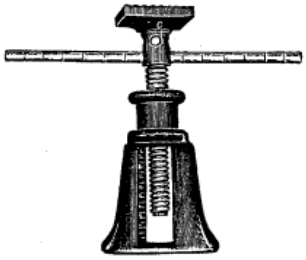
1-18 (1 : 11)

1-18 **Inclined plane**; model A, of all metal, with weights (50 gr. 30 gr. 10 gr. each 3 pieces) and 6 pieces of metal balls. Fitted to demonstrate the law of inertia and friction.



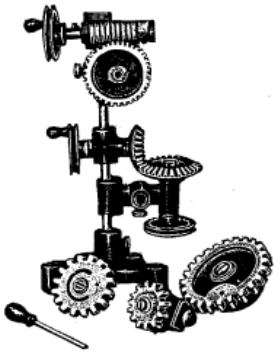
1-19 (1 : 10.5)

1-19 **Inclined plane**; model B, size of plane 40 × 10 cm, with 9 pieces of weights.



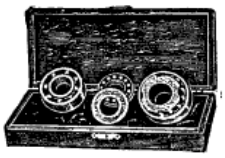
1-20 (1 : 7.5)

1-20 **Screw jack**; for demonstration and practical use, fitted to demonstrate the law of screw, able to up about 1.5 tons.



1-23 (1 : 8.5)

1-23 **Model of tooth wheels**; 4 pieces of star gear, 2 pieces of bevel gear, 1 piece of worm gear & worm gear wheel a set, with metal stand.

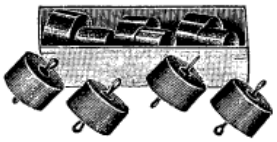


1-25 (1 : 8)

1-26 (1 : 8)

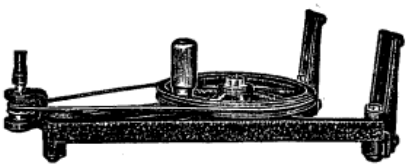
1-25 **Model of ball bearing**; 3 kinds a set.

1-26 **Model of roller bearing**; 2 kinds a set.



1-30 (1 : 2.5)

1-30 **Weights for experiment of dynamics**; with hanger, 10 pieces a set, about 25 gr. each one piece.



1-35 (1 : 10)

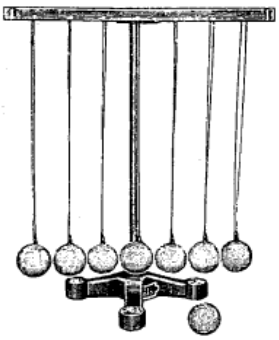
1-35 **Centrifugal machine**; to be used in horizontal and vertical position, of all metal.

1-36 (1 : 8)

1-37 (1 : 12)

1-36 **Watt's governor**; for demonstration of centrifugal force, with 17 cm long arms.

1-37 **Elastic ring**; for demonstration of centrifugal force, length of ring 25 cm.



1-40 (1 : 8.5)

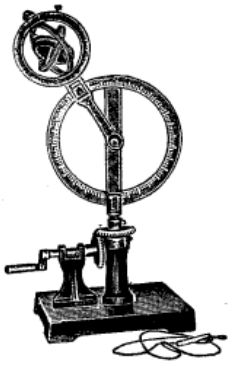
1-40 **Percussion apparatus**; with 8 balls.

1-43 (1 : 16.5)

1-44 (1 : 6)

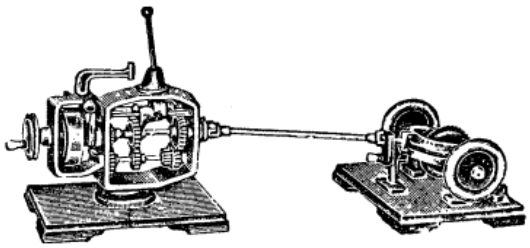
1-43 **Model of clock pendulum**; with stand, for demonstration.

1-44 **Bohnenberger's gyroscope**; with excess weight.



1-45 (1 : 13.5)

1-45 **Demonstration apparatus for gyrocompass**; with excess weight.

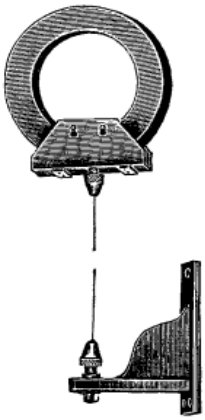


1-50 (1 : 14.5) 1-51 (1 : 14.5)

1-50 **Model of defferential gearing**; with clutch petal able to exchange at 4 steps, high speed, middle speeed, low speed and move back.

1-51 **Apparatus for demonstrating transmission of automobile**; with universal joint.

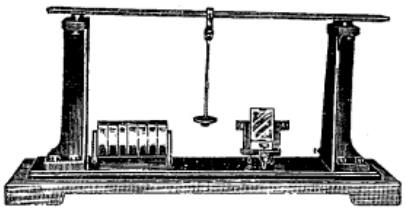
1-55 (1 : 12.5)



1-56 (1 : 9)

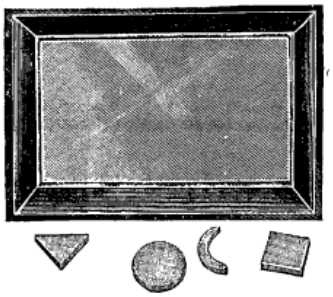
1-55 **Young's modulus apparatus**; with weights, water level and 2 pieces of test wire.

1-56 **Torsional regidity apparatus**; with 1 metre long of wire and ring weights.



1-58 (1 : 8)

1-58 **Flexural regidity apparatus**; with 2 pieces of test rods, 7 pieces of weights and mirror.

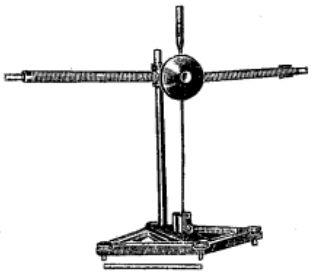


1-60 (1 : 14)

1-60 **Demonstration apparatus for transmission of wave;** 570×420×25 mm.

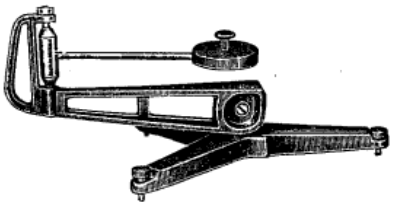
1-63 (1 : 5.7)

1-63 **Steel spiral;** for demonstrating wave propagation, diameter 5 cm, 20 cm long, able to stretch at 10 time.



1-65 (1 : 12)

1-65 **Model of inverted pendulum;** for demonstration use the principle of seismograph, with metal stand and steel spiral.



1-66 (1 : 7.7)

1-66 **Model of horizontal pendulum;** for demonstration use the principle of seismograph, movable to hrizontal and vertical.

1-100 (1 : 6.7)

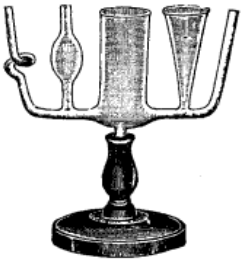
1-100 **Water level;** of wood, 25 cm. long.

1-101 (1 : 3.5)

1-101 **Cylindrical sail and accurately fitted brass piece to demonstrate Archimedes' principle;**

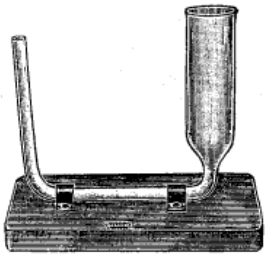
1-105 (1 : 5)

1-105 **Cubes and case for determining density;** of brass, with wooden cube.



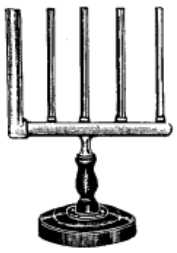
1-110 (1 : 6)

1-110 **Communicating tubes;** consisting of 5 differently shaped tubes.



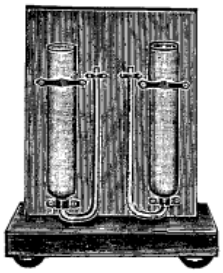
1-111 (1 : 5)

1-111 **Communicating tubes;** U shaped, on a wooden board.



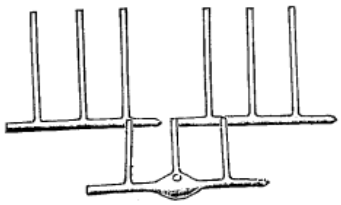
1-113 (1 : 9)

1-113 **5 different capillary tubes;** with wooden base.



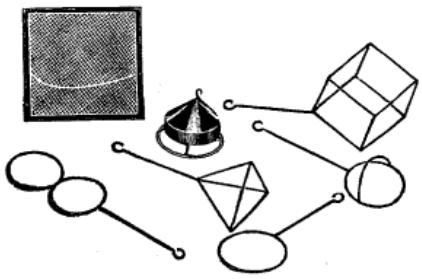
1-115 (1 : 7)

1-115 **Apparatus for comparing capillarity of different liquids;** with wooden base, 2 U shaped tubes.



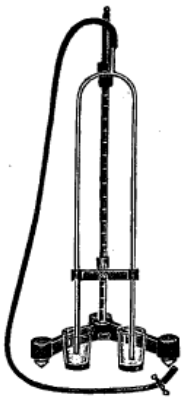
1-117 (1 : 11)

1-117 **Experiment apparatus of Bernoulli's law;** consisting of 3 kinds glass tubes.



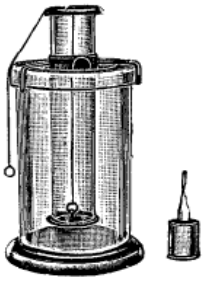
1-120 (1 : 6.5)

1-120 **Apparatus for the experiment of surface tension of liquids;** 7 kinds a set.



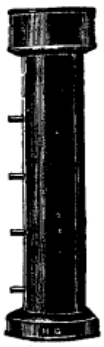
1-123 (1 : 14)

1-123 **Hare's apparatus of comparing specific weights of liquids;** with metal stand, graduated 50 cm. long in mm.



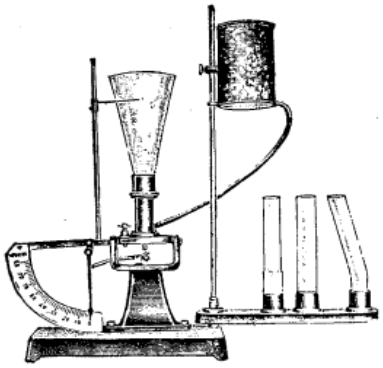
1-125 (1 : 6)

1-125 **Apparatus to show upward pressure of water;** of glass, diameter of trough 75 mm, height 135 mm.



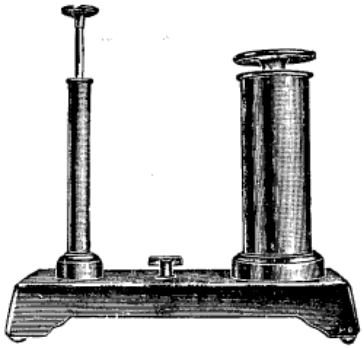
1-126 (1 : 9)

1-126 **Apparatus to show lateral pressure of water;** height 42 cm, diameter 12 cm.



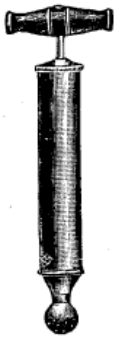
1-127 (1 : 9)

1-127 **Apparatus to show downward Pressure of water;** with 4 kinds of glass vessels.



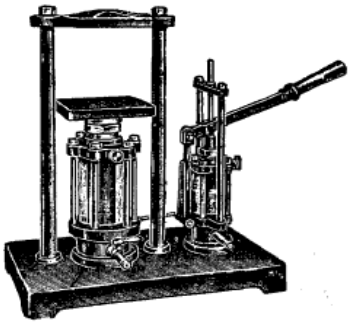
1-130 (1 : 7)

1-130 **Apparatus for demonstrating pascal's principle;** for explanation of hydraulic press, with weights, of all metal.



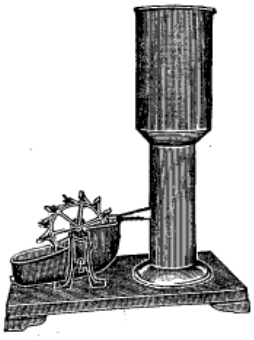
1-131 (1 : 7)

1-131 **Apparatus for demonstrating pascal's principle;** of brass.



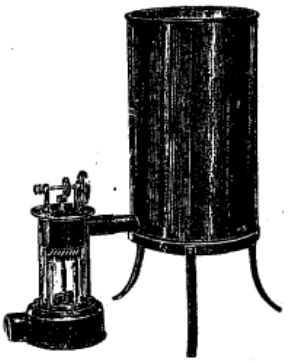
1-134 (1 : 11.5)

1-134 **Model of Bramah's hydraulic press;**



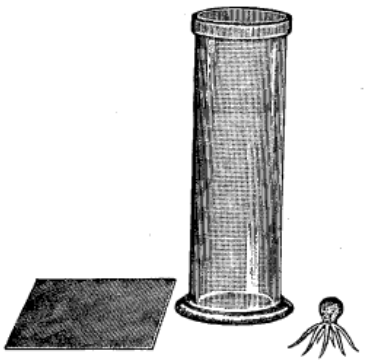
1-138 (1 : 14.5)

1-138 **Model of Pelton's water wheel;** diameter of wheel 10 cm, with wooden base and water tank.



1-139 (1 : 10)

1-139 **Model of turbine water wheel;** diameter of wheel 5 cm, with water tank.



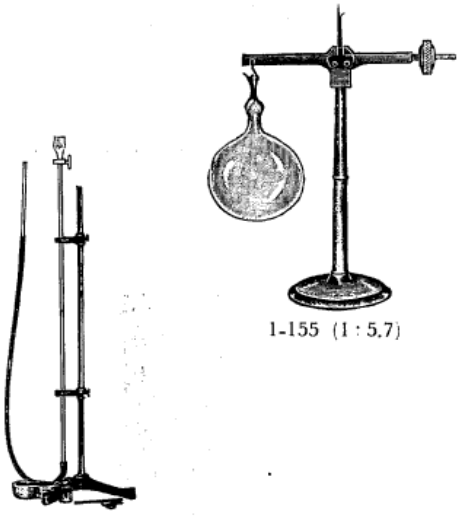
1-151, 152 & 153 (1 : 6)

1-151 Cartesian divers; of glass.

octopus	figure
type	

1-152 Glass cylinder for experiment of cartesian divers; diameter 75 mm, height 270 mm.

1-153 Rubber sheet for experiment of cartesian divers;



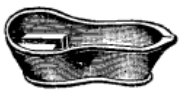
1-155 (1 : 5.7)

1-160 (1 : 22)

1-155 Baroscope; of brass, with glass ball.

1-160 Apparatus for Boyle and Torricellian experiment; model A, with glass tube for Torricellian (1 metre long in mm. graduate), mercury (1 pound), mercury trough and metal stand.

1-161 Apparatus for Boyle and Torricellian experiment; model B, with glass tube for Torricellian, mercury trough and metal stand, but without mercury.



1-163 (1 : 7)

1-163 Mercury trough; of porcelain.

1-165 (1 : 14)

1-166 (1 : 13.5)

1-165 Glass tube for Torricellian experiment; model A, with funnel and stopcock, 1 metre long in mm.

1-166 Glass tube for Torricellian experiment; model B. without funel and stopcock, 1 metre long in mm.

1-170 (1 : 7.5)

1-173 (1 : 7.5)

1-170 Demonstration apparatus for Bourdon's pressure gauge; with gum bellow, diameter of gauge 10 cm.

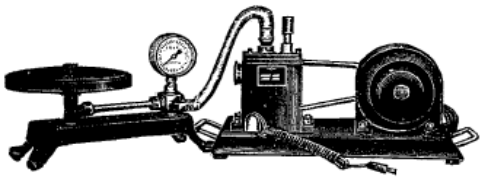
1-173 Magdeburg hemispheres; of iron, with stand, diameter 9 cm.

1-175 (1 : 10)

1-178 (1 : 19.5)

1-175 Bell in vacuo; fitted to show non-transmission of sound in vacuo, diameter of glass ball 15 cm, with metal stand.

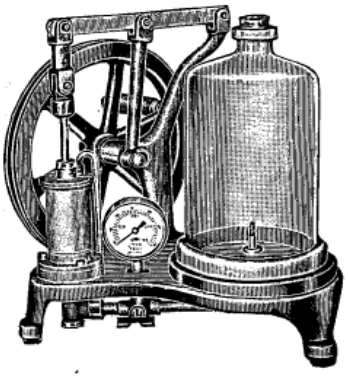
1-178 Fall tube; 1 metre long, with metal stand, also fitted to show fountain in vacuo.



1-180 & 1-181 (1 : 13)

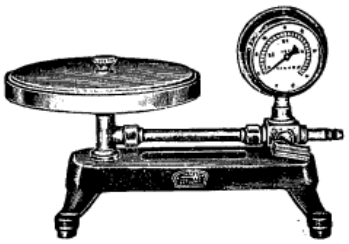
1-180 Vacuum pump; model No. 4, with ¼ HP motor (capacity 35 litre per minute) and manometer, diameter of plate 20 cm.

1-181 Vacuum pump; model No. 8, with ⅛ HP motor (capacity 15 litre per minute) and manometer, diameter of plate 20 cm.



1-183 (1 : 10)

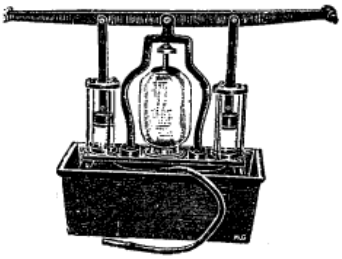
1-183 "MARIS" Air pump; diameter of plate 20 cm, with bell jar (diameter 19 cm.) and pressure gauge.



1-185 (1 : 8)

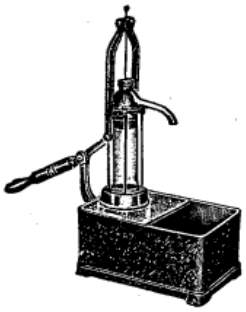
1-185 "MARIS" Air pump plate; with pressure gauge, diameter of plate 20 cm.

1-186 Bell jar for air pump; with rubber stopper, outer-diameter 19 cm.

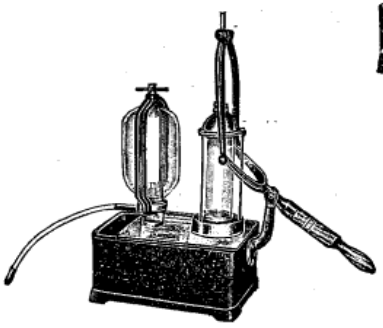


1-193 (1 : 8)

1-193 Model of fire pump; size of water trough 16 × 23 × 8 cm.



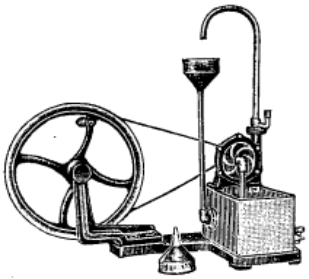
1-195 (1 : 8)



1-194 (1 : 8)

1-194 **Model of force pump**; size of trough 10 × 15 × 8 cm.

1-195 **Model of suction pump**; size of trough 10 × 15 × 8 cm.

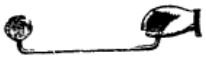


1-196 (1 : 13)

1-196 **Model of centrifugal pump**; of all metal, with water trough and receiver, size of trough 11 × 18 × 10 cm.

Apparatus for Heat

1-200 (1 : 6.5)



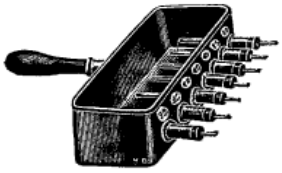
1-203 (1 : 6)

1-200 **Radiometer**; double, rotating in opposite directions, with wooden stand.

1-203 **Franklin's pulse glass**;

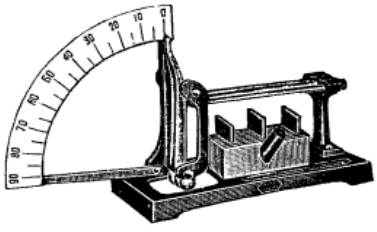
1-250 (1 : 7.5)

1-205 **Dewar's vessels**; cylindrical form, capacity about 600 cc.



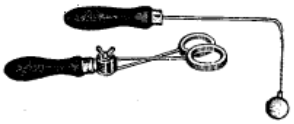
1-208 (1 : 9)

1-208 **Ingenhousz's apparatus to compare thermal conductivities to metals**; consist with copper, iron, zinc, brass, aluminium and glass.



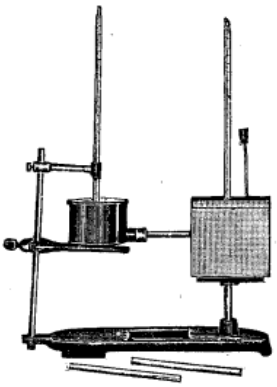
1-210 (1 : 9)

1-210 **Apparatus to show linear expansion of metal**; with iron, copper and brass rods, able to heat 3 rods at the same time, with alcohol lamp.



1-211 (1 : 6.5)

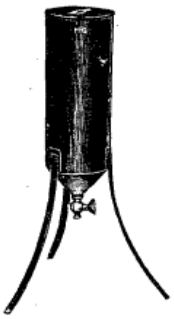
1-211 **Apparatus to show expansion of metal;** diameter of metal ball 3 cm, with 2 rings.



1-215 (1 : 10)

1-215 **Apparatus to determine coefficient of linear expansion of metal;** with 3 metal rods and thermometer.

1-220 (1 : 12)



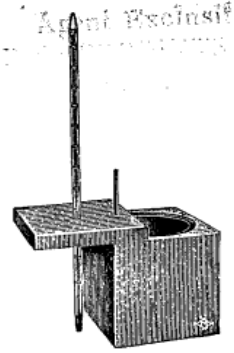
1-221 (1 : 9)

1-220 **Apparatus for demonstration of boiling point of thermometer;** of copper, with water gauge and thermometer.

1-221 **Apparatus for demonstration of freezing point of thermometer;** diameter 9 cm, with thermometer.

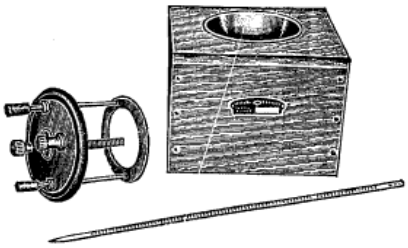
1-225 (1 : 5.5)

1-225 **Thermo-regulator;** diameter 5.5 cm, of made special alloy.



1-228 (1 : 8)

1-228 **Water-calorimeter ;** diameter of copper pot 7.5 cm, in cork case, with thermometer (0～50°C, 1/5).



1-229 (1 : 7)

1-229 **Joule's calorimeter;** consist with copper pot, and wooden case, with thermometer.

1-232 (1 : 9.5)

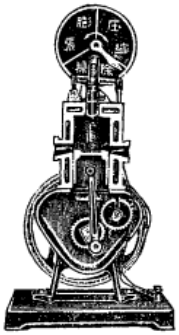
1-232 **Apparatus to show specific heat;** comprising 4 metal balls (copper, iron, brass and aluminium).

1-235 (1 : 8)

1-235 **Paul's hygrometer;** with thermometer and gum bellow.

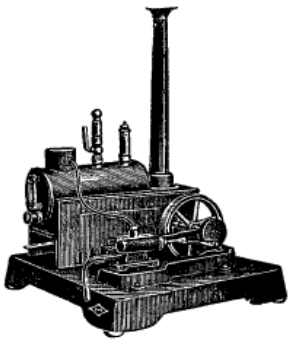
1-238 (1 : 10)

1-238 **Sectional model of internal combustion engine;** of all metal, hand-operated.



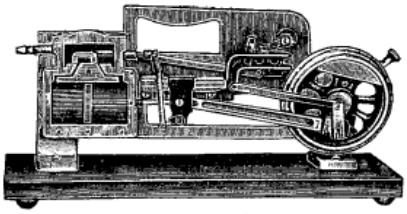
1-239 (1 : 10)

1-239 **Sectional model of diesel engine;** of all metal, hand-operated.



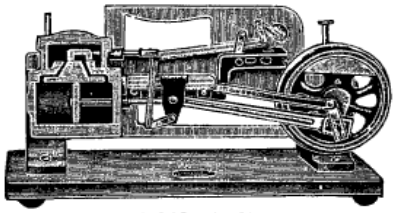
1-242 (1 : 9)

1-242 **Model of steam engine;** with water gauge, protecter, steam whistle, lever safety and feed pump.



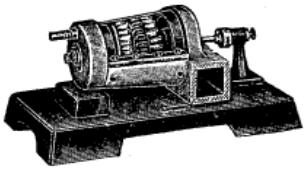
1-245 (1 : 8)

1-245 **Sectional model for demonstration of steam engine;** model A, plastic plate covered on the sectional part, and by means of a foot bellow the actual movements of piston, without foot bellow.



1-246 (1 : 8)

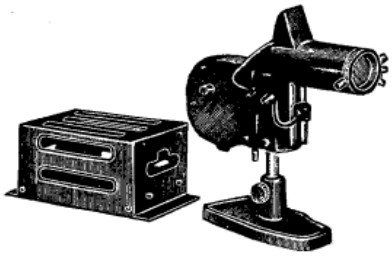
1-246 **Sectional model for demonstration of steam engine;** model B, same as above, but hand-operated.



1-248 (1 : 7)

1-248 **Model of steem turbine;** consist with 3 reaction wings and 2 impulse wings, worked by foot bellow, without foot bellow.

Apparatus for Optics



1-300 (1 : 10.5)

1-300 **Arc lamp;** with automatic regulator, condenser lens, cabon rod and transformer.

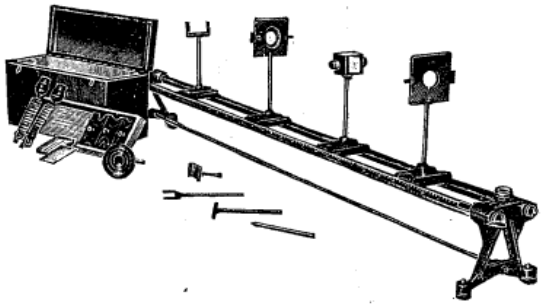
1-303 (1 : 8.5)

1-303 **Lamp for optical experiment;** simple type, with iron stand, used a condenser lens, 6 V.

1-305 (1 : 8.5)

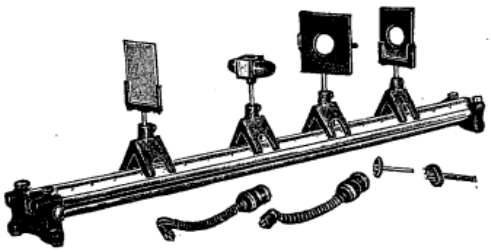
1-305 **"MARIS" Right caster;** type A, in put D. C. 100 V, with achromatic lens, 2 slits and 1 slit for slide film, 100 W.

1-306 **"MARIS" Right caster;** type B, in put D. C. 100 V, with 2 slits plates.



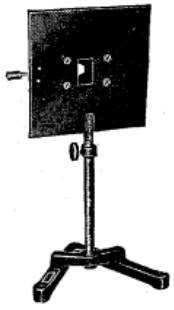
1-310 (1 : 19)

1-310 **Optical bench;** model A, length of bench 170 cm, length of scale 150 cm. in 1 mm. degree, carrier, photometer and other accessories are accommodated in wooden box.



1-311 (1 : 12)

1-311 **Optical bench;** model B, length of scale 1 metre, with carrier, photometer and other accessories.

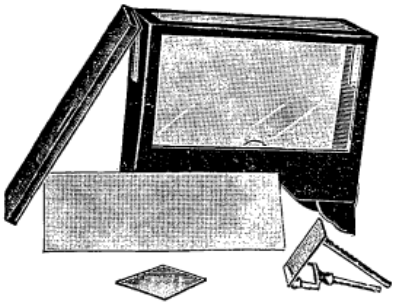


1-315 (1 : 7.5)

1-315 **Slit plate for optical experiment;** length of slit 3 cm, with iron stand.

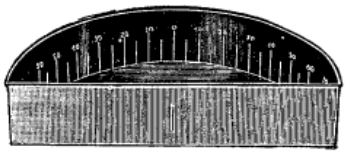
1-320 (1 : 6.3)

1-320 **Rux-meter**; reading up to 40,000 rux.



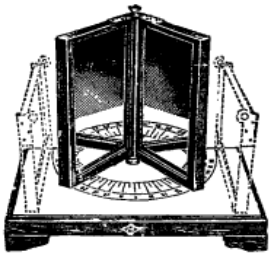
1-324 (1 : 9.5)

1-324 **Glass trough for optical experiment**; showing reflection, refraction and total reflection of light in water, with 6 volts exciter lamp, 10 × 27 × 21 cm.



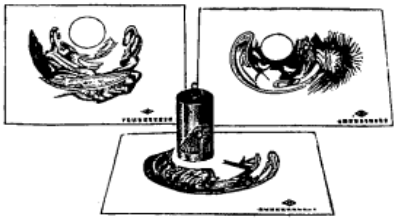
1-326 (1 : 9)

1-326 **Refraction apparatus**; of all metal, with graduate.



1-330 (1 : 7)

1-330 **Angular and plane mirror**; mounted on graduated-base, also fitted to experiment for parallel mirrors, size of mirror 15 × 9 cm.



1-333 (1 : 10)

1-333 **Cylindrical mirror**; with 3 sheets of pictures.

lens & mirror, with stand.

lens & mirror, with handle.

1-337 **Plane mirror**; with stand.

type	A	B
diameter	12 cm.	7.5 cm.

1-338 **Plane mirror**; type C, with handle, diameter 6 cm.

1-341 **Convex mirror**; with stand.

type	A	B
diameter	9 cm.	7.5 cm.

1-342 **Convex mirror**; type C, with handle, diameter 6 cm.

1-345 **Concave mirror**; with stand.

type	A	B
diameter	9 cm.	7.5 cm.

1-346 **Concave mirror**; type C, with handle, diameter 6 cm.

1-349 **Double convex lens**; with stand.

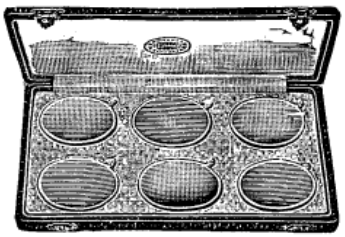
type	A	B
diameter	9 cm.	7.5 cm.

1-350 **Double convex lens**; type C, with handle, diameter 6 cm.

1-353 **Double concave lens**; with stand.

type	A	B
diameter	9 cm.	7.5 cm.

1-354 **Double concave lens**; type C, with handle, diameter 6 cm.



1-360 (1 : 6)

1-360 **Set of 6 lenses**; comprising double convex, plano convex, convex meniscus, double concave, plano concave and concave meniscus, diameter 6 cm.

1-361 (1 : 7.5)

1-364 (1 : 4.5)

1-361 **Lens holder**; to be hold verious size lens.

1-364 **Achromatic lens**; diameter 6 cm, in case.

1-365 **Glass square block**; for optical experiments, 7 × 4 × 1.5 cm.

1-369 (1 : 5.5)

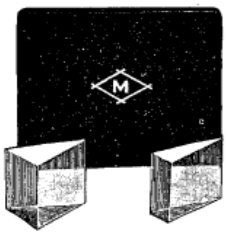
1-370 (1 : 4)

1-369 **Prism**; model A, with universally adjustable stand, size of prism 3 × 9 cm.

1-370 **Prism**; model B, with stand, size of prism 2.5 × 5 cm.

1-373 (1 : 5)

1-373 **Right angled prism**; 2 pieces a set, 4 × 2.5 cm.



1-374 (1 : 4)

1-374 **Achromatic prism**; 2 pieces a set, 3.5 cm.

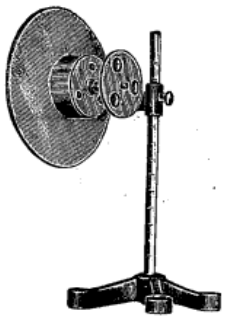
1-380 (1:10)

1-382 (1 : 10)

1-380 **Apparatus to show the principle of telescope**; length of pipe 30 cm.

1-381 **Apparatus to show the principle of microscope**; length of pipe 25 cm.

1-382 **Apparatus to show the principle of field-glass**; length of pipe 14 cm.



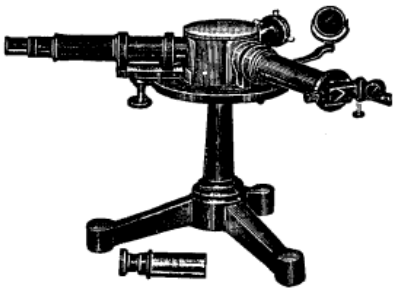
1-390 (1 : 9)

1-390 **Apparatus for illustration of mixed colours by projection;**

1-393 (1 : 2.5)

1-393 **Pocket direct vision spectroscope;** model A, with mirror and testing tubes, in wooden case.

1-394 **Pocket direct vision spectroscope;** model B, in wooden case.

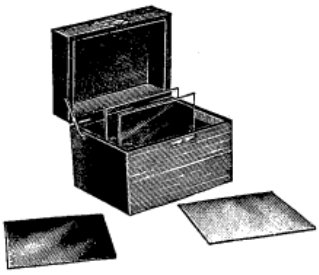


1-398 (1 : 8)

1-398 **Spectroscope;** with scale tube, comparison prism, rack movement to telescope with 2 eye-pieces.

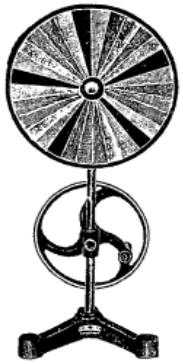
1-399 (1 : 10)

1-399 **Spectrometer;** diameter of circle 15.5 cm, graduated into ½°.



1-402 (1 : 10)

1-402 **Filter coloured plate;** 10 cm. square form, 4 pieces a set.



1-405 (1 : 10)

1-405 **Newton's colour disc;** with metal stand and turning wheel, diameter of plate 23 cm.

1-408 (1 : 7.5)

1-411 (1 : 10)

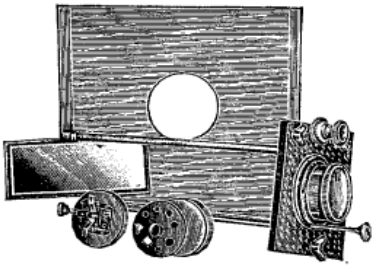
1-408 **Newton's ring plate;** diameter 9 cm, with metal ring.

1-411 **Interference prism (Bi-prism);** length of prism 3 cm, with universally adjustable stand.

1-415 **Glass diffraction grating;** 1 cm divided into 1000, graduated in 2 × 2.5 cm.

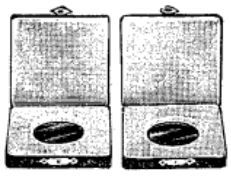
1-417 (1 : 2.5)

1-417 **Transparent iceland spar;** 3～4 cm. square.



1-422 (1 : 15)

1-422 **Heliostat;** with fitting plate, size of mirror 30 × 11 cm.

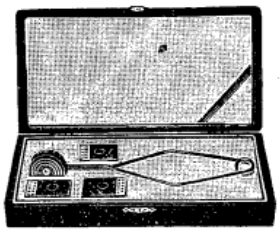


1-425 (1 : 4)

1-425 **Polarization plate;** 2 pieces a set.

1-426 (1 : 8)

1-426 **Educational polarization apparatus;** with glass polarization plate, crystal plate and cellophane.

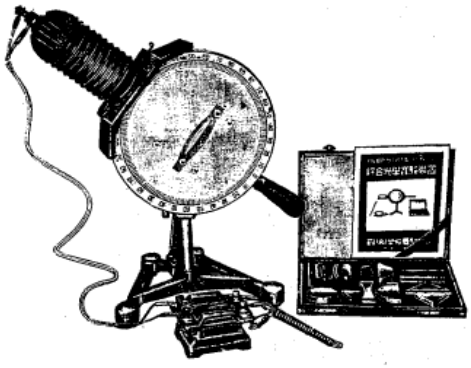


1-429 (1 : 5.7)

1-429 **Set of tourmaline tongs;** with calc spar, rock crystal and mica.

1-440 (1 : 17)

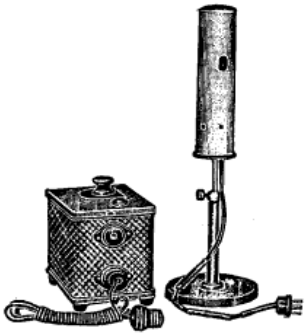
1-440 **"MARIS" Apparatus for optical experiments;** showing to refrection, reflaction and total reflection of light in air and water, with simple heliostat, size of camera obscura 43 × 25 × 12 cm.



1-441 (1 : 13)

1-441 **"MARIS" Universal optical testing set;** model A, diameter of plate 31 cm, with transformer and other 35 pieces accessories.

1-442 **"MARIS" Universal optical testing set;** model B, symple type of above.



1-450 (1 : 10)

1-450 **Natrium lamp;** for optical experiment, with cover, starter and transformer.

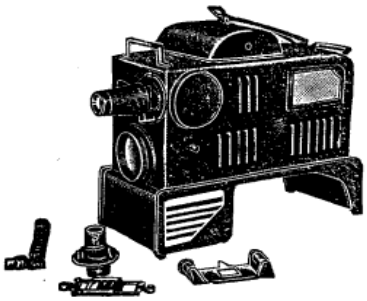
1-451 **Mercury lamp;** for optical experiment, with cover, starter and transformer.

1-455 (1 : 6)

1-456 (1 : 6)

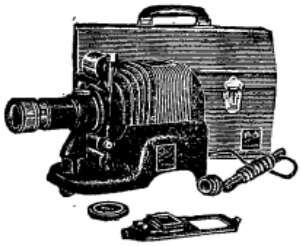
1-455 **Set of fluoresce substance;** 5 pieces a set.

1-456 **Set of phosphoresce substance;** 4 pieces a set.



1-460 (1 : 14)

1-460 **Epidia-scope;** with motor and fan.
reflection·····f. 300 mm, F. 4.0 500 W.
film slide·····f. 100 mm, F. 3.3 300 W.
micro-projection. ····· 6×, 300 W.



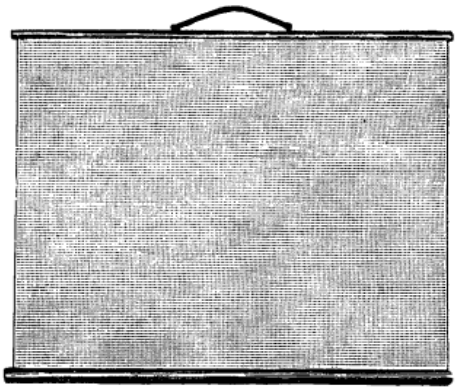
1-463 (1 : 12)

1-463 **"MASTER" Magic lantern;** model S-300, without motor and fan, 300 W, fitted to class-room, household, and etc.

1-464 **"MASTER" Magic lantern;** model Lux, with moto and fan, 750 W, fitted to lecture-hall.

1-465 **"MASTER" Magic lantern;** model Super Lux, with powerful motor and fan, 1000 W, 1300 Lx. fitted to public hall.

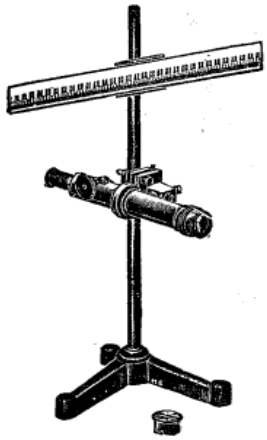
above these models are able to project astrip film slide and 2 inches square slide.



1-471

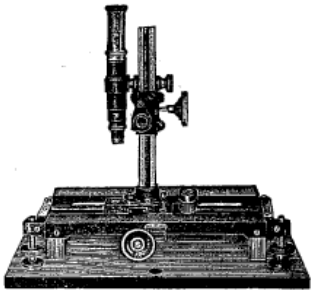
1-470 **Screen;** of vinyl, for magic lantern use size 90 × 120 cm.

1-471 **"MARIS" Day-right screen;** for magic lantern use.
type A ····· 180 × 150 cm.
type B ····· 120 × 105 cm.
type C ····· 90 × 75 cm.



1-480 (1 : 9)

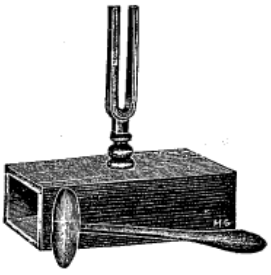
1-480 **Reading telescope;** with 1 metre scale, diameter of objective 30 mm.



1-483 (1 : 10)

1-483 **Reading microscope;** vertical range 160 mm. in 0.01mm, horizontal range 200 mm. in 0.01 mm.

Apparatus for Acoustics



1-500 (1 : 7)

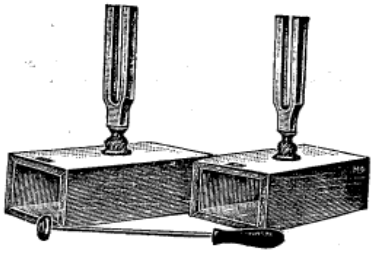
1-500 **Tuning fork;** on resonance box, with hammer.

1-503 (1 : 8.5)

1-503 **Standard tuning fork;** 13 pieces of musical scale a set, in wooden case.

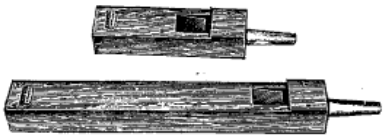
1-506 (1 : 12.5)

1-506 **Electromagnetic tuning fork;** of steel, with iron stand.



1-508 (1 : 7)

1-508 **Two tuning forks demonstrating resonance and dissonance;** two forks a set, with resonance box and hammer.



1-510 (1 : 10)

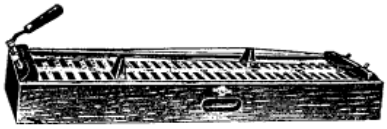
1-510 **Organ pipe;** open and closed a set, for explaining open and closed pipes.

1-511 (1 : 16)

1-511 **Organ pipe;** with movable stopper for producing the chromatic scale.

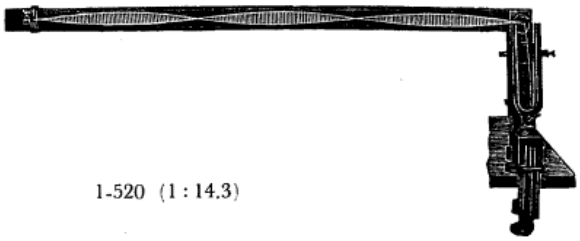
1-515 (1 : 17.5)

1-515 **Monochord;** model A, length of resonance box 1 metre, tension of the strings may adjusted by hanging the weights, with electric bell for vibration.



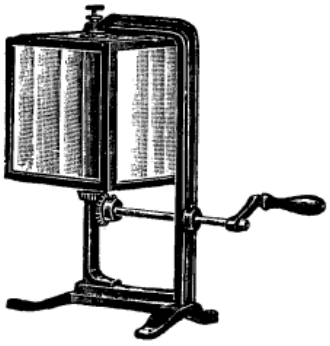
1-516 (1 : 13)

1-516 **Monochord;** model B, with 63 cm. long resonance box, and other accessories.



1-520 (1 : 14.3)

1-520 **Melde's apparatus for showing the law of vibration of string;** with electromagnetic tuning fork and weights.

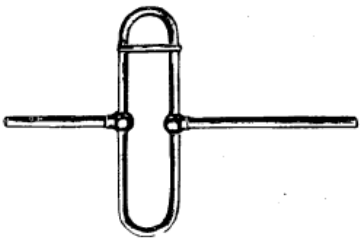


1-525 (1 : 10)

1-525 **Cubical rotating mirror;** with iron stand, size of mirror 11 × 13 cm.

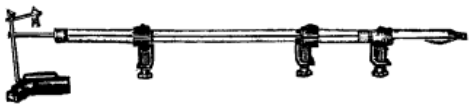
1-526 (1 : 20)

1-526 **Manometric flame apparatus;** with iron stand.



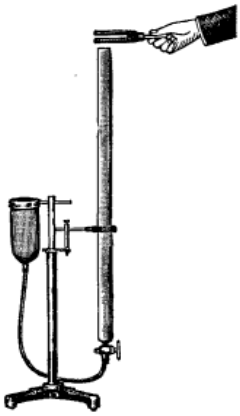
1-531 (1 : 19.5)

1-531 **Quincke's interference tube;** of brass tube, length adjustable.



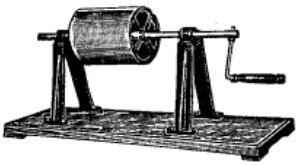
1-532 (1 : 17.8)

1-532 **Kundt's interference tube**; with screw-clamp for install.



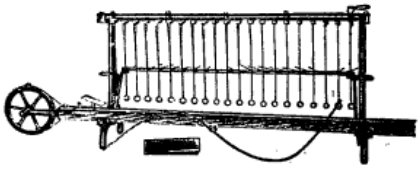
1-535 (1 : 21)

1-535 **Apparatus for determining frequency of tuning fork by resonance**; length of glass tube 85 cm, diameter 3 cm, in gratuated, with iron stand.



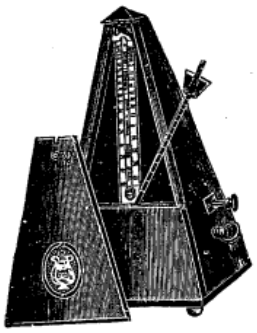
1-540 (1 : 20)

1-540 **Duhamel's vibrograph**; diameter of drum 16 cm, length 18.5 cm.



1-547 (1 : 16.5)

1-547 **"MARIS" Transverse and longitudinal wave apparatus**; with 21 pieces weights.



1-560 (1 : 6)

1-560 **Metronome**; with bell.

1-570 (1 : 15.5)

1-570 **Tape recorder**; model RM-25B, with microphone, tape for recording, reel for tape, cord for recording and other all accessories.

1-571 **Tape recorder**; model TP-502, with microphone, spare reel (diameter 5 inches), tape for recording (600 feets) and other accessories.

1-580 (1 : 16)

1-580 **Microphone**; crystal and carbon 2 forms a set.

Apparatus for Magnetism

1-600 (1 : 5)

1-600 **Bar magnets;** of magnetic steel, one pair a set, in wooden case.
type A ..... 20 × 2.5 × 0.8 cm.
type B ..... 15 × 1.6 × 0.7 cm.
type C ..... 15 × 10cm (diam.)

1-605 **U shaped magnets;** of magnetic steel, with armatures.

1-607 (1 : 6)

1-611 (1:4.7)

1-607 **Horse-shoe magnets;** of magnetic steel, with armatures.
type A ..... 15 × 2 × 0.6 cm.
type B ..... 8 × 1 cm (diam.)
type C ..... 6 × 1.3 × 0.3 cm

1-610 **Alnico powerful bar magnets;** of alnico steel.

1-611 **Alnico powerful horse-shoe magnets;** of alnico steel, with armatures.

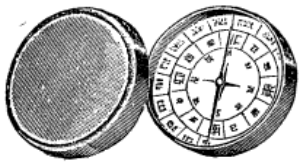
1-620 & 1-621 (1 : 4)

1-620 **Soft iron bar;** diameter 1 cm, length 20 cm.

1-621 **Steel iron bar;** diameter 1 cm, length 20 cm.

1-625 **Iron filings;** 50 gr. in glass tube.

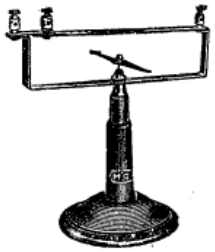
1-628 (1 : 4)



1-629 (1 : 1.7)

1-628 **Magnetic needle;** length of needle 105 mm., with plastic stand.

1-629 **Declination needle** (compass); with metal cover, diameter 45 mm.

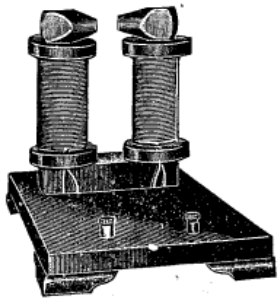


1-632 (1 : 7)

1-638 (1 : 5)

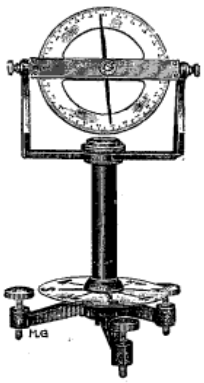
1-632 **Oersted's apparatus;** to show deflection of magnetic needle by electric current with wooden stand.

1-638 **Hose-shoe electro-magnet;** able to separate the solenoids coil, diameter of soft iron bar 1.2cm.



1-639 (1 : 10)

1-639 **Electro-magnet;** for magnetization, 6 V, 5 A. length of coil 13 cm.



1-645 (1 : 5)

1-645 **Dip and declination needle;** water level, levelling screw are attached, length of needle 7.5 cm.

1-650 (1 : 5)

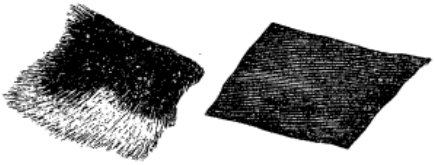
1-650 **Model of compass;** diameter 8 cm. with stand, for mariners.

Apparatus for Electrostatics

1-700 & 1-701 (1 : 4.4)

1-700 **Electrifying rod;** of glass, 20 cm. × 1.2 cm.

1-701 **Electrifying rod;** of ebonite, 20 cm. × 1.2 cm.



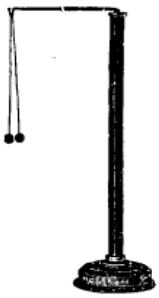
1-705 & 1-706 (1 : 12)

1-705 **Silk rubber;** 36 × 18 cm. square.

1-706 **Cat-skin rubber;** ¼ head.

1-710 (1 : 5.5)

1-710 **Stand for supporting rod;** with ebonite disc having a channel to put the charging rod on.



1-713 (1 : 5.5)

1-713 **Electric pendulum;** on stand.

1-715 (1 : 6.5)

1-715 **Hamilton's electric whirl;** on stand.

1-720 (1 : 9.5)

1-720 **Apparatus to show distribution of electricity;** Biot's apparatus, 1 spherical conductor and 2 hemispheres.

1-721 (1 : 10)

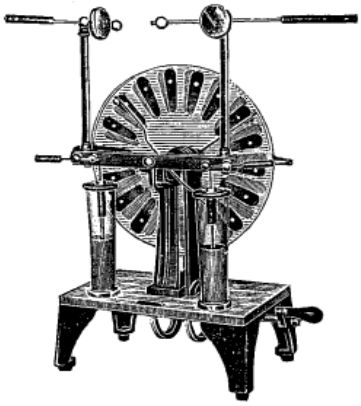
1-721 **Apparatus to show distribution of electricity;** oval.

1-730 (1:5.5)

1-730 **Electroscope;** bottle form, with aluminium leaf.

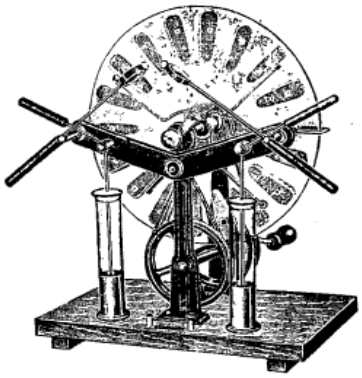
1-733 (1 : 5)

1-733 **Electrophorus;** diameter of ebonite plate 13 cm.



1-738 (1 : 13)

1-738 **Wimshurst's influence machine;** model A, diameter of plastic plate 33 cm, spark length more than 10 cm.



1-739 (1: 9)

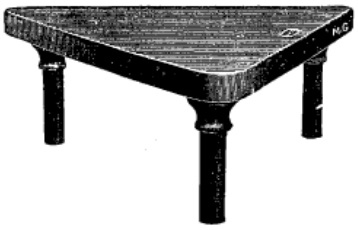
1-739 **Wimshurst's influence machine;** model B, diameter of plastic plate 30 cm. spark length about 10 cm.

1-745 (1 : 5.5)

1-748 (1 : 10)

1-745 **Leyden jar;** diameter 8 cm, height 15 cm.

1-748 **Discharger;** with movable jointed arm.



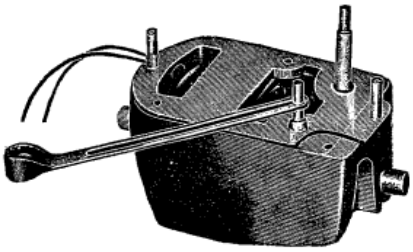
1-750 (1 : 11.5)

1-750 **Insulating stand**; triangular, with ebonite legs.

1-761 (1 : 11.5)

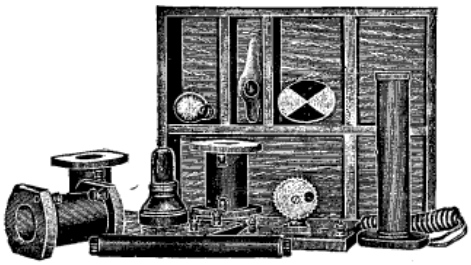
1-761 **Lightning house**; to demonstrate the action of lightning conductor, to be experimented by explosive mixed gases.

Apparatus for Electrokinetics



1-800 (1 : 6.5)

1-800 **Phono-motor**; 30~98 revolutions per minute and adjusted at 3 steps.



1-807 (1 : 9)

1-807 **Set of experiment apparatus for coil**; fitted to demonstrate for coil of electro-magnet, magnetization, principal of transformer, principal of induction coil and other practical demonstration.

1 primary coil, 3 secondary coil, electric bulb, neon lamp and other 13 pieces of accessories.

1-808 (1 : 10)

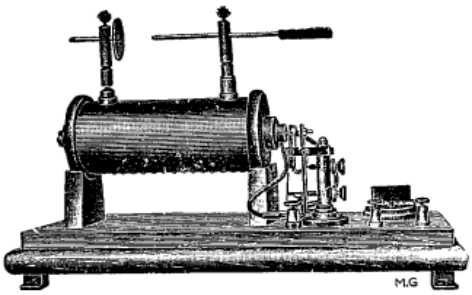
1-808 **Primary and secondary coil**; with soft iron core.

1-810 (1 : 6)

1-810 **Magnetizing ring-shaped coil**; 2 pieces a set, diameter 10 cm, of plastic reel.

1-812 (1 : 8.8)

1-812 **Solenoids coil**; with soft iron core.



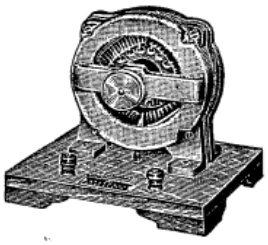
1-815

1-815 **Induction coil**; with interrupter, condenser, commutator and spark gap adjusters.

model No. 1 ····· spark length 15 mm.
model No. 2 ····· spark length 25 mm.
model No. 4 ····· spark length 40 mm.
model No. 6 ····· spark length 60 mm.
model No. 10 ····· spark length 100 mm.
model No. 15 ····· spark length 150 mm.

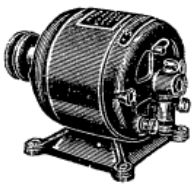
1-820 (1 : 6.5)

1-820 **Ritchie's top**; electro-magnet rotating between the poles of a permanent horse-shoe-magnet.



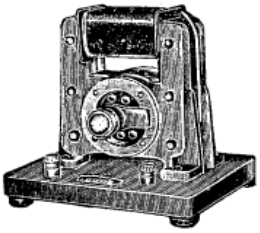
1-824 (1 : 5.5)

1-824 **Model of demonstration Apparatus of motor's**; single phase.



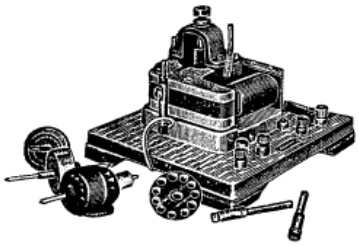
1-826 (1 : 6)

1-826 **Small electric motor**; for laboratory use, 1/16 H.P, in put 100 V.



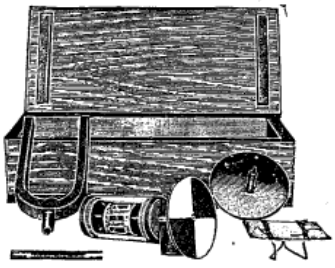
1-828 (1 : 6.8)

1-828 **Model of demonstration apparatus for induction motor**;



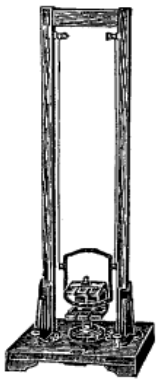
1-829 (1 : 12)

1-829 **Model of demonstration apparatus for principle of motor**; with 5 pieces of rotor.



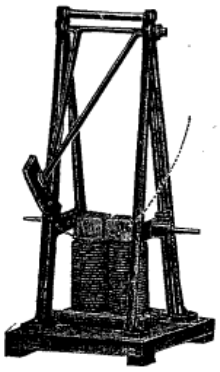
1-833 (1 : 8)

1-833 **Demonstration apparatus for rotary field (Eddy' current)**;



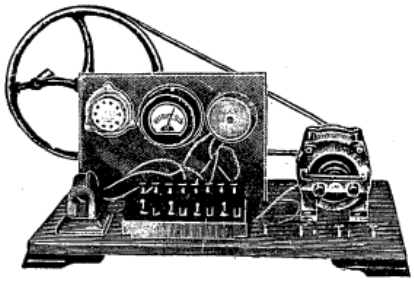
1-834 (1 : 3.5)

1-834 **Apparatus to show principles of dynamo and motor;** with powerful magnet and moving coil, 60 cm. height.



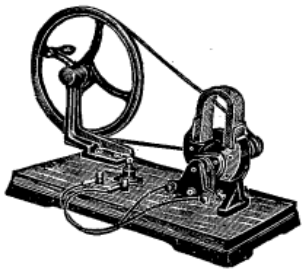
1-836 (1 : 9.5)

1-836 **Waltenhofen's pendulum;** with plain and toothed copper pieces.



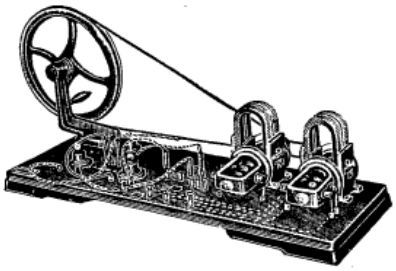
1-840 (1 : 11)

1-840 **Hand demonstration apparatus of dynamo;** model A, for A.C. and D.C. and to experiment by meter, motor, electric light and bell.



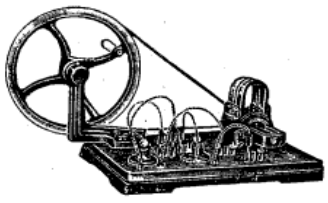
1-841 (1 : 13)

1-841 **Hand demonstration apparatus of dynamo;** model B, for A.C. and D.C. and to experiment by electric light.



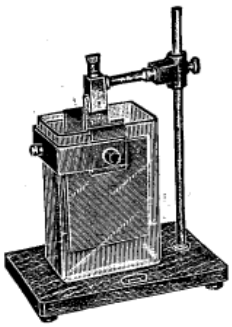
1-842 (1 : 13)

1-842 **Hand demonstration apparatus of three current dynamo;** it is suitable for demonstration of direct current, single phase and three phase alternating current.



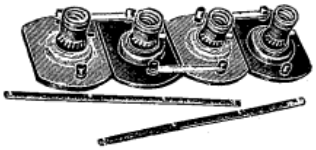
1-843 (1 : 13)

1-843 **Hand demonstration apparatus of three phase alternating current dynamo;**



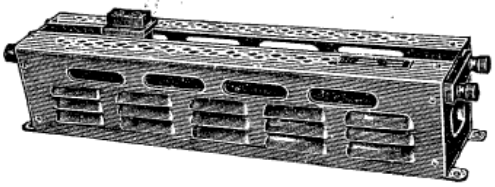
1-850 (1 : 9)

1-850 **Copper voltmeter;** size of copper plate 10× 12 cm, 3 sheets a set, with glass trough.



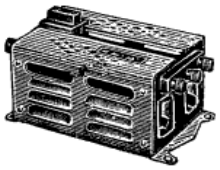
1-856 (1 : 10)

1-856 **Lamp rheostat;** 4 electric bulbs use, with plastic base and short circuit plates.



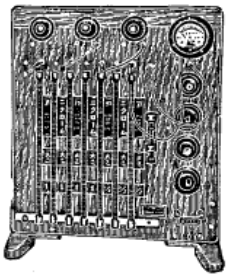
1-858 (1 : 6)

1-858 **Sliding rheostat;** single, total resistance 30 ohms, carrying capacity 2 amperes, with cover.



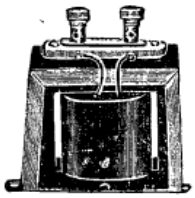
1-859 (1 : 9)

1-859 **Sliding rheostat;** double, total resistance 60 ohms, carrying capacity 1 ampere and total resistance 15 ohms, carrying capacity 2 amperes with cover.

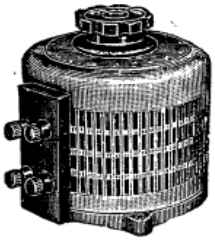


1-863 (1 : 10)

1-863 **Demonstration apparatus of comparative resistance;** with meter, midget-lamp and carbon grains, show to differ the resistance by the length, diameter and material of metal wire.



1-865 (1 : 4)

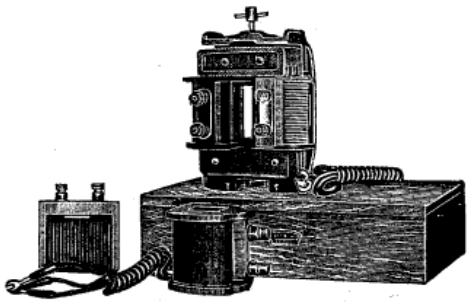


1-869 & 1-870

1-865 **Chorking coil;** 5 henry, 100 mA.

1-869 **Sliding voltage regulator (single coiling transformer);** type No. 5, capacity 5 amperes.

1-870 **Sliding voltage regulator (single coiling transformer);** type No. 10, capacity 10 amperes.



1-875 (1 : 7.5)

1-875 **Transformer;** for demonstrating and practical use, able to analysis and constract, with 4 coils and other 7 accessories, in wooden case.

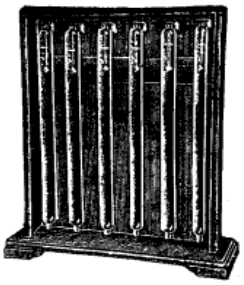
1-880 (1 : 4.2)

1-880 **Spectrum tubes;** 20 cm. length.

Kinds	Kinds
Oxygen	Air
Bromine	Ethyl alcohol
Nitrogen	Methyl alcohol
Silicon	Neon
Iodine	Herium
Petroleum	Argon.

1-881 (1 : 9.5)

1-881 **Stand for spectrum tubes;** of metal.

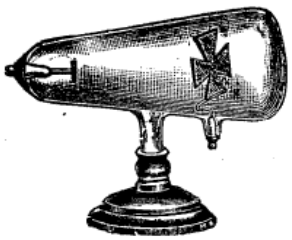


1-885 (1 : 14)

1-885 **Cross' vacuum scale;** consist of 6 vacuum tubes evacuated to different degree (40, 10, 6, 3, 0.14, 0.03 mm.).

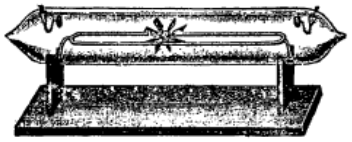
1-890 (1 : 8)

1-890 **Discharge tubes;** with stopcock, 40 cm. length.



1-896 (1 : 6.5)

1-896 **Crookes' tube;** with cross of aluminium jointed, for showing rectilinear propagation of cathode rays, with wooden stand.

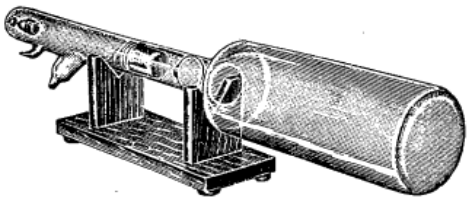


1-897 (1 : 6)

1-897 **Crookes' tube;** with mica wheel running on rails, to show mechanical action of cathode rays, with wooden base.

1-899 (1 : 6)

1-899 **Crookes' tube;** to demonstrate the deviation of cathode rays by means of magnet, magnet excluded, with wooden stand.



1-900 (1 : 8)

1-900 **Crookes' tube**; for demonstrate the principal of Braun's tube, with wooden base.

1-910 (1 : 12)

1-912 (1 : 12)

1-910 **Vacuum tube**; containing phosphorescent flowers, with wooden stand.

1-911 **Vacuum tube**; containing phosphorescent flags, and flag go round by cathode ray.

1-912 **Vacuum tube**; containing phosphorescent butter-fly, with wooden stand.

1-913 (1 : 5.5)

1-914 (1 : 12)

1-913 **Vacuum tube**; massive phosphorescent substances are fused, with wooden stand.

1-914 **Vacuum tube**; containing calc spar, with wooden stand.

1-915 **Vacuum tube**; containing coral, with wooden stand.

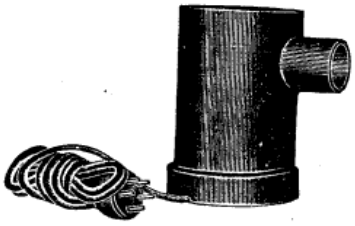
1-920 (1 : 9)

1-920 **Geissler's tube**; 30 cm. length.

1-922 No. 2 (1 : 8)

1-922 No. 4 (1 : 8)

1-922 **Fluorescent tube**; Geissler's tube are fused in another tube which containing fluorescent liquids.
model No. 2 ····· consist with 2 tubes.
model No. 4 ····· consist with 4 tubes.

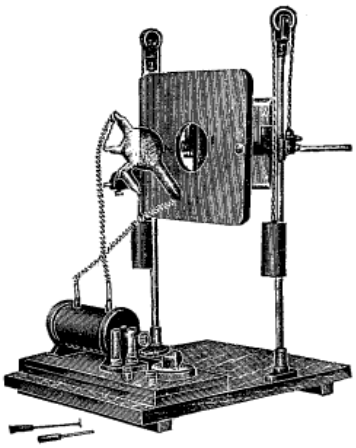


1-931 (1 : 7)

1-931 **Photo-electric bulb**; with wooden base and cover.

1-934 (1 : 13)

1-934 **Softex;** ultra-soft waves x-ray equipment.



1-935 (1 : 11.5)

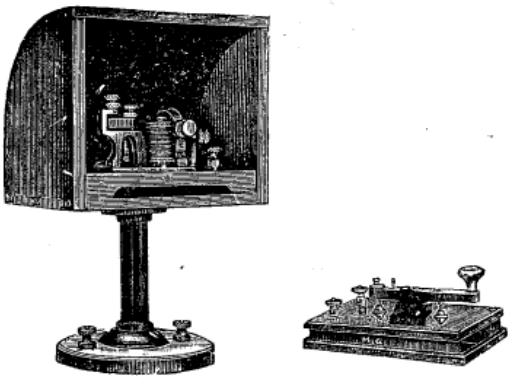
1-935 **X-ray apparatus for demonstration;** with x-ray tube (diameter 8 cm), fluorescent screen, induction coil and other all accessories.

1-937

1-937 **X-ray tube;**

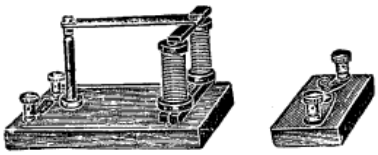
type No.	#8	#10	#12
diameter	8 cm.	10 cm.	12 cm.

1-938 **Fluorescent screen;** size 140×185 mm., in wooden case.



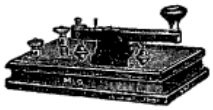
1-941 (1 : 6.5)

1-941 **Telegraph sounder;** with resonator and key, P.O. pattern.



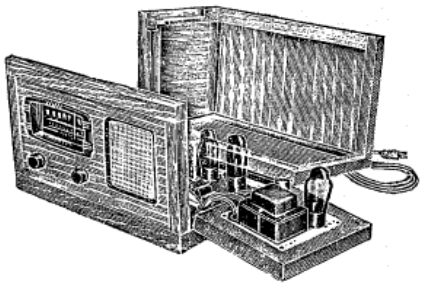
1-943 (1 : 6)

1-943 **Model of simple telegraph;**



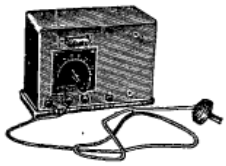
1-944 (1 : 8)

1-944 **Morse key;** length of arm 11 cm.



1-950 (1 : 13)

1-950 **Sectional radio receiving set;** with 5 vacuum tube.

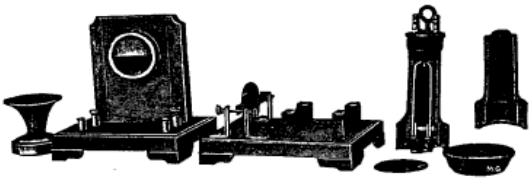


1-951 (1 : 10)

1-951 **Mineral radio set;** with crystal receiver.

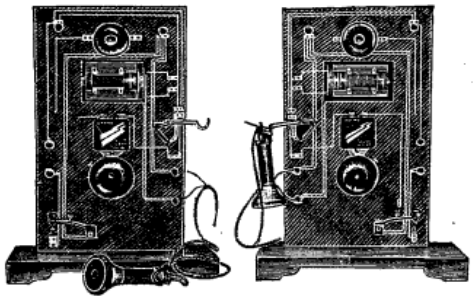
1-955 (1 : 9)

1-955 **Apparatus to demonstrate principle of transmitter;**



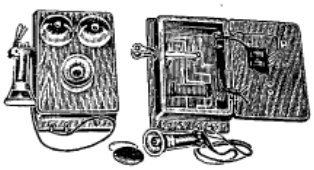
1-956 (1 : 9.5)

1-956 **Sectional demonstration apparatus for telephone;** demonstrate the construction of transmitter and receiver, also fitted to practical use.



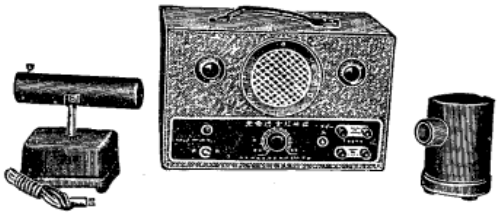
1-958 (1 : 14.5)

1-958 **Demonstration apparatus for telephone's circuit;** showing the electric circuit of telephone.



1-959 (1 : 13)

1-959 **Telephones;** receivers Bell's pattern, one pair a set.



1-965 (1 : 8.5)

1-965 **Apparatus for experiment of photo-electric current;** with lamp house, photo-electric bulb and leray, demonstrate to exchange the electric light are to electric power.

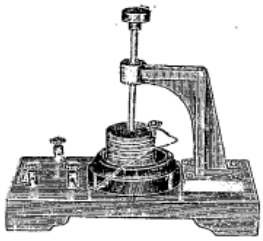
1-970 & 1-971 (1 : 6)

1-970 **Electric bell;**

1-971 **Electric buzzer;**

1-981 (1 : 8)

1-981 **Set of experimental apparatus for dry cell;** dry cell exclude.

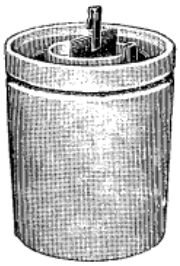


1-989 (1 : 7)

1-990 (1 : 5)

1-989 **Volta's pile;**

1-990 **Volta's cell;** simple cell of zinc-copper-acid, size of outer jar 9 × 14 cm.



1-991 (1 : 6)

1-992 (1 : 6)

1-991 **Daniell's cell;** round form, size of outer jar 10 × 15 cm.

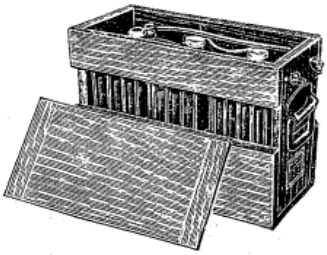
1-992 **Leclanche's cell;** size of outer jar 9 × 14 cm.

1-993 (1 : 6)

1-994 (1 : 6.5)

1-993 **Bichromate cell;** bottle form, consisting of 2 carbon plates and 1 zinc plate.

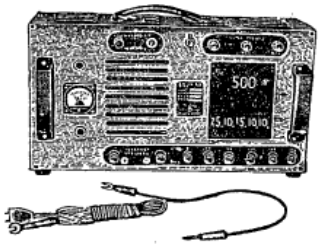
1-994 **Bunsen's cell;** size of outer jar 10 × 15 cm.



1-997 (1 : 11.5)

1-997 **Accumulator;** in wooden box, portable type.

1-993 **Hydrometer for accumulator;** with glass jacket having gum ball.



1-1000 (1 : 10)

1-1000 **"MARIS" Rectifier and transformer;** opened to show inside, for demonstrating use and practical use, D.C. 0~10 V. A.C. 0~14 V.

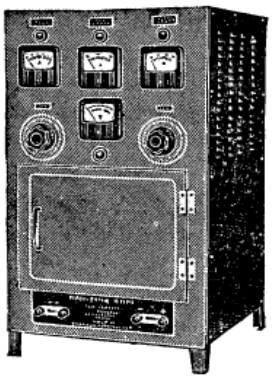
1-1003 (1 : 10)

1-1003 **Rectifier;** used seren's elements, D.C. 6 V. 5A.

1-1010 No. 10 (1 : 13)

1-1010 **"MARIS" Electric power supply;** to get the minute voltage for alternating current.

model No. 3 ..... capacity 3 A.
model No. 5 ..... capacity 5 A.
model No. 10 ..... capacity 10 A.
model No. 20 ..... capacity 20 A.



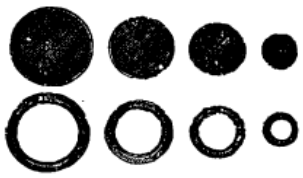
1-1015 (1 : 14)

1-1015 **"MARIS" Electric power supply ;** model No. 30 ..... capacity 30 A.

1-1030 **Fuse box;** of porcelain.

(2) CHEMICAL APPARATUS

Glass Wares



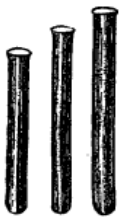
2-1 & 2-2

2-1 **Glass tubing;** 1 meter long.

6 mm. 7.5 mm. 9 mm. 10.5 mm. 12 mm.
diameter

2-2 **Glass rods;** 1 meter long.

6 mm. 7.5 mm. 9 mm. 10.5 mm. 12 mm.
diameter



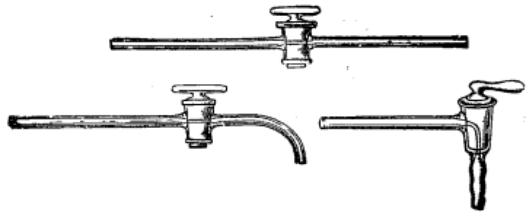
2-10

2-11

2-10 **Test tube;**

12 mm. 15 mm. 18 mm. 24 mm.
diameter

2-11 **Test tube with graduate;** diameter 18 mm. capacity 30 cc,



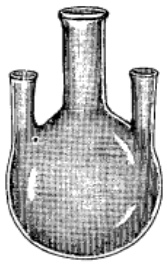
(A)

2-15 (B) (C)

2-15 **Glass tube with stopcock;** diameter 9 mm.

type	A	B	C
	straight	bent	with bent bore

2-30



2-40

2-30 **Flasks;** flat bottom.

200	300	500	1000	2000 cc.

capacity

2-31 **Flasks;** round bottom.

200	300	500	1000	2000 cc.

capacity

2-34 **Flasks;** with ring flange, flat bottom.

200	300	500	1000	2000 cc.

capacity

2-35 **Flasks;** with ring flange, round bottom.

200	300	500	1000	2000 cc.

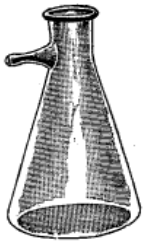
capacity

2-40 **Flasks;** with three outlets.

200	300	500	1000	2000 cc.

capacity

2-45



2-47

2-45 **Erlemmeyer's flasks;**

200	300	500	1000	2000 cc.

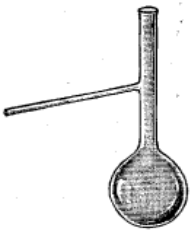
capacity

2-47 **Filtering flasks;**

200	300	500	1000 cc.

capacity

2-50



2-53

2-50 **Digestion flasks (kjeldahls flasks);**

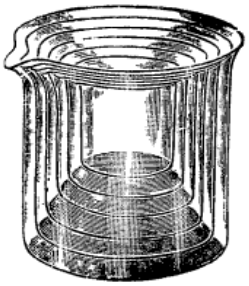
200	300	500	1000 cc.

capacity

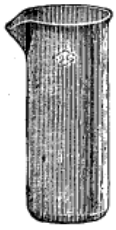
2-53 **Distillation flasks;**

200	300	500	1000 cc.

capacity



2-55



2-56

2-55 **Beakers;**

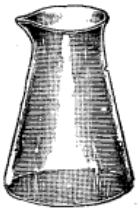
100	200	300	500	1000	2000 cc.

capacity

2-56 **Tall beakers;**

100	200	300	500	1000	2000 cc.

capacity



2-57

2-60

2-57 **Conical beakers;**

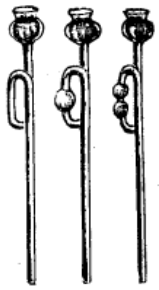
100	200	300	500	1000	2000 cc.

capacity

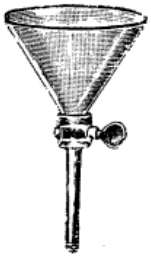
2-60 **Funnels;** bent nearly 60°.

60	75	90	120	150 mm.

diameter



2-62



2-64

2-62 **Safety funnels;**

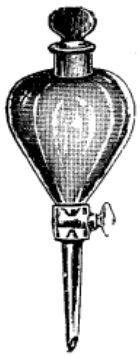
non bulb	1 bulb	2 bulbs

type

2-64 **Separating funnels;** bent nearly 60°, with stopcock.

9	12	15 cm.

diameter



2-67

2-68

2-67 **Separating funnels;** spherical form.

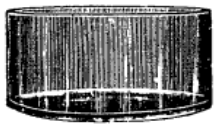
100	200	300 cc.

capacity

2-68 **Separating funnels;** cylindrical form.

100	200	300 cc.

capacity

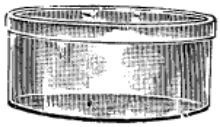


2-73

2-73 **Pneumatic troughs;** with ground flange.

12	15	24	30 cm.

diameter



2-74

2-74 **Pneumatic troughs;** with ring flange.

15	24	30 cm.

diameter

2-78

2-79

2-78 **Bell jar;** with knob at top.

diameter	9	12	15	18 cm.
height	12	15	18	24 cm.

2-79 **Bell jar;** with glass stopper instead of knob.

diameter	9	12	15	18 cm.
height	12	15	18	24 cm.

2-84

2-84 **Retorts;** plain form.

250	500 cc.

capacity

2-85

2-85 **Retorts;** with stopcock.

250	500 cc.

capacity


2-87


2-88

2-87 **Receivers;** plane form.

200	500	1000 cc.
capacity		

2-88 **Receivers;** with stopcock.

200	500	1000 cc.
capacity		


2-95


2-98

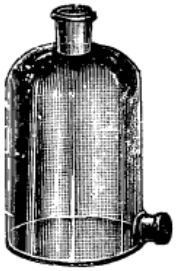
2-95 **Reagent bottles;** wide mouth.

30	60	120	250	500	1000 cc.
capacity					

2-98 **Reagent bottles;** narrow mouth.

30	60	120	250	500	1000 cc.
capacity					


2-100


2-102

2-100 **Reagent bottles;** with stopper and stopcock near bottom.

3000	5000	10000 cc.
capacity		

2-102 **Aspirator bottles;** with lower neck, with rubber stopper.

3000	5000	10000 cc.
capacity		


2-105


2-106

2-105 **Wolf's bottles;** with two necks.

250	500	1000 cc.
capacity		

2-106 **Wolf's bottles;** with two necks and one lower neck.

250	500	1000 cc.
capacity		


2-108

2-107 **Wolf's bottles;** with three necks.

250	500	1000 cc.
capacity		

2-109 **Wolf's bottles;** with three necks and one lower neck.

250	500	1000 cc.
capacity		


2-114


2-115 (1 : 4)

2-114 **Dropping bottles;** TK type, with well fitted stopper.

60	120 cc.
capacity	

2-115 **Dropping bottles;** with glass tube and gum, capacity 50 cc.

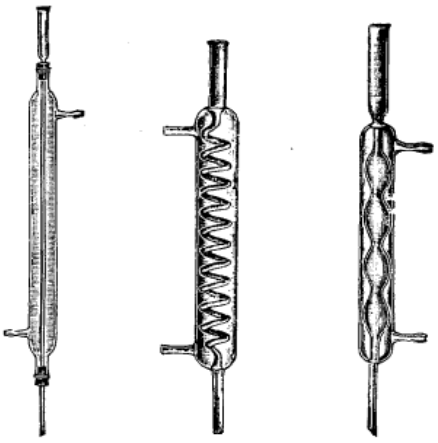

2-120

2-120 **Watch-glass ;**

60	90	120 mm.
diameter		

2-123 **Crystallizing dishes;** with spout.

60	90	120 mm.
diameter		



2-129 2-130 2-131

2-129 **Liebig's condenser;**

300	360	450 mm.
length of jacket		

2-130 **Reverse condenser;** inner tube being made of long spiral glass.

300	360	450 mm.
length of jacket		

2-131 **Reverse condenser;** with bulb fused in.

300	360	450 mm.
length of jacket		

2-135 **Adapter;** diameter 18 mm.

straight	bent
form	

2-140

2-140 **Glass mortars;** with pestles.

90	120	150 mm.
diameter		

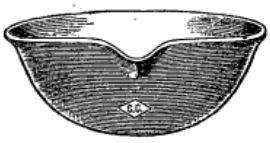
2-148 (1 : 9)

2-148 **Glass filter-pumps;** with safety valve to avoi 36 cm. length.

2-150 **T tube;** diameter 9 mm.

2-151 **Y tube;** diameter 9 mm.

Porcelain Wares



2-200

2-200 **Evaporating basins;** round bottom, with spout.

60	75	90	105	120 mm.
diameter				

2-201 **Evaporating basins;** flat bottom, with spout.

60	75	90	105	120 mm.
diameter				

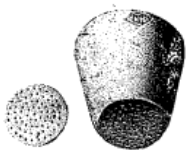
2-205 **Beakers;** with spout.

110	200	300	400 cc.
capacity			

2-210

2-210 **Crucibles;** with cover.

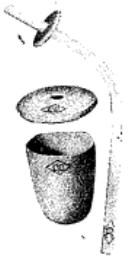
15	30 cc.
capacity	



2-213

2-213 **Gooch's crucibles;**

25	35 cc.
capacity	



2-215

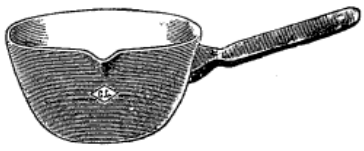
2-215 **Rose's crucibles;** with perforated cover and tube, complete set.

15	25 cc.
capacity	

2-220

2-220 **Buchners funnels;** with straight sides above perforated filtering disc.

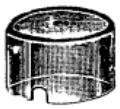
90	120	150 mm.
diameter		



2-230

2-230 **Cassercles;** with porcelain handle.

150	210	375 cc.
capacity		



2-235 (1 : 6)

2-240

2-235 **Bee-hive shelf;** for pneumatic trough, diameter 8 cm.

2-240 **Mortars;** with pestles.

9	12	15	18	24 cm.
diameter				

2-250 (1 : 11)

2-250 **Pot for filth;** capacity about 6 litres.

2-260

2-260 **Boat for combustion;**

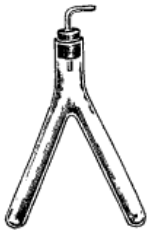
length	46	60	75	80 mm.
width	9	12	11	11 mm.
height	8	8	8	8 mm.

2-265

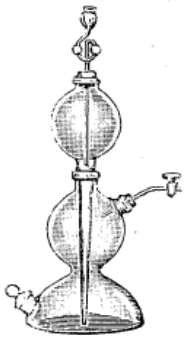
2-265 **Combustion tube;**

length	600	600	600 mm.
outer diam.	21	28	37 mm.
inner diam.	16	22	30 mm.

Gas Generating and Absorbing Apparatus



2-300 (1 : 10)

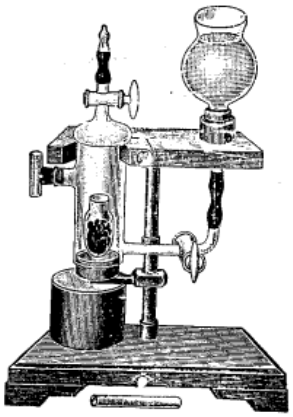


2-303

2-300 **Gas generating tube;** fork type with rubber stopper.

2-303 **Kipp's gas generating apparatus;**

200	500	1000 cc.
capacity		



2-305 (1 : 9)

2-305 **"MARIS" gas generating apparatus;** with wooden stand, capacity 500 cc, with 2 safety arrengement.

2-308

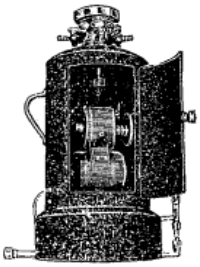
2-308 **Gas collecting bottles;**

250	500 cc.
capacity	

2-314

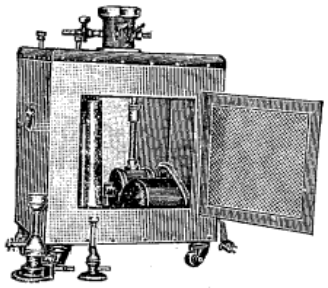
2-314 **Muencke's gas washing bottles;**

250	500	1000 cc.
capacity		



2-320 (1 : 12)

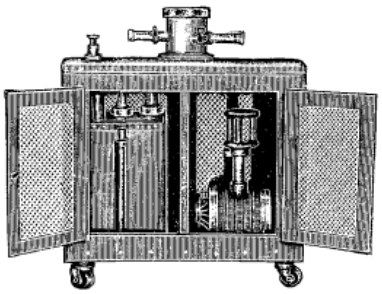
2-320 **Air-gas generator;** model No. 5, for 5 burners use, with safety adjuster.



2-321 (1 : 15)

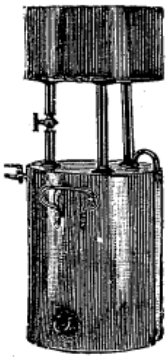
2-321 **Air-gas generator;** model No. 10, for 10 burners use, with safety adjuster.

2-322 **Air-gas generator;** model No. 20, for 20 burners use, with safety adjuster.



2-323 (1 : 25)

2-323 **Air-gas generator;** model No. 50, for 50 burners use, with safety adjuster.



2-330 (1 : 10)

2-330 **Gasometer;** Berzeliu's made of copper plate. capacity 9 litres.

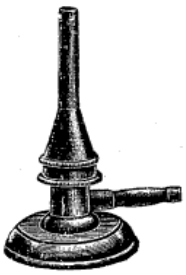
Apparatus to Heat

2-400 (1 : 3.5)

2-400 **Alcohol lamps;** with wick and wick-holder. capacity 2 oz.

2-402 **Wick for alcohol lamp;** 80 cm.

2-403 **Wick-holder for alcohol lamp;** of porcelain.

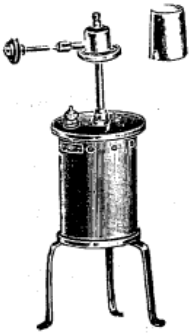


2-405 (1 : 4)

2-405 **Bunsen's burner;**

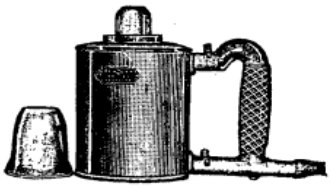
2-408 (1 : 8)

2-408 **Bunsen's gas blow-pipe;** with universal joint.



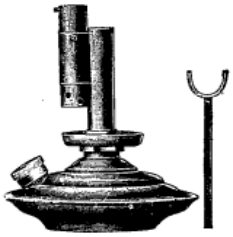
2-410 (1 : 10)

2-410 **Russian spirit lamp;** with regulator, for alcohol use.



2-413 (1 : 5)

2-413 "MARIS" Blast lamp; with regulator, for gasoline use.

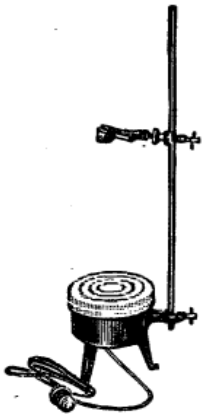


2-416 (1 : 6)

2-416 Alcohol Lamp Barthel's; with regulator, for alcohol use.

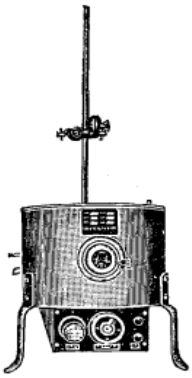
2-420 (1 : 7)

2-420 Naphtha blast lamp; without gum bellow, for gasoline use.



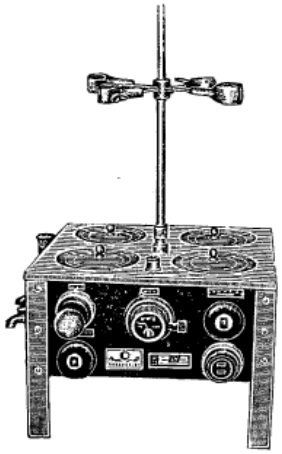
2-430 (1 : 13)

2-430 Hot con-heater; input A.C. 100 V. with clamp and cord, fitted to heat the beaker, flasks & etc.



2-435 (1 : 7)

2-435 Electric water bath; diameter 18 cm, with regulator & clamp, for 1 water bath use.

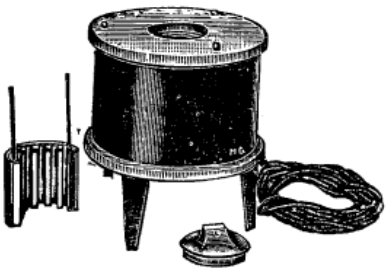


2-436 (1 : 13)

2-436 Electric water bath; for 4 water baths use, with regulator.

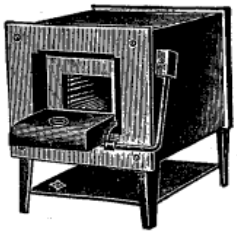
2-437 (1 : 25)

2-437 Electric water bath; for 6 water baths use, with regulator.



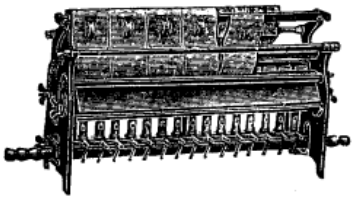
2-440 (1 : 15)

2-440 **Electric crucible furnace;** for A.C. 100 V. inner-diameter 75 mm, depth 100 mm, with transformer.



2-450 (1 : 22)

2-450 **Electric muffle furnace;** inner size 10 × 10 × 30 cm, with 2 kw. transformer for A.C. 100 V.



2-460

2-460 **Bunsen's combustion furnace;**

Model No. 10 ..... 10 burners use.
Model No. 15 ..... 15 burners use.
Model No. 20 ..... 20 burners use.

2-466

2-465 **Electric tube furnace;** cannot be open a tube.

diameter	3	3	3 cm.
length	20	30	40 cm.

size

2-466 **Electric tube furnace;** can be open a tube.

diameter	3	3	3 cm.
length	20	30	40 cm.

size

2-470 **Transformer for electric tube furnace;**

1 kw.	2 kw.

capacity

Drying and Distillation Apparatus

2-501 2-500 (1 : 2.6)

2-500 **Calcium chloride tube;** type A, with side tube.

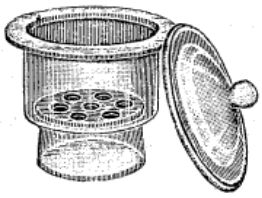
2-501 **Calcium chloride tube;** type B.

2-505 (1 : 5)

2-506 (1 : 3)

2-505 **Balance dryer;**

2-506 **Drying tower;** capacity 300 cc.



2-510

2-510 **Glass desicators;** Scheibler, with porcelain shelf.

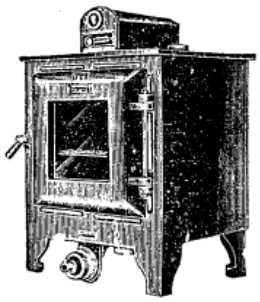
15	18	24	30 cm.

diameter

2-511 **Vacuum desicators;** with side tube having stopcock.

15	18	24	30 cm.

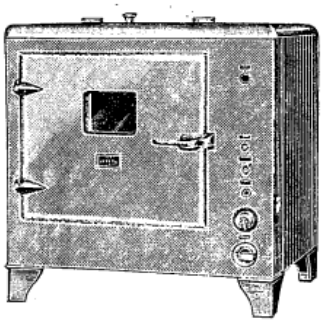
diameter



2-520 (1 : 15)

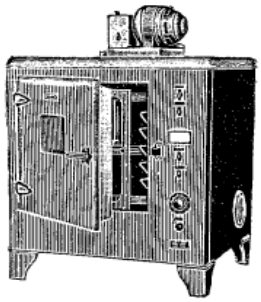
2-520 **Electric drying oven;** model A, inner size 30 × 30 × 30 cm, input A.C. 100 V. maximum temperature 150°C, with regulator.

2-521 **Electric drying oven;** model B, inner size 30 × 30 × 30 cm, maximum temperature 150°C, with regulator.



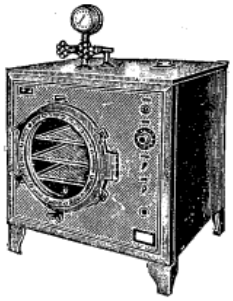
2-523 (1 : 16)

2-523 **Electric drying oven;** model K-2, inner size 45 × 40 × 40 cm, maximum temperature 200°C, with sensitive automatic temperature regulator.



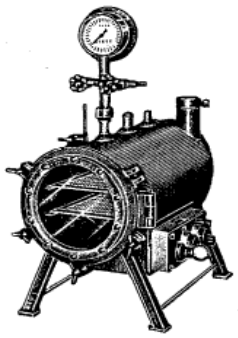
2-525 (1 : 15)

2-525 **Rotary electric drying oven;** model R-2, inner size 30 × 30 × 30 cm, maximum temperature 200°C, with sensitive automatic temperature regulator, motor 1/20 HP.



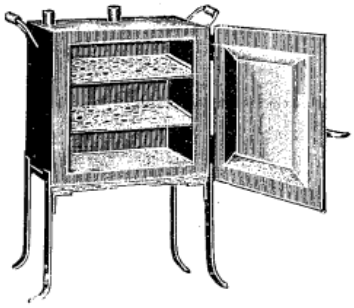
2-530 (1 : 14)

2-530 **Electric vacuum drying oven;** model SV-2, inner diameter 25 cm, depth 40 cm. maximum temperature 150°C, with sensitive automatic temperature regulator.



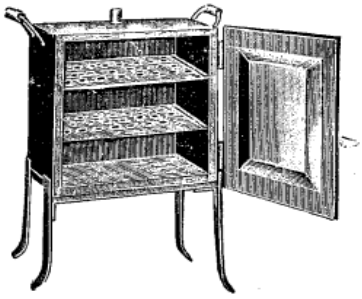
2-534 (1 : 12)

2-534 **Electric vacuum drying oven;** model RV-1, inner diameter 20 cm, depth 40 cm, with automatic temperature regulator.



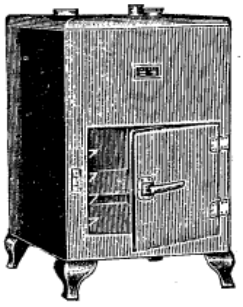
2-537 (1 : 15)

2-537 **Steam drying oven**; model SO-2, outer size 30 × 30 × 30 cm, of copper.



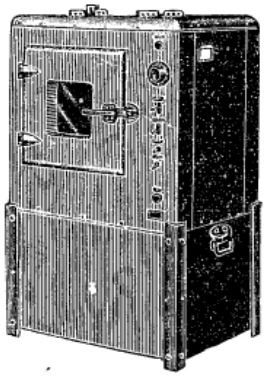
2-538 (1 : 15)

2-538 **Hot-air drying oven**; model AO-2, of copper, outer size 30 × 30 × 30 cm.



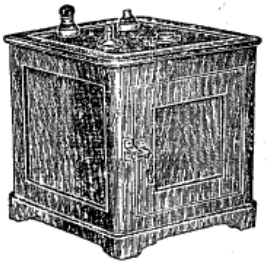
2-540 (1 : 15)

2-540 **Infrared oven**; model SD-2, inner size 30 × 30 × 30 cm, of aluminium.



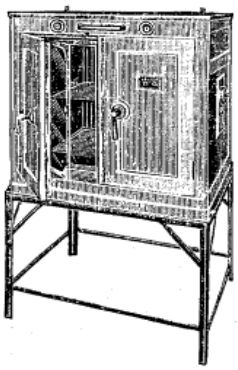
2-543 (1 : 15)

2-543 **Conditioning rapid oven**; model KE, inner size 30 × 30 × 30 cm, maximum temperature 160°C, with automatic temperature regulator, motor $\frac{1}{20}$ HP.



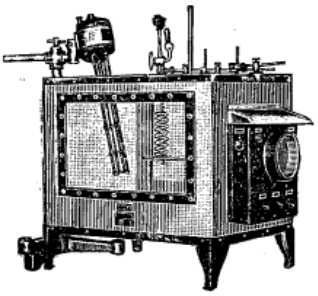
2-546 (1 : 14)

2-546 **Electric incubator**; model E-1, inner size 25 × 25 × 25 cm, maximum temperature 60°C, with automatic temperature regulator.



2-548 (1 : 20)

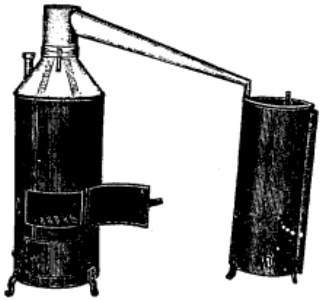
2-548 **Electric incubator**; model ET-2, inner size 60 × 50 × 50 cm, maximum temperature 60°C, with automatic temperature regulator.



2-550 (1 : 15)

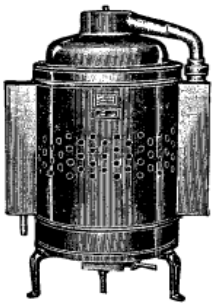
2-550 **Thermostat;** model MA-2, inner size 30 × 35 × 30 cm, with thermo regulator, relay, agitator, $\frac{1}{20}$ HP.

2-552 **Simple incubator;** inner size 24 × 24 × 24 cm, maximum temperature 80°C.



2-555 (1 : 18)

2-555 **Copper still;** to be heated with charcoal fire, about 5 litres per hour can be distilled.



2-560~562

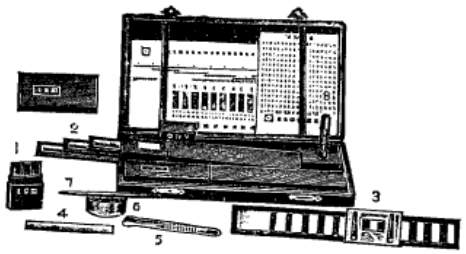
2-560 **Electrical automatic distillation apparatus;** model No. 1, about 1 litre per hour can be distilled automatically.

2-561 **Electrical automatic distillation apparatus;** model No. 3, about 3 litres per hour can be distilled automatically.

2-562 **Electrical automatic distillation apparatus;** model No. 5, about 5 litres per hour can be distilled automatically.

2-570 **Electrical automatic distillation apparatus;** model No. F-3, with alarm bell, about 3 litres per hour can be distilled automatically.

Testing and Determination Apparatus



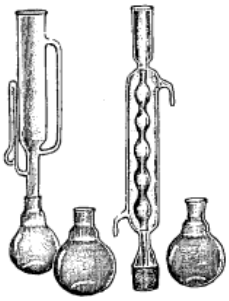
2-600 (1 : 12)

2-600 **H.P. Comparative measuring apparatus;** with all accessories.

2-605 **P.H. Comparative measuring paper;** 350 sheets, complete set, PAR (TBa, BPB, BCG, MR, BTB, CR, TBb), 65 × 6 mm.

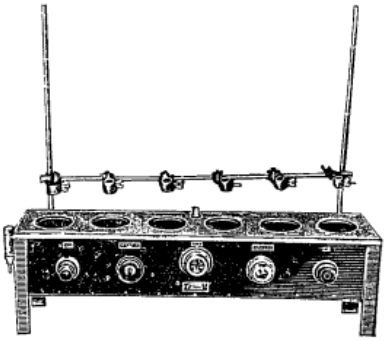
2-615 **Litmus paper;** blue, about 100 sheets a package.

2-616 **Litmus paper;** red, about 100 sheets a package.



2-620 (1 : 10)

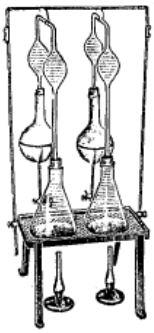
2-620 **Soxhlet's fat extraction tube;** with condenser and three flasks.



2-622 (1 : 24)

2-622 **Electric fat extraction apparatus;** Soxhlet's, with regulator, 6 opening.

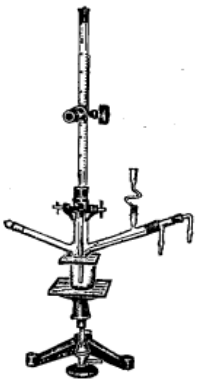
2-625 **Sulphur estimation apparatus;** for the analysis of iron.



2-628 (1 : 15)

2-628 **Nitrogen estimation apparatus;** Kjeldahl, for gas use.

2-630 **Apparatus for estimation of carbonic acid;** Dr. Baul's, very convenient for technical laboratories.

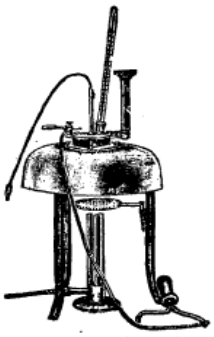


2-635•type A (1 : 12)

2-635•type B (1 : 12)

2-635 **Beckmann's apparatus;** to determine the elevation of the boiling point and the depression of the freezing point, 2 a set.

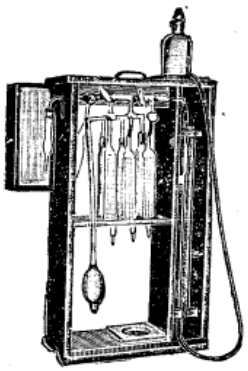
Type A	To determine the elevation of the boiling point.
Type B	To determine the depression of the freezing point..



2-639 (1 : 8)

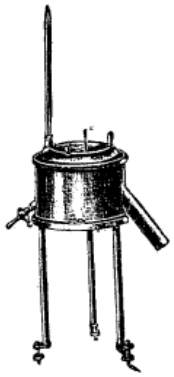
2-639 **Flashing point determination apparatus;** Pensky Marten's, with burner and thermometer.

2-640 **Oil tester;** to determine the freezing influence of the oils.



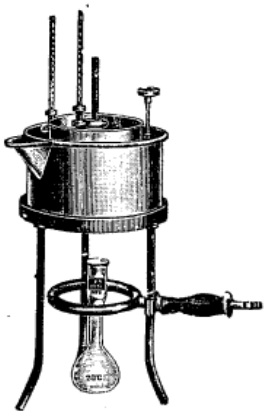
2-643 (1 : 15)

2-643 **Gas analyser;** Orsat, for rapid analysis of smoke and furnace gas, (CO_2, CO, O)



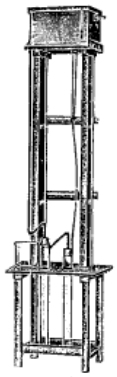
2-646 (1 : 11)

2-646 **Viscosimeter;** Redwood's.
model A ..... for electric use.
model B ..... for gas use.



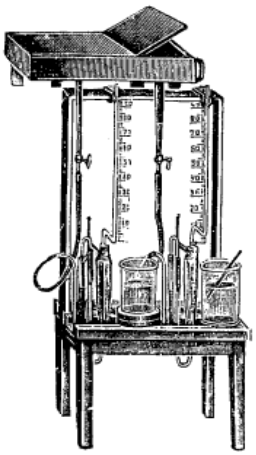
2-647 (1 : 10)

2-647 **Viscosimeter;** Engler's.
model A ..... for electric use.
model B ..... for gas use.



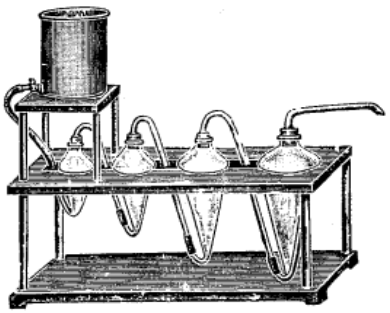
2-650 (1 : 20)

2-650 **Elutriating apparatus;** Schone's, for one sample, complete set.



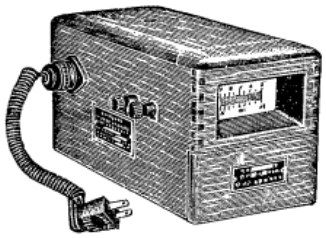
2-651 (1 : 20)

2-651 **Elutriating apparatus;** Schone's, for two samples, complete set.



2-655 (1 : 12)

2-655 **Elutriating apparatus;** Nebel's, with 4 trough.



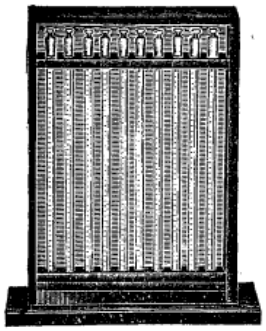
2-670 (1 : 8)

2-670 **Electric pyrometer;** improved for laboratory use of high temperature.

2-672 **Thermo-couples;** for electric pyrometer of armel, cromel.

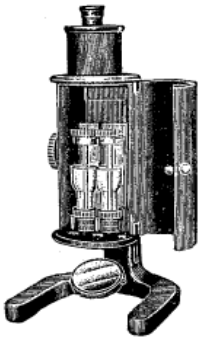
2-673 **Thermo-couples;** for electric pyrometer for platinum, platinum-rhodium.

2-675 **Quartz protection tube;** 1 metre long.



2-679 (1 : 12)

2-679 **Colorimeter;** Ukena's, for general colorimetry, for 10 cylinders.

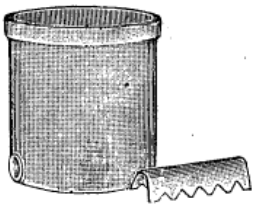


2-685 (1 : 8)

2-685 **Colorimeter;** Dubosqu, for 10 cm.

2-686 (1 : 4)

2-686 **Saccharimeter;**
type No. 3 ..... 0～30%
type No. 6 ..... 30～60%
type No. 9 ..... 60～90%



2-690

2-690 **Wagner's pot;** of porcelain.
type No. 2 ..... $\frac{1}{20000}$ for use.
type No. 5 ..... $\frac{1}{50000}$ for use.

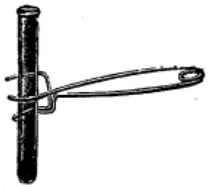
Holder, Stand and Brushes

2-700 (1 : 4)

2-701 (1 : 3)

2-700 **Mohr's pinchcock;** of brass, nickel-plated.

2-701 **Hoffmann's pinchcock;** of brass, nickel-plated.



2-705•A (1 : 7)

2-705•B (1 : 5.7)

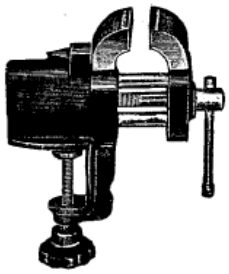
2-705 **Test tube holder;**
type A ..... of brass, nickel-plated.
type B ..... of wood.

2-708 (1 : 6)

2-708 **Crucible tong**; of brass, nickel-plated.

2-710 (1 : 7)

2-710 **Mercury tong**; of brass, nickel-plated.



2-713 (1 : 65)

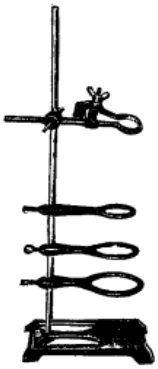
2-713 **Bench Vice**; length of bench 75 mm.

2-716 (1 : 10)

2-718 (1 : 6.5)

2-716 **Stand for glass-condensers**; of wood, height adjustable and inclinable in any way.

2-718 **Tripod**; with circular top; of iron.
type A ..... for gas lamp use.
type B ..... for alcohol lamp use.

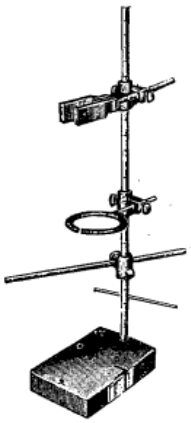


2-720 (1 : 11)

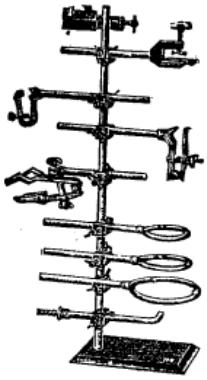
2-721 (1 : 12)

2-720 **Retort stand**; type A, completed with 3 iron ring, 1 clamp and 1 clamp holder, height 50 cm, about 3 kg.

2-721 **Retort stand**; type B, completed with 1 iron ring, 1 clamp and 1 clamp holder, height 44 cm.



2-724 (1 : 11)



2-727 (1 : 16)

2-724 **"MARIS" Iron stand**; for physical and chemical experiment use, height 60 cm, about 4 kg.

2-727 **Universal stand**; height 75 cm, about 4 kg.

2-730 No. 12 (1 : 6)

2-730 **Test tube stand**; of wood.
type No. 6 ..... for 6 tubes use.
type No. 12 ..... for 12 tubes use.

2-734 (1 : 10)

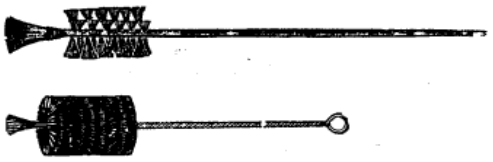
2-734 **Funnel stand;** for 2 funnels use, of wood, hight 75 cm.

2-736 (1 : 16)

2-736 **Burette stand;** of wood, 2 burettes use.

2-742 (1 : 14)

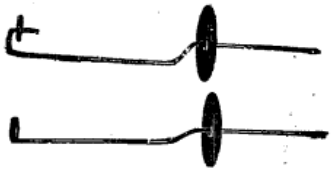
2-742 **Pipette stand;** of wood, for 10 pipettes use.



2-750 (1 : 5) & 2-751 (1 : 8)

2-750 **Test tube brush;**
2-751 **Beaker brush;**
2-752 **Brush for long pipe;**
2-755 **Brush for capillary tube ;**
2-756 **Flasks brush;**

Spoon, Stopper and Other Apparatus



2-800 (1 : 7)

2-800 **Diflagrating spoon and taper-holder;** of brass, 2 a set.

2-805 (1 : 4.4)

2-805 **Spoon;** of stainless, 3 a set.
2-806 **Spoon;** of horn, 3 a set.

2-820 **Cork stopper;**

12	15	18	21	24	27	30	36 mm.
diameter							

2-822 **Rubber stopper;**

#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
number									

2-825 **Rubber tube;**

4	6 mm.
outer diameter	

2-827 **Transparent vinilon tube;**

outer diam.	4.2	7.3	11.0	14.2 mm.
inner diam.	3.2	6.3	9.5	12.7 mm.

2-830 **Rubber tube for vacuum;** thick wall.

2-835 (1 : 5.5)

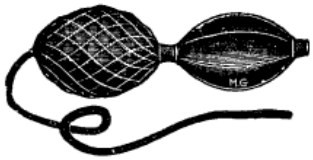
2-835 Triangles; of iron wire, with clay-tube.

2-838 (1 : 6)

2-838 Blow-pipe;

2-840 (1 : 5)

2-840 Charcoal borer;



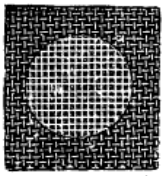
2-843 (1 : 5.5)

2-843 Rubber bellow; with protection net, for spray.

2-846 Platinum wire; with glass handle.

2-848 (1 : 8)

2-848 Bent combustion tube; for hydrogen gas.



2-850 (1 : 7.5)

2-850 Iron wire gauge; with asbesto-filled centre, flat form, 15 cm.

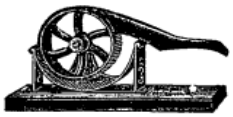
2-852 Sand bath;

12	15 cm.
diameter	

2-855 Sieve; of brass, diameter 9 cm.

2-856 (1 : 15)

2-856 Sieve for soils; of brass, with cover and pan, diameter 55 mm, 0.25, 0.5, 1, 2, 4 mm. 5 pcs a set.



2-859 (1 : 11)

2-859 Cork squeezer; type A, wheel form.

2-862 (1 : 10)

2-862 Cork squeezer; type B, weasel form.

2-865 No. 6 (1 : 4)

2-867 (1 : 10)

2-865 Cork borer;
type No. 6 ..... 6 pcs a set.
type No. 12 ..... 12 pcs a set.

2-867 Retorts; of iron, capacity 500 cc.

2-869 (1 : 5.5)

2-870 (1 : 2.5)

2-869 **Mortar**; of iron, with pestles.

12	15 cm.
diameter	

2-870 **Mortar**; of agate, with pestles, diameter 50 mm.

2-873 (1 : 5.5)

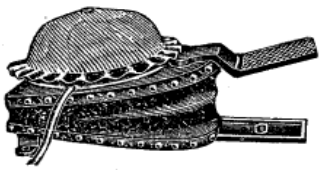
2-873 **Hot water funnel**; of copper, fixed a glass funnel by rubber stopper.

9	10.5	12	15 cm.
diameter			

2-875

2-875 **Water bath**; of copper.

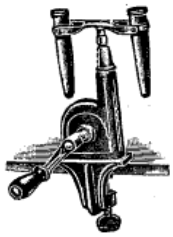
15	18	21	24 cm.
diameter			



2-878 & 879

2-878 **Foot bellow**; type A, diameter of protection net 18 cm, with protection net.

2-879 **Foot bellow**; type B, diameter of protection net 14 cm, with protection net.

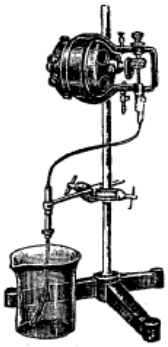


2-881 (1 : 10)

2-881 **Centrifugal separator**; for 2 tubes of 15 cc, rotated by handle.

2-882 (1 : 11.5)

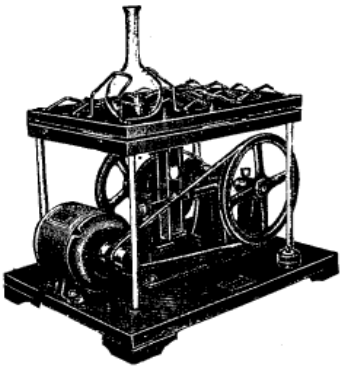
2-882 **Electrical centrifuge**; with motor, for 4 tubes of 15 cc, alternating current 100 V. input.



2-885 (1 : 11)

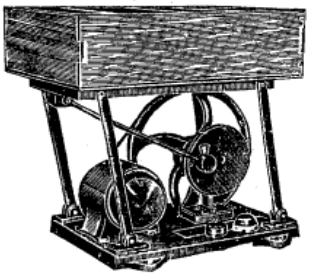
2-885 **Electric universal agitator**; for alternating 100 V. input, with motor and speed adjustment.

2-889 **Shaking apparatus**; Wagner's, with rotating motion, for 10 flasks, rotating by handle.



2-892 (1 : 23)

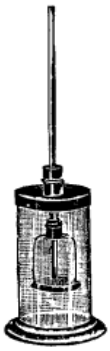
2-892 **Electric shaking apparatus;** type A, with ⅛ HP motor.



2-893 (1 : 23)

2-893 **Electric shaking apparatus;** type B, with ⅛ HP motor.

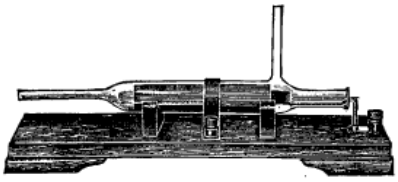
2-895 (1 : 11)



2-898 (1 : 10)

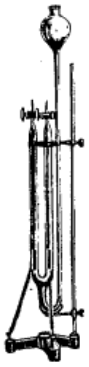
2-895 **Presses;** advisable to laboratories, for 500 gr. use, with stainless steel trough.

2-898 **Endosmometer;** of glass.

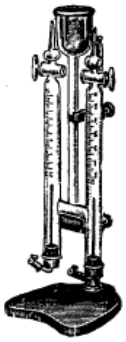


2-900 (1 : 5)

2-900 **Ozonizer;** with wooden base.



2-905 (1 : 18)

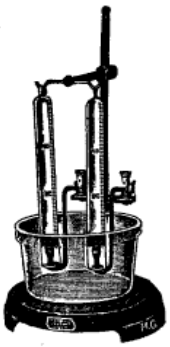


2-907 (1 : 8.5)

2-905 **Hofmann's electrolysis apparatus;** standard model, with platinum electrodes.

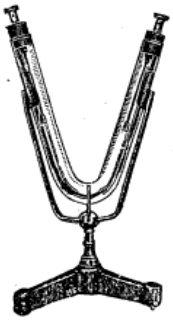
2-906 **Hofmann's electrolysis apparatus;** model B, with platinum electrodes.

2-907 **Hofmann's electrolysis apparatus;** model C, with carbon electrodes.



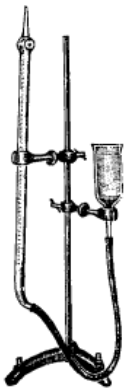
2-910 (1 : 7)

2-910 **Apparatus for electrolysis of water;** with silver electrodes.



2-913 (1 : 6.5)

2-913 **Apparatus for electrolysis of salts;** with carbon electrodes.



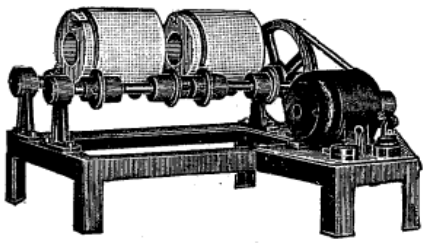
2-917 (1 : 15)

2-920 (1 : 22)

2-917 **Eudiometer;** graduated, with stand, platinum electrodes.

2-919 **Mercury;** 1 lb. in glass bottle.

2-920 **Purifying apparatus for mercury;**

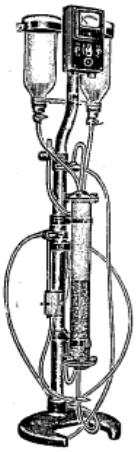


2-925 (1 : 14)

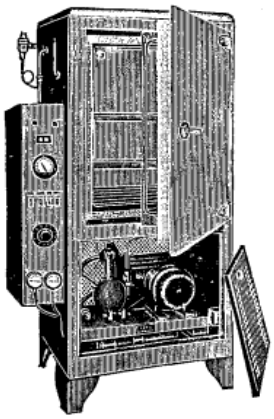
2-925 **Ball mill;** roll type, with 2 pots (outer diameter 150mm. length 180 mm.), 1/8 HP motor and other accessories, complete set.

2-928 **Refining apparatus of water;**

model SK-15, able to refine about 15 litres per hour.

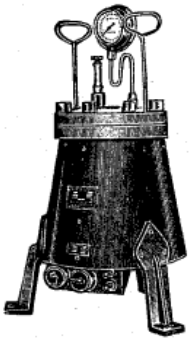


2-928 (1 : 17)



2-930 (1 : 25)

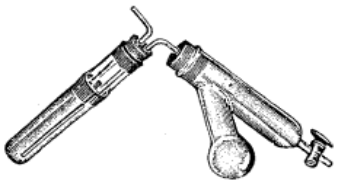
2-930 **Constant low temperature electric oven;** model LT-1, temperature range −10°C ~ 30°C, with mercury automatic temperature regulator, inner size 50 × 75 × 43 cm.



2-935

2-935 **Autoclave;** 8~10 atm.

1.2	3 litres.
capacity	



2-950 (1 : 10)

2-950 "MARIS" Universal experiment apparatus for chemical; of glass.

2-955 (1 : 19)

2-955 "MARIS" Chemical experiment set; include 40 kinds of experimental instruments.

2-956 New Chemical experiment set; include 32 kinds of experimental instruments.

2-970 (1 : 17)

2-970 Set of chemicals; model A, H_2SO_4, HCl, HNO_3, MnO_2, FeS, $CaCO_3$, Zn, Pb, $KClO_3$, $SuSO_4$, NaOH, $CaCl_2$, NaCl, NH_4OH, & etc. 48 kinds a set.

2-971 Set of chemicals; model B, H_2SO_4, HCl, HNO_3, $CaCO_3$, MnO_2, Zn, NH_4OH, $KMnO_4$, $AgNO_3$, $BaCl_2$, $2H_2O$, P, $Na_2S_2O_4$, & etc. 24 kinds a set.

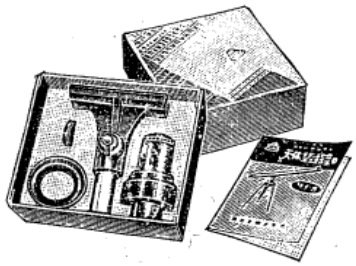
2-980 Filter paper; for qualitative analysis, 100 sheets a package.

9	11	15 cm.
diameter		

2-981 Filter paper; square, 60×60 cm, qualitative analysis.

(3) APPARATUS FOR ASTRONOMY AND PHYSICAL GEOGRAPHY

Astronomical Observation Apparatus



3-1 (1 : 10)

3-1 Astro-telescope making kit; consist with objective lens, completely assembled eye-pieces, eye-piece holder, mounting cradle and complete assembling direction, magnification 40×, 80×.

3-2 (1 : 14)

3-2 Telescope, DIANA; objective 40 mm, magnification 40×, 80×, (terr. 33×), with sun glass.

3-5 (1 : 14)

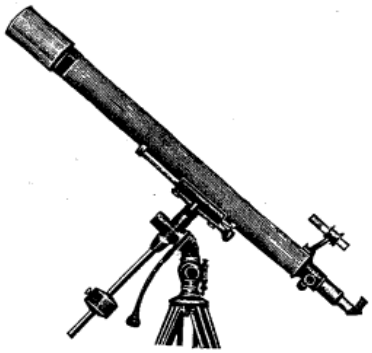
3-5 **Telescope, COMET;** objective 40 mm. magnification 38 ×, 75 ×, terr. 25 ×, with zenith prism, sun glass, case for telescope and accessories.

3-7 (1 : 16)

3-7 **Telescope, 2½ in. ALT-AZIMUTH;** objective 60 mm, magnification 48 ×, 96 ×, 133 ×, 200 ×, terr. 40×, with 4 eye-pieces, finder telescope, zenith prism, sun glass, case for telescope and accessories.

3-9 (1 : 15)

3-9 **Telescope, 2½ in. EQUATORIAL;** objective 60 mm. magnification 48 ×, 96 ×, 133 ×, 200 ×, terr. 40 ×, with 4 eye-pieces, finder telescope, zenith prism, sun glass, case for telescope and accessories.



3-11 (1 : 16)

3-11 **Telescope, 3 in. EQUATORIAL;** educational type, objective 75 mm, magnification 52 ×, 104 ×, 144 ×, 217 ×, terr. 43 ×, with 4 eye-pieces, finder telescope, zenith prism, sun glass, case for telescope and accessories.

3-13 (1 : 13)

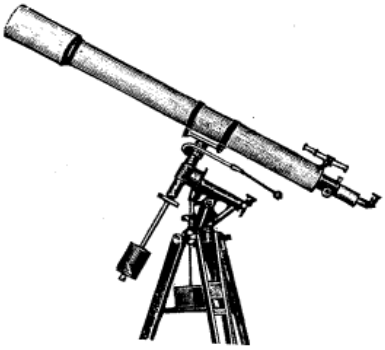
3-13 **Telescope, URANUS;** objective 60 mm, magnification 36 ×, 72 ×, 150 ×, terr. 30 ×, 4 eye-pieces, finder telescope, zenith prism, sun glass, case for telescope and accessories.

3-15 (1 : 16)

3-15 **Telescope, EROS;** objective 60 mm, magnification 36 ×, 72, ×, 150 ×, terr. 30 ×, 4 eye-pieces, finder telescope, zenith prism, sun projector, sun glass, case for telescope and accessories.

3-18 (1 : 18)

3-18 **Telescope, 3 in. EQUATORIAL;** best quality type, objective 80 mm, magnification 30 ×, 48 ×, 96 ×, 200 ×, with 4 eye-pieces, finder telescope, star and sun diagonal, sun projector, sun glass, case for telescope and accessories.

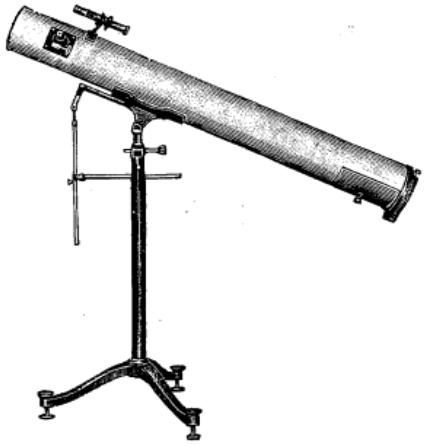


3-20 (1 : 18)

3-20 **Telescope, 4 in. EQUATORIAL;** best quality type, objective 100 mm, magnification 38 ×, 60 ×, 120 ×, 250 ×, with 4 eye-pieces, finder telescope, star and sun diagonal, sun glass, driven clock, case for telescope and accessories.

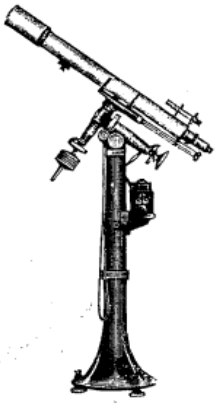
3-23 (1 : 15)

3-23 **Telescope, 4½ in. REFLECTOR;** main mirror 115 mm, magnification 48 ×, 96 ×, 200 ×, 3 eye-pieces, finder telescope, sun projector, sun glass, case for telescope and accessories.



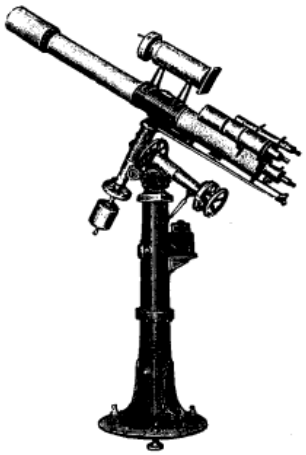
3-25 (1 : 20)

3-25 **Telescope, 6 in REFLECTOR;** main mirror 153 mm, magnification 64 ×, 128 ×, 267 ×, with 3 eye-pieces, finder telescope, sun projector, sun glass, equatorial for southern sky and alt. azimuth for northern sky with R. A. and decl. slow-motion.



3-27 (1 : 30)

3-27 **Telescope, 4 in. EQUATORIAL;** proffessional type, objective 38 ×, 60 ×, 120 ×, 250 ×, 375 ×, with 5 eye-pieces, finder telescope, star and sun diagonal, sun glass, driven clock, case for accessories, equatorial mount. with R. A. and decl. circle or slow-motion on iron pillar stand.

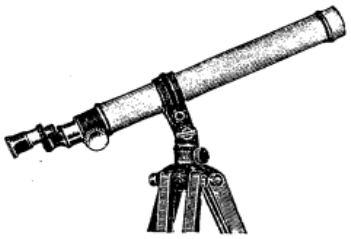


3-30 (1 : 45)

3-30 **Telescope, 6 in. EQUATORIAL;** proffessional type, objective 150 mm, magnification 56 ×, 90×, 125 ×, 180 ×, 250 ×, 375 ×, 562 ×, with 7 eye-pieces, (orthoscopic 4 mm, 6 mm, 9 mm, mittenzwey huygens HM 12.5 mm, 18 mm, 25 mm, kellner K 40 mm.) finder telescope, star diagonal sun diagonal, 2 sun glasses, moon glass, driven clock, star telescope, case for accessories, equatorial mount, with R. A. and decl. circle or slow-motion on iron pillar stand.

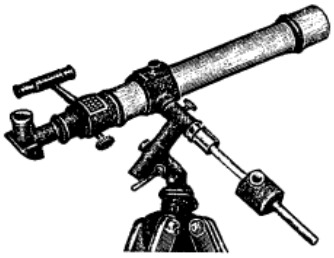
3-40 (1 : 7)

3-40 **Telescope making kit;** consist with objective lens (40 mm.) completely assembled eye-pieces, eye-piece holder, mounting cradle and complete assembling direction, magnification 40 ×.



3-43 (1 : 14)

3-43 **Telescope, model N-4 B;** objective 40 mm, magnification 40 ×, 83 ×. with 2 eye-pieces (HM 12.5 mm, HM 6 mm), sun-glass, star diagonal prism, wooden tripod leg.

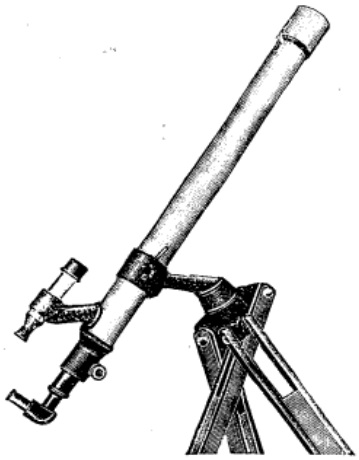


3-45 (1 : 14)

3-45 **Telescope, model T-8;** objective 52 mm, magnification 23×, 40×, 83×, with 3 eye-pieces (HM 6 mm, HM 12.5 mm, VTE8→ 20 mm), sun-glass, star diagonal prism, finder telescope (4 ×), wooden tripod leg.

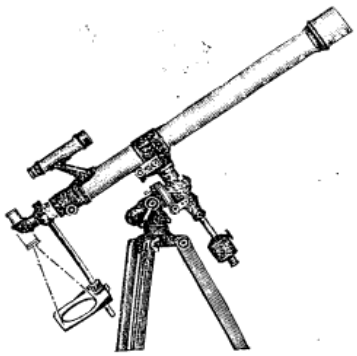
3-47 (1 : 13)

3-47 **Telescope, model T-9;** objective 52 mm, magnification 25 ×, with 1 eye-piece (T 20 mm), metal table tripod leg, in leather case, portable type.



3-49 (1 : 13)

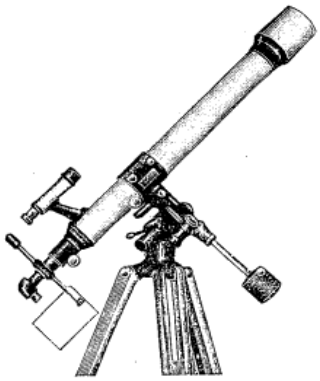
3-49 **Telescope, model S-3**; objective 62.5 mm, magnification 28 ×, 35 ×, 45 ×, 73 ×, 101 ×, with 2 eye-pieces (HM 9 mm, HM 12.5 mm), sun-glass star diagonal prism, finder telescope (6 ×), wooden tripod leg.



3-53 (1 : 18)

3-52 **Telescope, model S-5**; objective 62.5 mm, magnification 28×, 35×, 73 ×, 151 ×, with 3 eye-pieces (KAH 26→32 mm, HM 12.5 mm, HM 6 mm), sun-glass, star diagonal prism, finder telescope (6 ×), sun-screen, wooden tripod leg.

3-53 **Telescope, model S-6**; objective 62.5 mm, magnification 28 ×, 35 ×, 45 ×, 73 ×, 101 ×, 152 ×, with 5 eye-pieces (HM 6 mm, HM 9 mm, HM 12.5 mm, H 20 mm. KAH 26→32 mm), sun-glass, star diagonal prism, finder telescope (6 ×), sun screen, electing prism, wooden tripod leg.



3-55 (1 : 14)

3-55 **Telescope, model H-2**; objective 79 mm, magnification 23×, 35×, 45×, 73×, 101 ×, 152 ×, with 5 eye-pieces (HM 6 mm, HM 9 mm, HM 12.5 mm, H 20 mm. KAH 26→32 mm), 2 sun-glass, moon-glass, star diagonal prism, sun diagonal prism, finder telescope (6×), sun screen, electing prism, wooden tripod leg.

3-58 (1 : 13)

3-58 **Reflecter telescope, model LN-3**; main mirror 84 mm, magnification 34 ×, 74 ×, with 2 eye-pieces (K 2 mm, K 22 mm), sun-glass, metal table tripod leg, in carton box, portable type.

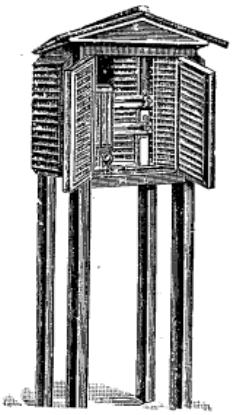
3-70 **Zenith prism**; for telescope use, 25 mm.

3-71 **Sun projector**; for telescope use.

3-75 **Finder telescope**; 20 mm, 7×.

3-76 **Sun glass**; with rim.

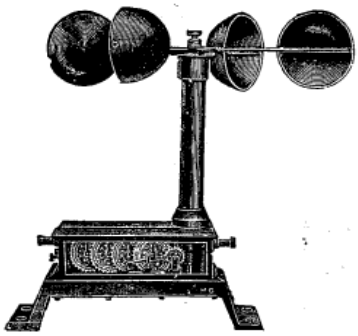
Meteorological Observation Apparatus



3-200

3-200 **Screen (shelter)**; model A, double wall, standard type, 60 × 60 × 60 cm. with 2 metre supports.

3-201 **Screen (shelter)**; model B, single wall, common type, 60 × 60 × 45 cm. with 1.5 metre supports.



3-205 & 206 (1 : 8)

3-205 **Robinson's anemometer;**

3-206 **Robinson's anemometer;** with certificate.

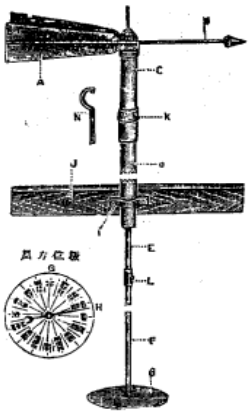
3-210 & 212 (1 : 7.5)

3-210 **Electric counter for anemometer;**

3-212 **Electric counter for anemometer;** with certificate.

3-215 (1 : 7.5)

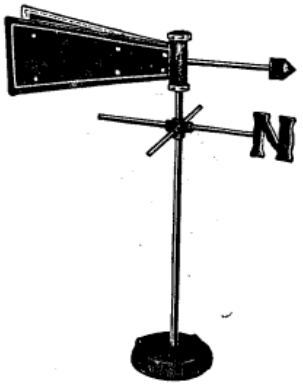
3-215 **Biram's anemometer;** standard type.



3-219 & 220 (1 : 28)

3-219 **Anemoscope;** model A, show the course of wind in the room, consist with 4 metre long pipe.

3-220 **Anemoscope;** model B, show the course of wind in the room, consist with 2 metre long pipe.



3-223 (1 : 15)

3-223 **Anemoscope**; model C, portable type.

3-225•type B (1 : 11)

3-225 **Set of anemometer and anemoscope**; portable type, with wooden tripod leg.

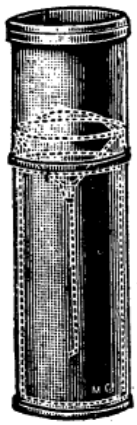
type A ..... Robinson's anemometer type.

type B ..... Biram's anemometer type.

3-230 **Rain gauge**; type A, standard type, of copper, diameter 20 cm.

3-231 **Rain gauge**; type B, of zinc-plated iron plate, diameter 20 cm.

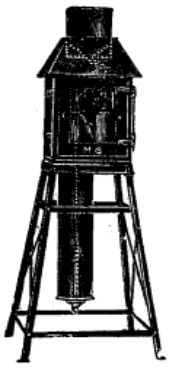
3-232 **Rain gauge**; with certificate, of copper, diameter 20 cm.



3-230 ~ 236

3-235 **Portable rain gauge**; of copper, diameter 10 cm.

3-236 **Portable rain gauge**; of zinc-plated iron plane, diameter 10 cm.



3-240 (1 : 28.5)

3-240 **Recording rain gauge**; with cover and receiver, complete set, G. Hellmann's type.

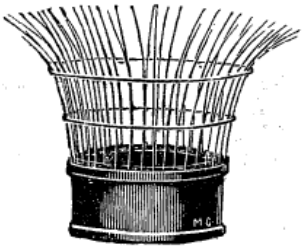
3-243~244 (1 : 10) 3-246 (1 : 10)

3-243 **Measuring cylinder for rain gauge**; of glass.

3-244 **Measuring cylinder for rain gauge;** of glass, with certificate.

3-245 **Measuring cylinder for portable rain gauge;** of glass.

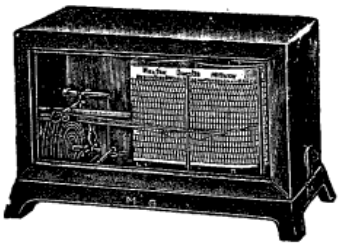
3-246 **Receiving glass for rain gauge;** of glass.



3-250 & 251 (1 : 10)

3-250 **Evaporation gauge;** of copper, diameter 20 cm, height 10 cm, inner side are tin-plated.

3-251 **Evaporation gauge;** of copper, with certificate, diameter 20 cm, height 10 cm, inner side are tin-plated.



3-255 & 256 (1 : 8)

3-255 **Recording barometer;** with form and ink, one week use.

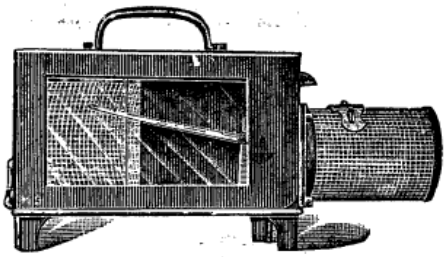
3-256 **Recording barometer;** with certificate, complete set, one week use.

3-259 (1 : 5)

3-259 **Aneroid barometer;** model A, diameter 5 inch, also fitted to demonstrate the inner side structure.

3-260 **Aneroid barometer;** model B, diameter 6 inch, with thermometer.

3-261 **Aneroid barometer;** with certificate, diameter 6 inch.



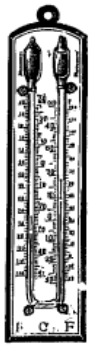
3-265 & 266 (1 : 6)

3-265 **Recording thermometer;** with form and ink, one week use.

3-266 **Recording thermometer;** with certificate, complete set, one week use.

3-270 (1 : 4.5)

3-273 (1 : 6)

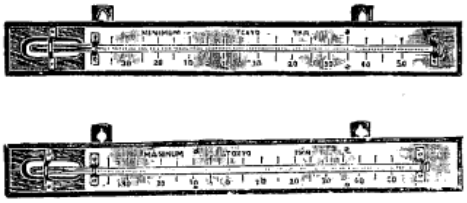


3-275 (1 : 5)

3-270 **Thermometer;** on wooden plate, for room and household.

3-273 **Thermometer;** with copper cover, fitted to measure the water temperature.

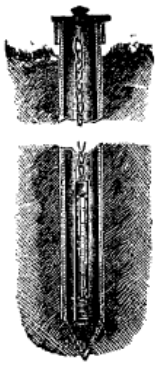
3-275 **Six's maximum and minimum thermometer;** U shaped for hanging, with magnet.



3-279 & 280 (1 : 6)

3-279 **Rutherford's maximum thermometer;**

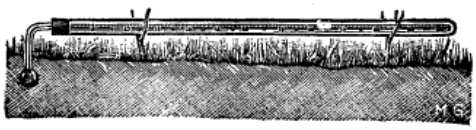
3-280 **Rutherford's minimum thermometer;**



3-285

3-285 **Earth thermometer;** diameter of iron pipe 4 cm.

50 cm. 1 metre 2 metre
length



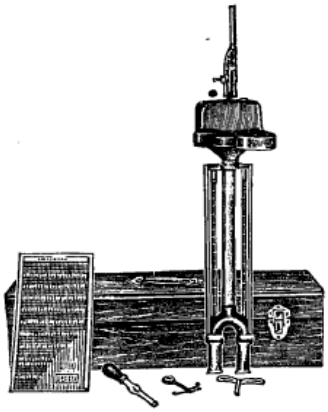
3-286

3-286 **Bent earth thermometer;**

0 5 10 15 20 30 cm.
depth

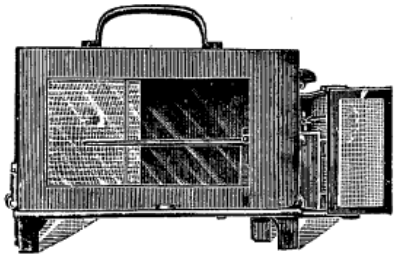
3-288 (1 : 6.5)

3-288 **Metal pipe for earth thermometer;** keep a thermometer in this pipe and put in earth.



3-290 (1 : 11)

3-290 **Assman's aspiratory hygrometer;** with all accessories, into wooden case.



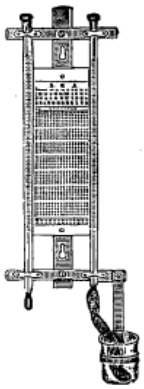
3-293 & 294 (1 : 6)

3-293 **Recording hair hygrometer;** with form and ink, one week use.

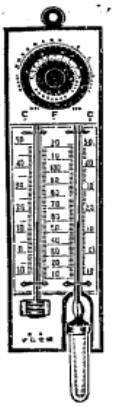
3-294 **Recording hair hygrometer;** with certificate, complete set, one week use.

3-297 (1 : 4)

3-297 **Hair hygrometer;** Lambrecht's.



3-298 (1 : 7.5)



3-299 (1 : 6.4)

3-298 **August's hygrometer;** wet and dry bulb hygrometer, with percentage list.

3-299 **Wet and dry bulb thermometer;** on wooden plate.

3-305 (1 : 20)

3-305 **Set for meteorological observation instruments;** model N, consist with anemometer, anemoscope, barometer, maximum and minimum thermometer, rain gauge, measuring cylinder for rain gauge, hygrometer, thermometer and wooden case.

3-306 **Set for meteorological observation iustruments;** model H,consist with rain gauge, measuring cylinder for rain gauge, maximum & minimum thermometer, anemoscope, anemometer, aneroid barometer and portable case.

3-310 (1 : 7)

3-310 **Jordan's sunshing recorder;** without form.

3-350 **Form for Jordan's sunshing recoder;** for one year a package.

3-355 **Form for recording thermometer;** for one year a package.

for one day use	one week use
type	

3-356 **Form for recording barometer;** for one year a package.

for one day use	one week use
type	

3-357 **Form for recording hair hygrometer;** for one year a package.

for one day use	one week use
type	

3-358 **Form for recording rain gauge;**

3-360 **Ink for recording instruments;**

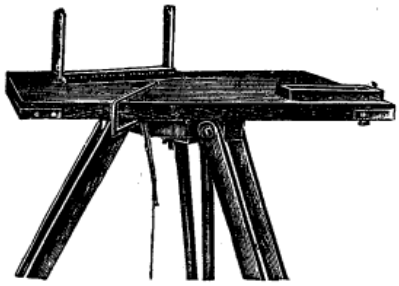
3-363 **Pen point for recording instruments;**

How to Acquire the Life Size of Actual Objects.

It is difficult for anybody to ascertain the life size of real things from the photographs alone. Naturally, it would be very inconvenient to those teachers who use them. Excepting, therefore, those articles, of which the capacity and measurement are clearly described, a scale has been given to the right of photograph number in the catalogue in reference to each article.

For instance, (1 : 5) indicates that the actual object is five times as large as the thing in the photograph.

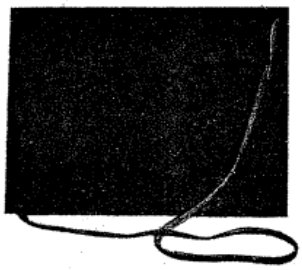
Physical Geographic Investigation Apparatus



3-400 (1 : 12)

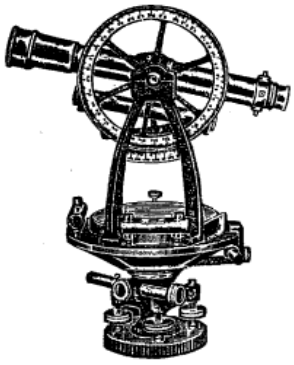
3-400 **Prosinessurieing instruments;** centering device for plane table, with alidade and tripod, complete set.

3-403 **Plane table;** of Japanese cypress, 39 × 50 cm. square.



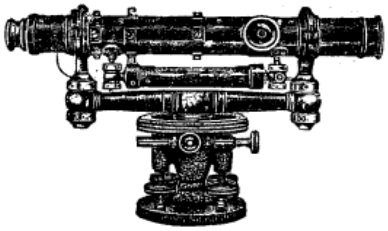
3-405 (1 : 8.7)

3-405 **Sketch table;** 32 × 41 cm, square.
type A ..... of Japanese cypress.
type B ..... veneer.



3-409 (1 : 6)

3-409 **Transit level;** with telescope, eye-piece diameter 2 cm. length 25 cm.



3-412 (1 : 6)

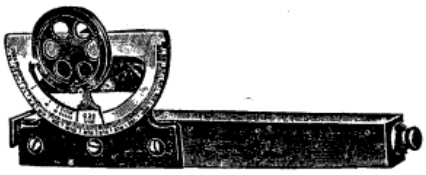
3-412 **Y-level;** 12 inch length, with microseism, 4 leveling screws.

3-415 (1 : 6.5)

3-415 **Pocket compass with telescope;** with 15× telescope, skin case and wooden tripod.

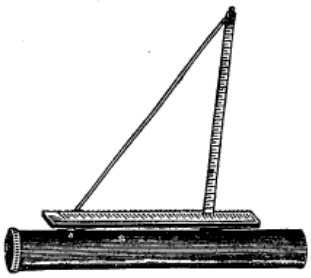
3-416 (1 : 6.5)

3-416 **Pocket compass;** peeping type with skin case and wooden tripod.



3-420 (1 : 2)

3-420 **Hand level;** vertical graduation 120°, into skin case.



3-423 (1 : 6)

3-423 **Weisescher's hypsometer;** into skin case.

3-425 **Ranging poles;** of wood, 2 metre long.

3-428

3-428 **Stave and rod;** with metre scale, 5 metre.

3-430

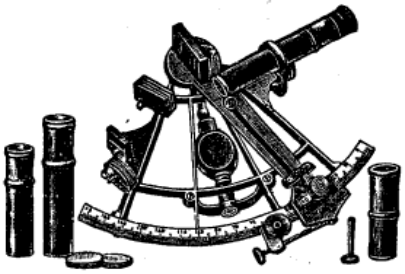
3-430 **Measuring rope;**

50 metre	100 metre
length	

3-431

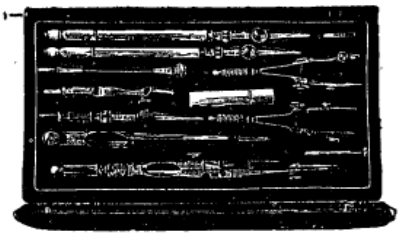
3-431 **Measuring chain;** with pins.

10	20	30 metre
length		



3-435 (1 : 6)

3-435 **Sextant;** radius 15 cm. divided into 150° to 20″, with lighting equipment and telescope.



3-440

3-440 **Drawing instruments;** in English system.

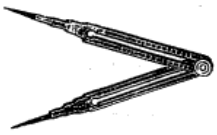
model No. 8 ..... 8 pieces a set.
model No. 10 ..... 10 pieces a set.
model No. 13 ..... 13 pieces a set.

3-447 **Drawing board;** of Japanese cypress.

type A ..... 75 × 105 cm.
type B ..... 60 × 90 cm.
type C ..... 45 × 60 cm.

3-448 **Drawing board;** of veneer.

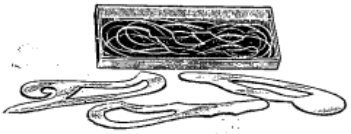
type A ..... 75 × 105 cm.
type B ..... 60 × 90 cm.
type C ..... 45 × 60 cm.



3-450 (1 : 4)

3-450 **Proportional compasses;** 15 cm. length.

3-455 **Transparent cellulcid protractor of half circle;**
type A ·····18 cm. long, 1 mm. thick.
type B ·····15 cm. long, 1 mm. thick.
type C·····12 cm. long, 0.5 mm. thick.



3-458 (1 : 7)

3-458 **Architectural curves;** of celluloid.
type A ····· 18 cm. 12 pieces a set.
type B ····· 18 cm. 6 pieces a set.

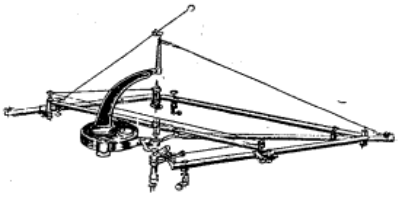
3-460 **Transparent celluloid plain triangles;** 2 a set.

15	18	24	30 cm.
length			

3-463

3-463 **Adjustable curve ruler;**

40	50	60 cm.
length		



3-465 (1 : 16)

3-465 **Pantograph;** fitted to reduce or spread until 20 : 1, into wooden case.

3-466

3-466 **Reducing instrument;** of wood.
type No. 5 ····· 5 time use.
type No. 8 ····· 8 time use.

3-470

3-470 **Hammer for mineral;**
type No. 1 ····· 1 lb. weight.
type No. 2 ····· 2 lbs. weight.

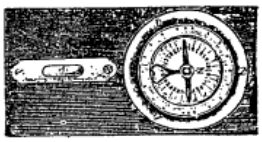
3-478 3-479

3-478 **Chisels for mineral;** round type.

10 cm.	18 cm.
length	

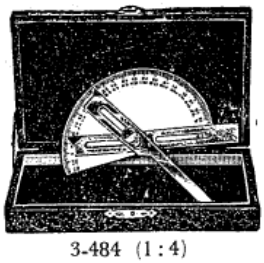
3-479 **Chisels for mineral;** plain type.

10 cm.	18 cm.
length	



3-483 (1 : 3)

3-483 **Clinometer;** of wood.



3-484 (1 : 4)

3-484 **Contact goniometer;**

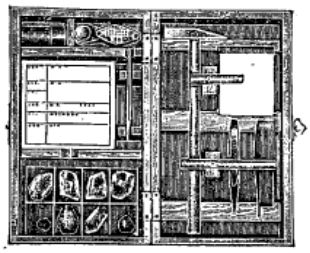
3-489 (1 : 9)

3-489 **Moh's scale of hardness**; 10 pieces a set, with streak plate.

3-490 **Streak plate**; of porcelain.

3-494 (1 : 16.6)

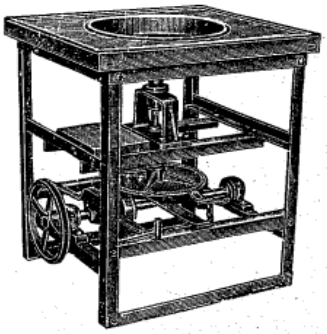
3-494 **Boring**; 1 metre long, with skin case.



3-496 (1 : 6)

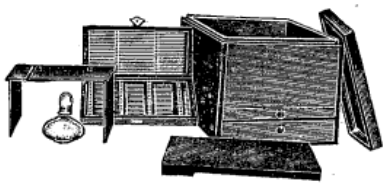
3-496 **Set for mineral determination**;
contents: Moh's scale of hardness, hammer, chisels, knife, pincettes, magnifire, streak plate, labels, case for chemicals.

3-499 **Blow-pipe analysis outfit**;



3-500 (1 : 21)

3-500 **Polishing machine for rock**; of iron-frame, with ¼ HP motor, regulator of speed.



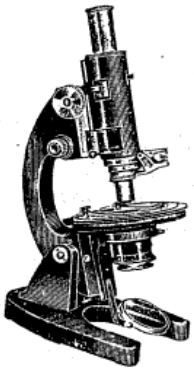
3-503 (1 : 11)

3-503 **Polishing set for rock**; with iron polishing plate, glass polishing plate, balsam oil, temper table, balsam spatula and polishing powder.

3-505 **Polishing powder set for rock**; contents: rough grain, medium grain, fine grain, most fine grain, X-ylol (1 oz.), canada balsam oil (1 oz.), deck glass and object glass.

3-510 **Balsam oil temper table**;
length 185 × width 125 × height 125 mm.

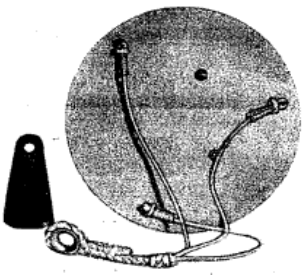
3-514 **Steel plate for rock polish**; 26 × 19 × 1 cm.



3-540 (1 : 6.5)

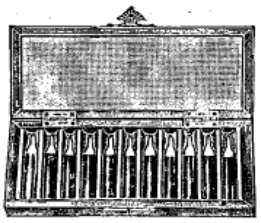
3-540 **Mineral microscope**; magnification 25~400 ×, with 3 eye-pieces (5 ×, 8 ×, 10 ×), 3 objectives (5 ×, 10 ×, 40×), 1 revolver use, with polarized equipment.

3-543 **Polarized attachment for microscope**; able to applicate as polarized microscope on attach it to biological microscope.



3-550 (1 : 10)

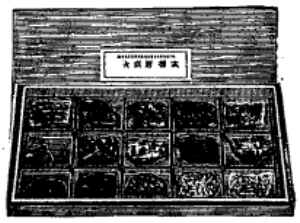
3-550 **Disc for transparency;** with weight.



3-555 (1 : 6)

3-555 **Water colour standard scale;** 11 pieces a set.

Specimens for Physical Geography

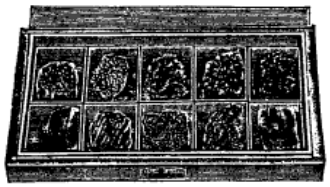


3-600 (1 : 10)

3-600 **Collection of igneous rocks;**
type A ..... 15 specimens in wooden case.
type B ..... 10 specimens in wooden case.

3-601 (1 : 10)

3-601 **Collection of accumulatic rocks;**
type A ..... 15 specimens in wooden case.
type B ..... 10 specimens in wooden case.

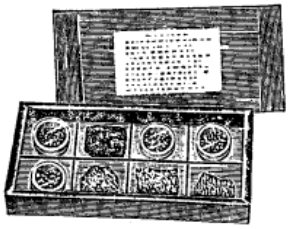


3-602 (1 : 9)

3-602 **Collection of metamorphic rocks;**
10 specimens in wooden case.

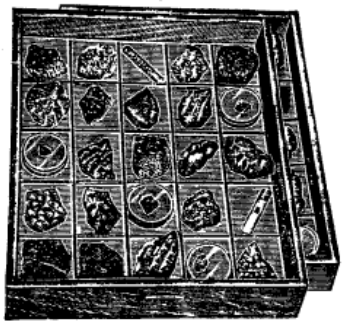
3-605 (1 : 8)

3-605 **Collection of volcanic products;** 10 specimens in wooden case.



3-610 (1 : 8)

3-610 **Collection of granites showing their decomposing stages;** showing 8 stages.

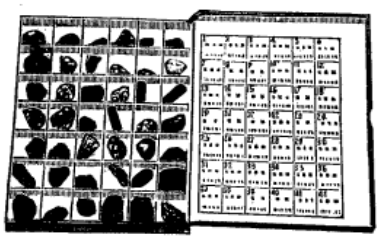


3-620·type B (1 : 8)

3-620 **Collection of rocks;**
type A .....100 specimens in wooden case.
type B .....50 specimens in wooden case.

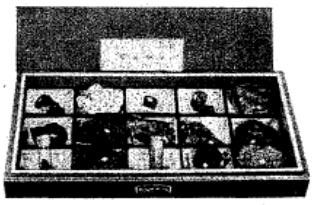
3-630 (1 : 13)

3-630 **Collection of minerals;**
type A ..... 100 specimens in wooden case.
type B ..... 50 specimens in wooden case.
type C ..... 15 specimens in wooden case.



3-637 (1 : 8)

3-637 **Collection of minerals;** type D, for pupil use, 42 specimens in a card board box, book size.

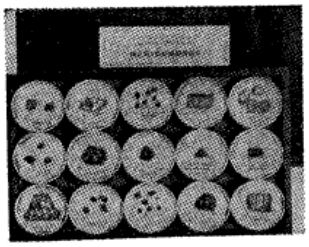


3-640 (1 : 8)

3-640 **Collection of ore;**
type A..... 15 specimens in wooden case.
type B..... 10 specimens in wooden case.

3-643 (1 : 5.5)

3-643 **Collection of precious stones;** include imitative precious stone, 10 specimens in case.



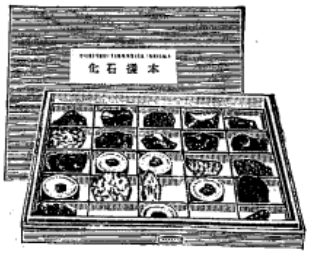
3-646•type A (1 : 7)

3-646 **Collection of radio-active minerals;**
type A ..... 15 specimens in wooden case.
type B ..... 5 specimens in wooden case.

3-651 (1 : 8)

3-650 **Collection of zoological fossils;** 20 specimens in wooden case, consist with palæozoic, mesozoic and cainozoic era.

3-651 **Collection of botanical fossils;** 10 specimens in wooden case, consist with palæozoic, mesozoic and cainozoic era.



3-652 (1 : 10)

3-652 **Collection of fossils;** zoological and botanical fossils of palæozoic, mesozoic & cainozoic era, 25 specimens in wooden case.

3-655 (1 : 10)

3-655 **Collection of residual soils;** 20 specimens in wooden case.

3-660 (1 : 8.5)

3-660 **Collection of minerals showing streak colours;**

3-670 **Preparation for rocks;** 15 specimens a set.

3-673 (1 : 6.6)

3-673 **Preparation for minerals;** 15 specimens a set.

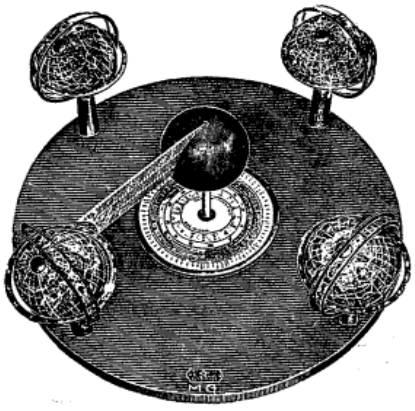
3-675 **Preparation for fossils;** 5 specimens a set.

Model for Geography

3-701 (1 : 11)

3-701 **Terrestrial globe;** diameter of globe 24 cm. mounted on wooden base.
type B ..... of English.
type C ..... of English and Chinese.

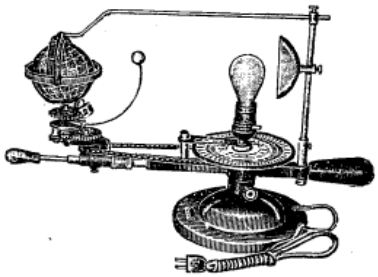
3-703 **Terrestrial globe;** diameter of globe 12 cm, mounted on wooden base, of English.



3-707 (1 : 9)

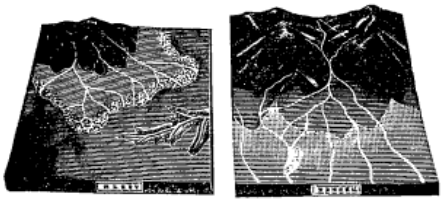
3-707 **Demonstration apparatus for change of four seasons;**

Maekawa Scientific Apparatus Mfg. Co., Ltd.



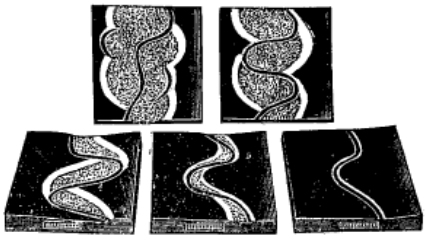
3-710 (1 : 10)

3-710 **Three globes set**; of all metal, with lamp.



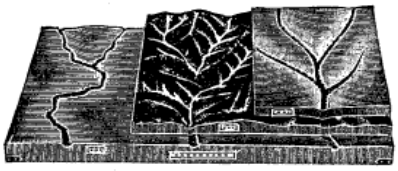
3-715 (1 : 11)

3-715 **Geological model showing accumulation**; of paper mache.



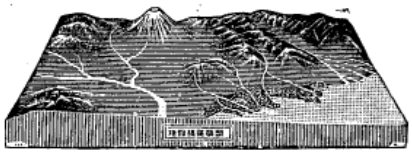
3-717 (1 : 20)

3-717 **Model illustrating the horizontal erosion of river**; of paper mache, 5 a set.



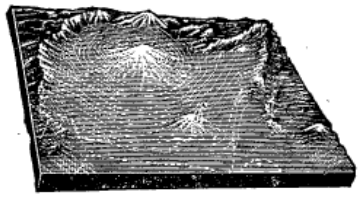
3-719 (1 : 12)

3-719 **Model of land to demonstrate of erosion**; of paper mache, 2 a set.



3-723 (1 : 9.5)

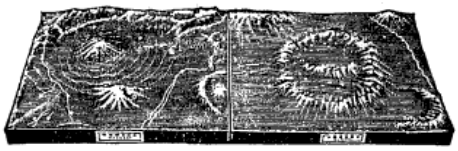
3-723 **model of topography**; of paper mache, showing the accumulation, delta, erosion of river and etc.



3-726 (1 : 10)

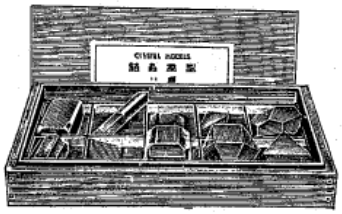
3-726 **Model of single volcano**; mount Fuji, of paper mache.

3-727 **Model of double volcano**; mount Aso, of paper mache.



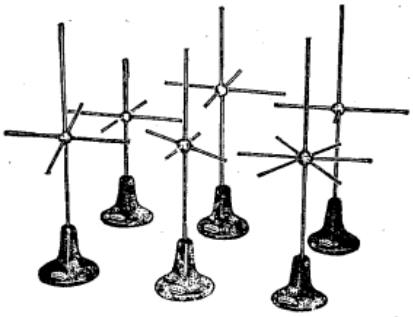
3-730 (1 : 9)

3-730 **Model of volcano**; single and double volcano a set, of paper mache.



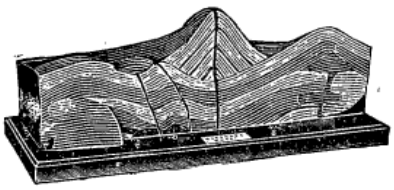
3-740

3-740 **Model of crystallized minerals**; of wood.
type A ..... 25 pieces in wooden case.
type B ..... 15 pieces in wooden case.



3-745 (1 : 11)

3-745 **Model of crystal axis;** of nickel-plated brass wire, 6 pieces a set.



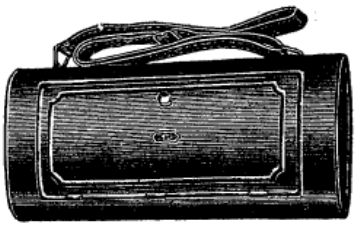
3-750 (1 : 11)

3-750 **Geological model showing section of crust;** of paper mache, showing the Sheet, Dyke, Diatreme, Fording, Stock, Conformity and etc.

3-758 **Model of standard fossils;** of plaster, 5 pieces a set.

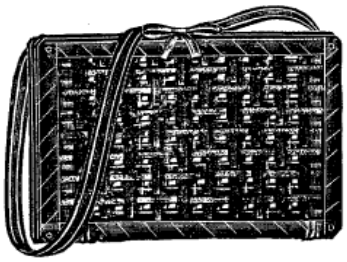
(4) APPARATUS FOR BIOLOGY

Instruments for Collection of Biology



4-1 (1 : 9)

4-1 **Vasculum;** of metal, with shoulder strap, 42 × 20 cm.



4-3 (1 : 11)

4-3 **Portable plant presses;** of bamboo, 30 × 45 cm.

4-5 **Dibble;** of steel, with wooden handle.
type A ..... large.
type B ..... medium.

4-10 (1 : 6)

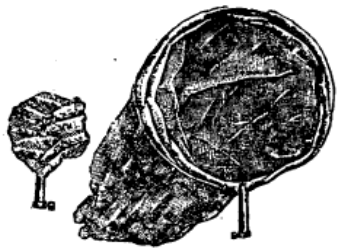
4-10 **Pruning shears;**

4-11 (1 : 3.4)

4-11 **Shears;**

4-12 (1 : 10)

4-12 **Shears;** fitted to cutting the branch of high ground.



4-20 (1 : 12)

4-20 **Insect net**; silk net, with bamboo handle.

Parts	
Silk net	Cotton net
nek holder	steel rim
bamboo handle (single)	bamboo handle (2 a set)
bamboo holder (3 a set)	

4-23 (1 : 7)

4-22 **Insect tube**; fitted to collect the minute insects.

4-23 **Killing jar**; type A, of glass, diameter 9 cm., height 13 cm.

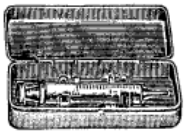
4-24 **Killing jar**; type B, of celluloid, diameter 7 cm., height 11 cm.

4-28 (1 : 7.5)

4-29 (1 : 5)

4-28 **Killing tube**; of glass, with cork stopper.

4-29 **Killing agents**; powder, in glass tube.



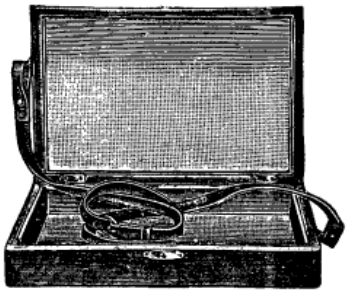
4-33 (1 : 4)

4-33 **Injector**; for entomology, into metal case, capacity 2 cc.

4-34 (1 : 3)

4-34 **Injection**; 25 grams, into bottle.

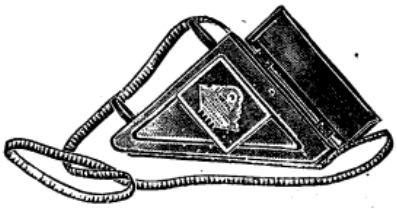
4-35 **Injector needle**; for entomology.



4-40 (1 : 7.5)

4-40 **Insect collecting case**; with shoulder strap, of paulownia, put a cork plate in innerside, 30 × 20 × 9 cm.

4-43 **Collecting tube**; with cork stopper, 10 pieces a set, fitted to collect the minute insects.



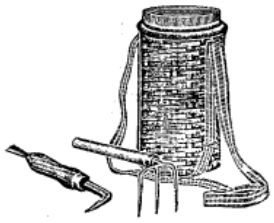
4-45 (1 : 6)

4-45 **Triangle-case**; of brass, lacquered polishing, with shoulder strap.

4-46 **Triangle-case**; of plastic, with shoulder strap.

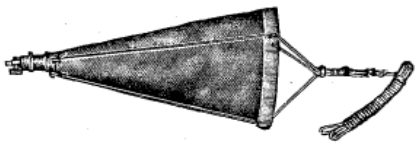
4-49 **Envelopes for butter-flies**; cellophane, 30 sheets in paper bag.

4-53 **Equatic insect net**; vinilon wire net, with handle.



4-55 (1 : 13)

4-55 **Set for beach's animal collection;** consist with collecting bottle (put into bamboo protector), rake, metal claw.



4-60 (1 : 15.5)

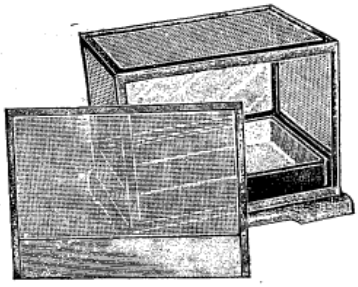
4-60 **Plankton net;** diameter 25 cm, 45 cm. length, with rope, special silk net metal stopcock.

Instruments for Breeding and Cultivation

4-100

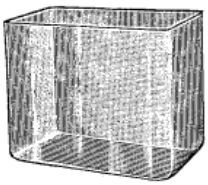
4-100 **Trough for breeding of equatic animals;** metal rim and basis, with wire net.

type A ..... 30 × 19 × 21 cm.
type B ..... 26 × 15 × 18 cm.
type C ..... 22 × 11 × 16 cm.



4-101 (1 : 11)

4-101 **Cage for breeding;** front is glass, upper and other 3 sides are wire net, with enameled pan, 37 × 27 × 22 cm.

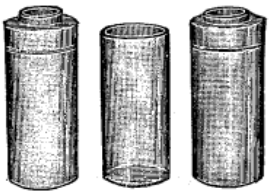


4-104 (1 : 14.5)

4-104 **Pneumatic troughs;** of glass, square form, 19 × 21 × 30 cm.

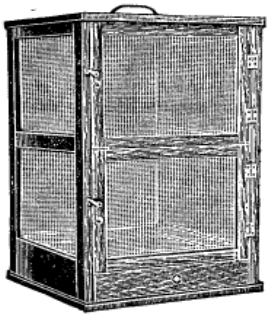
1-107 (1 : 10)

4-107 **Hydrophyte cultivation bottle;** for water caltivation, about 800 cc.



4-108 (1 : 9)

4-108 **Hydroponic tester;** 3 pieces a set, 85 × 210 cm.



4-115 (1 : 12)

4-115 Rearing cage; type A, front and both side are wire net, upper and lower side 2 door, drawer and shelf with plate, 30×30×45 cm.

4-116 (1 : 10)

4-116 Rearing cage; type B, 5 side are wire net, with drawer, 20×20×35 cm.

4-120 (1 ; 10)

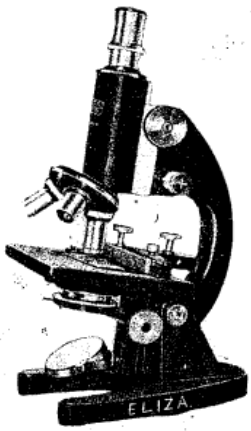
4-120 Insect cultivation bottle; with wire net, 12×18 cm.

Microscope and Accessories

4-200 (1 : 6)

4-200 Microscope; "ELIZA" Brand, Model ETP, phase type, graduated extensible monocular draw tube 160 mm, rack and pinion motion coarse adjustment, Meyer's type fine adjustment graduated in 2 micron intervals, oil immersion.

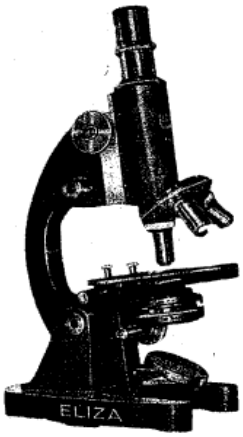
eye-pieces 5, 10, 15, K 20 ×.	phase type objectives
magnification 50~200 ×.	P 10 ×, P 40 ×, P 100 × (2 pieces).



4-203 (1 : 5.5)

4-203 Microscope; "ELIZA" Brand, Model EHSP, phase type, graduated extensible monocular draw tube of 160 mm, rack and pinion motion coarse adjustment, double lever type fine adjustment, triple revolving nosepiece.

eye-pieces 5, 10, P 15 ×.	phase type objectives
magnification 50~1500 ×.	P 10 ×, P 40 ×, P 100 ×.



4-205 (1 : 5)

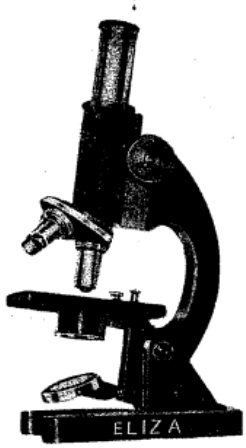
4-205 **Microscope;** "ELIZA" Brand, model EHP, phase type, graduated extensible monocular draw tube of 160 mm, rack and pinion motion coarse adjustment, double-lever type fine adjustment, triple revolving nosepiece.

eye-pieces	phase type objectives
5 ×, 10×, P 15×.	P 10×, P 40×, P 100 ×.
magnification	
50~1500×.	

4-207 (1 : 5)

4-207 **Microscope;** "ELIZA" Brand, Model EFP, phase type, non-extensible monocular tube, rack and pinion motion coarse adjustment, doublelever type fine adjustment, triple revolving nosepiece.

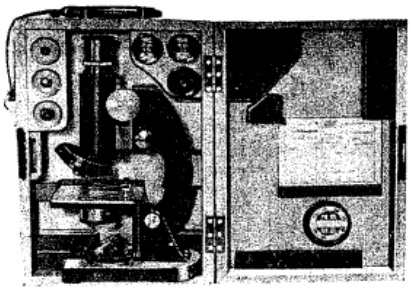
eye-pieces	phase achromatic objectives
5 ×, 8 ×, 15×.	4 ×, P 10 ×, P 60 ×.
magnification	
20~900 ×.	



4-209 (1 : 5.5)

4-209 **Microscope;** "ELIZA" Brand, model ESP, phase type, non-extensible monocular tube, rack and pinion motion coarse adjustment, triple revolving nosepiece.

eye-pieces	phase achromatic objectives
8 ×, 15×.	4 ×, P 10×, P 40×.
magnification	
32~600×.	



4-212 (1 : 6.5)

4-212 **Portable microscope;** "ELIZA" Brand, model EMP, phase type, an extensible monocular draw tube, rack and pinion motion coarse adjustment, double-lever type fine adjustment, triple revolving nosepiece, afixed solid rectangular stage, in hard wood portable cabinet with a lock and key.

eye-pieces	phase achromatic objectives
5 ×, 8 ×, 15 ×.	4 ×, P 10 ×, P 40×.
magnification	
20~600 ×.	

4-214 (1 : 6)

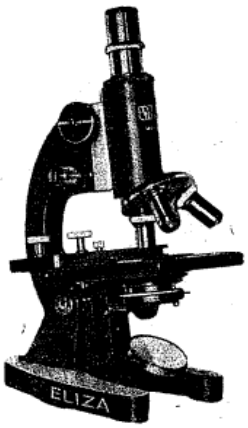
4-214 **Binocular microscope;** "ELIZA" Brand, model ETB; exchangeable monocular tube, rack and pinion motion coarse adjustment, Meyer's type fine adjustment graduated in 2 micron intervals, quadruple revolving nosepiece, oil immersion.

eye-pieces	achromatic objectives
5×, 10×, 15×, 20×,	
magnification	4×, 10×,
20～2,000×.	40×, 100×.

4-216 (1 : 5)

4-216 **Microscope;** "ELIZA" Brand, model EHT; graduated extensible monocular draw tube of 160 mm, rack and pinion motion coarse adjustment, Meyer's type fine adjustment graduated in 2 micron intervals, quadruple revolving nosepiece, oil immersion.

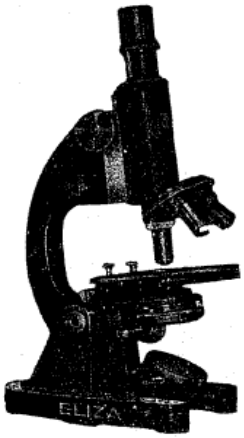
eye-pieces	achromatic objectives
5×, 10×, 15×, 20×.	
magnification	4×, 10×,
20～2,000×.	40×, 100×,



4-218 (1 : 5)

4-218 **Microscope;** "ELIZA" Brand, model EHS; graduated extensible monocular draw tube, rack and pinion motion coarse adjustment, micrometer double-lever type fine adjustment, triple revolving nosepiece.

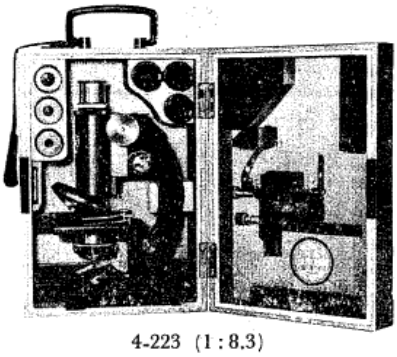
eye-pieces	achromatic objectives
5×, 10×, P 15×.	
magnification	10×, 40×, 100×.
50～1,500×.	



4-220 (1 : 5)

4-220 **Microscope;** "ELIZA" Brand, model EH; graduated extensible monocular draw tube, rack and pinion motion coarse adjustment, double-lever type fine adjustment, triple revolving nosepiece.

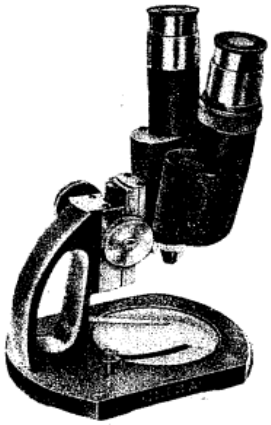
eye-pieces	achromatic objectives
5×, 10×, P 15×.	
magnification	10×, 40×, 100×.
20～1,500×.	



4-223 (1 : 8.3)

4-223 **Portable microscope;** "ELIZA" Brand, model EY; an extensible monocular draw tube, rack and pinion motion coarse adjustment, double-lever type fine adjustment, triple revolving nosepiece, in hard wood portable cabinet with a lock and keys, oil immersion.

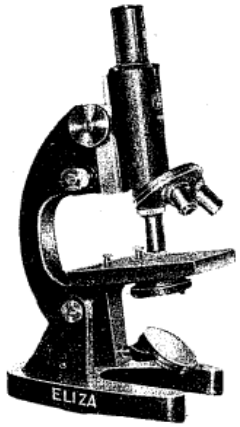
eye-pieces	achromatic objectives
5 ×, 10 ×, 15 ×.	10 ×, 40 ×, 100 ×.
magnification	
5~1,500 ×.	



4-225 (1 : 4)

4-225 **Wide field stereoscopic microscope;** "ELIZA" Brand, model EB; this microscope is useful for examining specimens in botany, zoology, entmology, dermatology, metallurgy and for other inspecting surface characteristics.

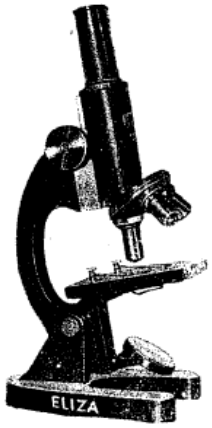
eye-pieces wide field	achromatic objectives fixed
5 ×, 10 ×, 15 ×.	3 ×. (paired)
magnification	
15 ×, 30 ×, 45 ×.	



4-228 (1 : 5)

4-228 **Microscope;** "ELIZA" Brand, model EF; non-extensible monocular tube, rack and pinion motion coarse adjustment, double-lever type fine adjustment, triple revolving nosepiece.

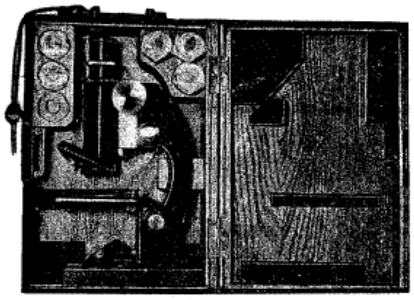
eye-pieces	achromatic objectives
5 ×, 8 ×, 15 ×.	4 ×, 10 ×, 60 ×.
magnification	
20~900 ×,	



4-231 (1 : 4.5)

4-231 **Microscope;** "ELIZA" Brand, model EN; non-extensible monocular tube, rack and pinion motion coarse adjustment, triple revolving nosepiece, medium stand.

eye-pieces	achromatic objectives
8 ×, 15 ×.	4 ×, 10 ×, 40 ×.
magnification	
20~600 ×.	



4-234 (1 : 6.5)

4-234 Portable microscope; "ELIZA" Brand, model EM; an extensible monocular draw tube, rack and pinion motion coarse adjustment, double-lever type fine adjustment, triple revolving nosepiece.

eye-pieces	achromatic objectives
5 ×, 8 ×, 15 ×.	4 ×, 10 ×, 40 ×.
magnification	
20~600 ×.	

4-236 (1 : 4.5)

4-236 Microscope; "ELIZA" Brand, model EK; single tube, inclinable trough 90° fixed square objective stage, rack and pinion for coarse focussing, school student use.

eye-piece	achromatic objectives
10 ×	4 ×, 40 ×.
magnification	
400 ×.	

4-250 (1 : 6)

4-250 Binocular microscope; "KYOWA" Brand, model KLB-Bi45; inclined binocular body 45°, rotating 360°, rack and pinion motion coarse adjustment, double-lever type fine adjustment in each low position, the focussing can be adjusted by up down motion of mechanical stage, triple revolving nosepiece, oil immersion.

eye-pieces	achromatic objectives
5 ×, 10 ×, P 15 ×.	10 ×, 40 ×, 100 ×.
magnification	
50~1,500 ×.	

4-253 (1 : 6)

4-253 Binocular microscope; "KYOWA" Brand, model KO-Bi60; inclined binocular body 60°, rotating 360°, rack and pinion motion coarse adjustment, double-lever type fine adjustment, magnification of binocular tube 2 ×, quadruple revolving nosepiece.

eye-pieces	achromatic objectives
5 ×, 10 ×, P 15 ×.	4 ×, 10 ×, 40 ×, 100 ×.
magnification	
40~3,000 ×.	

4-255 (1 : 6)

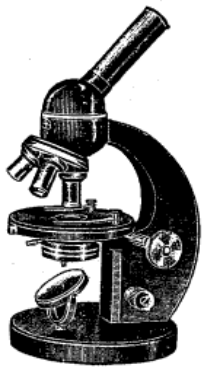
4-255 **Microscope**; "KYOWA" Brand, model KO; graduated extensible monocular draw tube of 170 mm, rack and pinion motion coarse adjustment, Meyer's type fine adjustment graduated in 2 micron intervals, quadruple revolving nosepiece, oil immersion.

eye-pieces	achromatic objectives
5 ×, 10 ×, P 15 ×, K 20 ×.	4 ×, 10 ×, 40 ×, 100 ×.
magnification	
20~2,000 ×.	

4-257 (1 : 6)

4-257 **Microscope**; "KYOWA" Brand, model KH; graduated extensible monocular draw tube, rack and pinion motion coarse adjustment, micrometer double-lever type fine adjustment, quadruple revolving nosepiece.

eye-pieces	achromatic objectives
5 ×, 10 ×, P 15 ×.	4 ×, 10 ×, 40 ×, 100 ×.
magnification	
20~1,500 ×,	



4-259 (1 : 6)

4-259 **Microscope**; "KYOWA" Brand, model KLH; inclined monocular body 45°, rotating 360°, rack and pinion motion coarse adjustment, micrometer double-lever type fine adjustment, triple revolving nosepiece.

eye-pieces	achromatic objectives
5 ×, 10 ×, P 15 ×.	10 ×, 40 ×, 100 ×.
magnification	
50~1,500 ×.	

4-262 (1 : 6)

4-262 **Microscope**; "KYOWA" Brand, model KE; non-extensible monocular tube, rack and pinion motion coarse adjustment, double-lever type fine adjustment, triple revolving nosepiece.

eye-pieces	achromatic objectives
5 ×, 10 ×, P 15 ×.	10 ×, 40 ×, 100 ×.
magnification	
50~1,500 ×.	

4-265 (1 : 6)

4-265 **Microscope;** "KYOWA" Brand, model KA; non-extensible monocular tube, rack and pinion motion coarse adjustment, double-lever type fine adjustment, triple revolving nosepiece.

eye-pieces	achromatic objectives
10 ×, P 15 ×.	4 ×, 10 ×, 60 ×.
magnification	
40~900 ×.	

4-268 (1 : 6)

4-268 **Microscope;** "KYOWA" Brand, model KLS; inclined monocular body 45°, rotating 360°, rack and pinion motion coarse adjustment, micrometer double-lever type fine adjustment, triple revolving nosepiece, medium stand.

eye-pieces	achromatic objectives
10 ×, 15 ×.	4 ×, 10 ×, 60 ×.
magnification	
40~900 ×.	

4-270 (1 : 5.5)

4-270 **Microscope;** "KYOWA" Brand, model KF; non-extensible monocular tube, rack and pinion motion coarse adjustment, lever type fine adjustment with knob on the left side only, triple revolving nosepiece, medium stand.

eye-pieces	achromatic objectives
10 ×, 15 ×,	4 ×, 10 ×, 60 ×.
magnification	
40~900 ×.	

4-272 (1 : 5.5)

4-272 **Microscope;** "KYOWA" Brand, model KK; non-extensible monocular tube, rack and pinion motion coarse adjustment only, none condenser, triple revolving nosepiece, medium stand.

eye-pieces	achromatic objectives
10 ×, 15 ×,	4 ×, 10 ×, 40 ×.
magnification	
40~600 ×.	

4-275 (1 : 5.5)

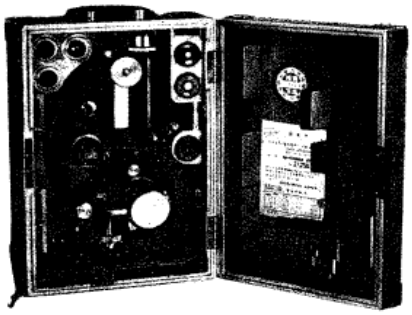
4-275 **Microscope;** "KYOWA" Brand, model KU; non-extensible monocular tube, rack and pinion motion coarse adjustment only, double revolving nosepiece, medium stand, for high school or middle school student use.

eye-pieces	achromatic objectives
10 ×, 15 ×.	10 ×, 40 ×.
magnification	
100~600 ×.	

4-278 (1 : 5.5)

4-278 **Microscope;** "KYOWA" Brand, model KT; non-extensible monocular tube, rack and pinion motion coarse adjustment only, double revolving nosepiece, medium stand, for middle school or primary school student use.

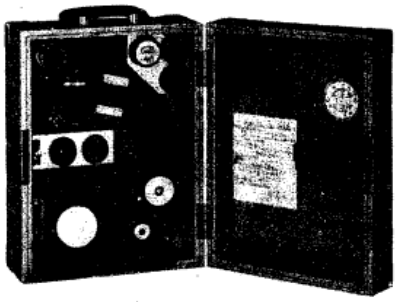
eye-pieces	achromatic objectives
10 ×, 15 ×,	10 ×, 40 ×.
magnification	
100~600 ×,	



4-280 (1 : 7)

4-280 **Portable microscope;** "KYOWA" Brand, model KP; graduated extensible monocular draw tube, rack and pinion motion coarse adjustment, Meyer's type fine adjustment graduated in 2 micron intervals, triple revolving nosepiece.

eye-pieces	achromatic objectives
5 ×, 10 ×, P 15 ×.	10 ×, 40 ×, 100 ×.
magnification	
50~1,500 ×.	



4-282 (1 : 6.5)

4-282 **Portable microscope;** "KYOWA" Brand, model KLP; inclined monocular body 45°, rotating 360°, rack and pinion motion coarse adjustment, micrometer double-lever type fine adjustment, triple revolving nosepiece, medium stand.

eye-pieces	achromatic objectives
10 ×, 15 ×.	4 ×, 10 ×, 60 ×.
magnification	
40~900 ×.	

4-284 (1 : 5)

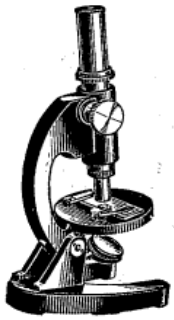
4-284 **Wide field stereoscopic microscope;** "KYOWA" Brand, model KB; this microscope is fitted to examining specimens of Botany, Zoology, Entomology and other inspecting surface characteristics, vertical movements is made by rack and pinion focussing motion with three dove-tail slides.

eye-pieces wide fixed 10 ×, 15 ×.	achromatic objective 2 ×. (paired)
magnification 20 ×, 30 ×.	

4-286 (1 : 5.5)

4-286 **Microscope;** "KYOWA" Brand, model KN; single tube, stage and frame of eye-pieces are made of bakelite, rack and pinion motion coarse adjustment only, for school student use.

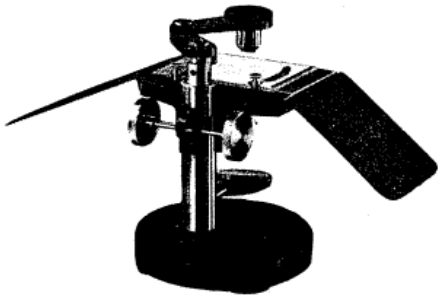
eye-pieces 10 ×, 15 ×.	achromatic objectives 10 ×, 40 ×.
magnification 100 ×, 600 ×.	



4-290 (1 : 6)

4-290 **Microscope;** "HESPER" Brand, model S; single tube, rack and pinion motion coarse adjustment only, for school student use.

eye-piece 15 ×.	achromatic objective 20 ×.
magnification 300 ×.	

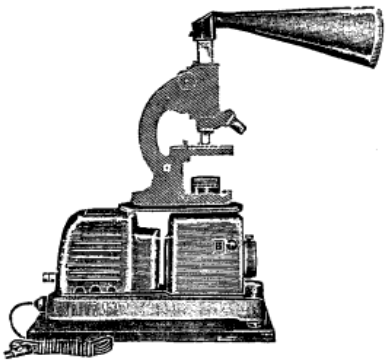


4-293 (1 : 5)

4-293 **Dissecting microscope;** the stage of rectangular form has a transparent glass plate in the center, focussing may be performed by rack and pinion which enables the opticals parts to be raised or lowered, supporting frame of magnifiers has two hinged joints and can be moved to observe over a wide area.
optical parts ..... 10 ×, 20 ×.

4-297 (1 : 6)

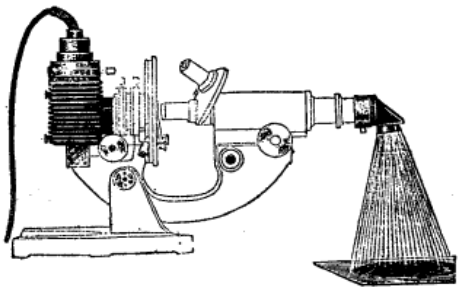
4-297 **Surface microscope;** magnification 100×, with skin case and lamp.



4-301 (1 : 10.7)

4-300 **Micro-projection apparatus;** model A, this apparatus is useful to project at the attached screen as look through the microscope, model A is also enable to slide project.

4-301 **Micro-projection appratus;** model B, same as model A, but excluded the accessories for slide projection.



4-305 (1 : 8)

4-305 **Micro-projection appratus;** model C, consist with lamp house, prism for refraction and transformer.

4-320 (1 : 6)

4-320 **Binocular attachment;** inclination of tube 60°, rotating 360°, magnification is increased to 2 times as against the monocular magnification at normal tube.

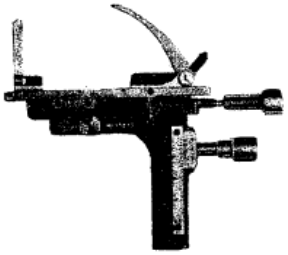
4-323 **Eye-piece lense;** for microscope use.

5 ×, 8 ×, 10 ×, 15 ×.
magnification

4-325 **Achromatic objective lense;** for microscope use.

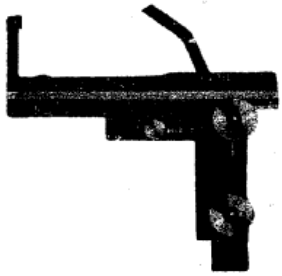
4 ×, 10 ×, 40 ×, 60 ×, 100 ×.
magnification

4-328 **Indicate eye-piece lense;** for microscope use, 10 ×.



4-340 (1 : 4)

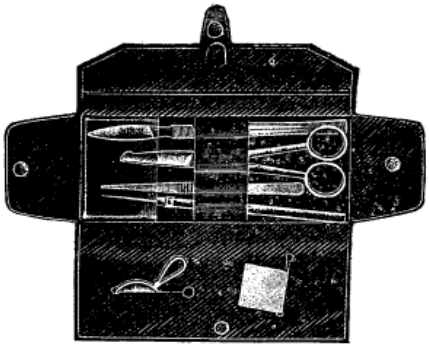
4-340 **Graduated mechanical stage;** with scales and verniers reading to 0.1 mm., has a to-and-fro movement 30 mm. and a lateral movement of 50 mm.



4-341 (1 : 4)

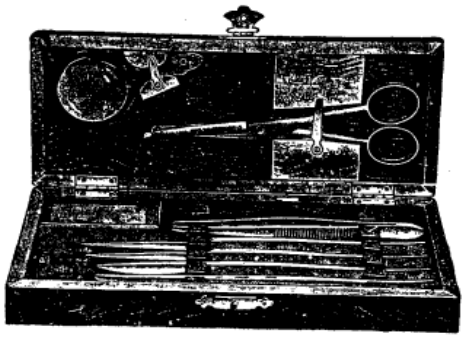
4-341 **Un-graduated mechanical stage;** has a to-and-fromovement of 26 mm. and a lateral movement of 70 mm.

Experimental Apparatus for Biology



4-400•type B (1 : 4)

4-400 **Dissecting set;** scalpel, scissor, Forceps, dissecting needle, magnifier, insect pins.
type A ····· 6 pieces in wooden case.
type B ····· 6 pieces in vinilon case.



4-403 (1 : 3)

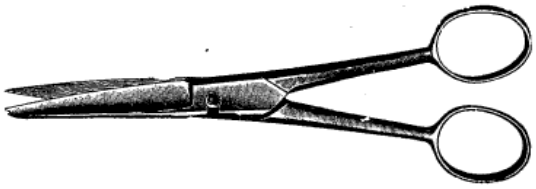
4-403 **Dissecting set;** 2 scalpels, scissor, 2 forceps, 2 dissecting needls, spatula, magnifier, insect pins. 10 pieces in wooden case.

4-405

4-405 **Dissecting pan;** with cork plate.
type A ····· size: 27×37 cm.
type B ····· size: 15×21 cm.

4-408 C & A (1 : 2)

4-408 **Scalpel;** metal handle.
type A ·····first quality, pointed apex.
type B ·····common quality,pointed apex.
type C ·····first quality, curved apex.



4-410 type A (1 : 1.7)

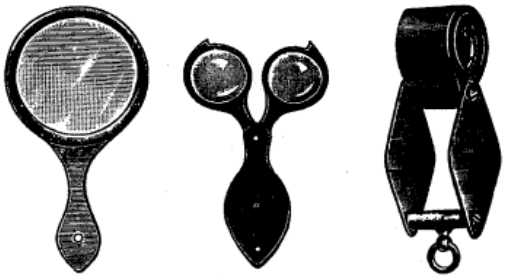
4-410 **Scissor;** type A ····· first quality, sharp apex.
type B ····· common quality, sharp apex.
type C ····· first quality, curved apex.

4-413 **Forceps;** type A ····· first quality, straight apex.
type B ····· common quality, straight apex.
type C ····· first quality, curved apex.

4-416 (1 : 2)

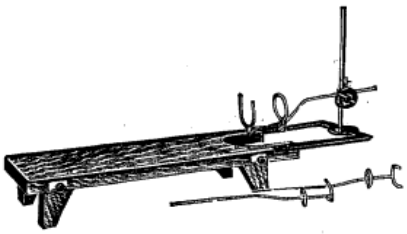
4-416 **Dissecting needle;** with metal handle.

4-419 **Spatula;** with wooden handle.



4-422•type B (1 : 2) type C (1 : 3) type D (1 : 2)

4-422 **Magnifier;**
A (3 ×), B (4 ×), C (10 ×), D (25 ×)
type



4-425 (1 : 17)

4-425 **Rabbit fixing board;** of wood, with universal metal clamp.

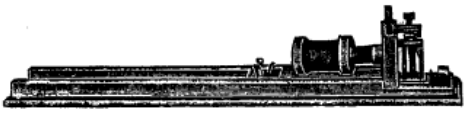
4-428 **Movable clamp;** universal type.

4-430 **Copper-zinc pincette;** 115 mm. long.

4-433 (1 : 5)

4-433 **Mercury switch;** diameter 65 mm.

4-435 **Armature;**

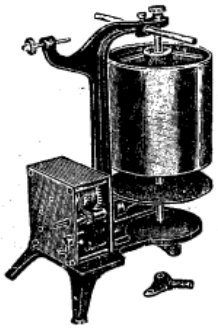


4-437 (1 : 12)

4-437 **Du bois Reymond's induction coil;** horizontal, length of scale 50 cm.

4-440 (1 : 10)

4-440 **Apparatus of heart refluxing experiment;** in wooden case.



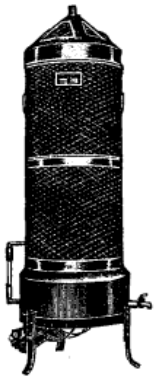
4-443 (1 : 11)

4-443 **Kimograph;** diameter of drum 15 cm, height 18 cm, with speed regulator.

4-446 **Form for kimograph;**

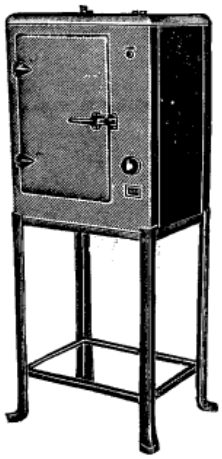
4-449 (1 : 6)

4-449 **Thoma's Haemacytometer;**



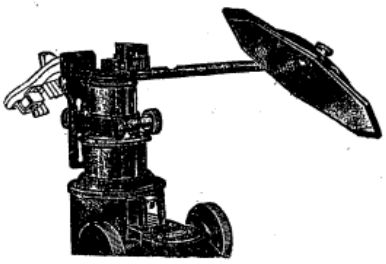
4-454 (1 : 28)

4-454 **Koch's steam sterilizer;** of copper, inner size 30×70 cm, with heater.



4-458 (1 : 14)

4-458 **Electric hot air sterilizer;** maximum temperature 200°C, 30 × 36 × 30 cm. inner size.



4-461 (1 : 6)

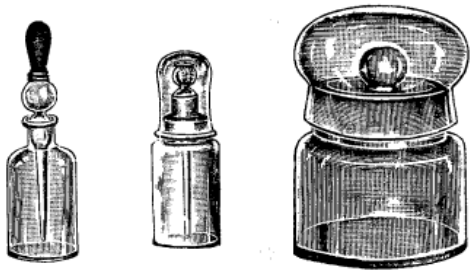
4-461 **Abbe's drawing apparatus;** with reflaction mirror, prism and microseism.

4-462 (1 : 2.5)

4-462 **Camera lucida;** drawing apparatus for microscope.

4-467 **Cedar-wood oil;** 1 oz. in reagent bottle.

4-468 **X-ylol;** 1 oz. in reagent bottle.



4-470•type A type B type C

4-470 **Capped bottles;**

type A ..... capacity 30 cc.
type B ..... capacity 30 cc.
type C ..... capacity 100 cc.

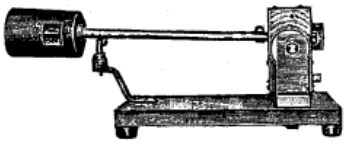
4-474

4-474 **Petris dishes;**

6	9	12 cm.
diameter		

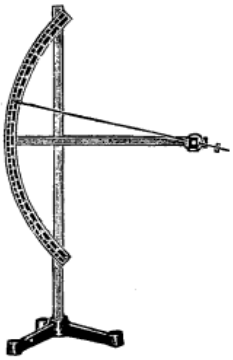
4-476 (1 : 6)

4-476 **Ferment tube;** of glass. capacity 10 cc.



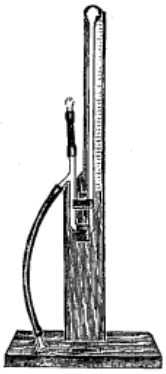
4-480 (1 : 8.5)

4-480 **Rotation apparatus for plants;** automatically rotative by clockwork, with flower-pot.



4-483 (1 : 14)

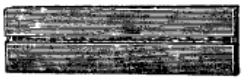
4-483 **Growing-meter of plants;** mounted on iron stand, show the growing degree of plants.



4-485 (1 ; 8.3)

4-485 **Apparatus of measure for root's pressure;** of glass, mounted on wooden stand.

Apparatus for Making Specimens



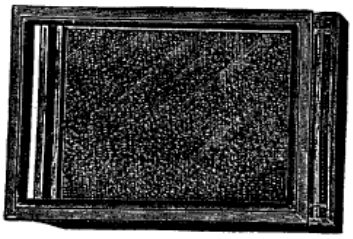
4-500

4-502

4-500 **Setting board of feather;** of paulownia.
type A ..... 28.5 × 10.5 × 3 cm.
type B ..... 28.5 × 8.5 × 2.5 cm.

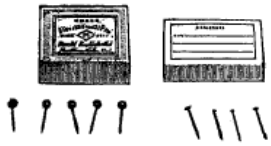
4-502 **Setting board of feather;** movable type, of paulownia, 28.5 × 10.5 × 3 cm.

4-505 **Setting board of leg;** of cork, 2 kinds a set.



4-510

4-510 **Insect exhibition case;** of paulownia, with glass plate and cork bottom.
type A ..... 40 × 32 × 7.5 cm.
type B ..... 30 × 23 × 6.5 cm.



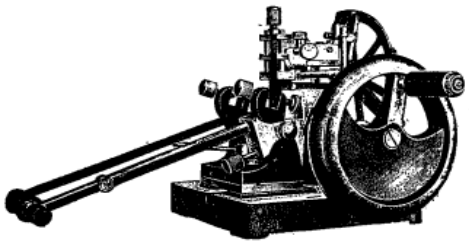
4-514 (1 : 3.4) & 4-513 (1 : 3.4)

4-513 **Insect pins;** 50 pins in glass tube.

4-514 **Setting pins;** 100 pins a package.

4-518 (1 : 4)

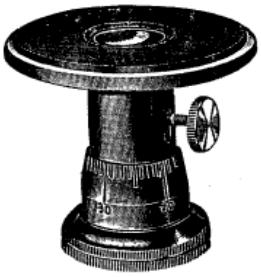
4-518 **Insect labels;** 240 sheets.



4-521 (1 : 9.5)

4-521 **Microtome minot's;** with knife, can be cutting 1~20 micron shick by movable handle,

4-522 **Knife for microtome minot's;** in wooden case.

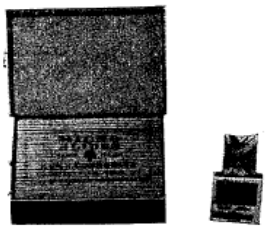


4-525 (1 : 2.5)

4-525 **Cylinder's microtome;** with knife, can be cutting 10 micron thick, diameter of glass plate 75 mm.

4-526 **Knife for cylinder's microtome;**

4-530 **Elder pith;** about 20 cm. long.



4-537 (1 : 4.5) & 536 (1 : 4.5)

4-536 **Deck glass;** 18 mm. square form, 100 sheets in card-board case.

4-537 **Object glass;** 75 × 25 mm, 50 sheets in card-board case.

4-540 **Hole object glass;** 75 × 25 mm.

4-544•type B (1 : 3.6)

4-544 **Cornet forceps;**
type A ..... used for deck-glass.
type B ..... used for object-glass.

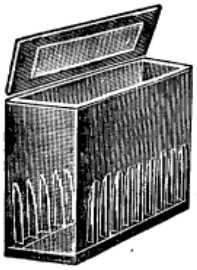
4-547 (1 : 3.5)

4-547 **Canada balsam bottle;** capacity 30 cc.

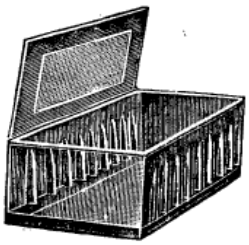
4-548 **Canada balsam oil;** 30 cc. into reagent bottle.

4-550 (1 : 5.5)

4-550 **Staining solution;** haematoxylin, safranin, methylen blue, gentian violet and etc. 6 pieces in case.



4-554•type A (1 : 4.5)



4-554•type B (1 : 4)

4-554 **Staining jar;** for 10 slides use.
type A ..... vertical form, with double cover.
type B ..... horizontal form, with cover.

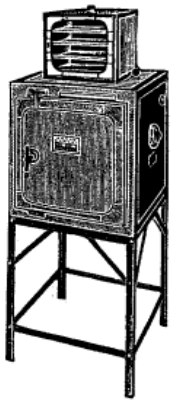
4-557 **Pigment bottles;** colouring solutions.

4-560 (1 : 11.5)

4-560 **Implements for making microscopic preparations;** consist with canada balsam oile, X-ylol, object glass, deck glass, pigment bottle, staining jar, balsam bottle, elder pith, staining solution, etc., 40 pieces in wooden case.

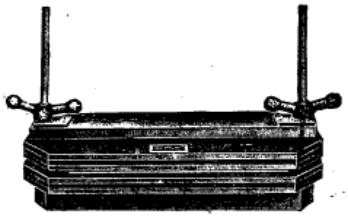
4-563 (1 : 10)

4-563 **Preparates exhibition case;** for 50 slides use, of wood, with index card.



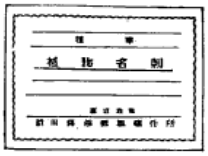
4-565 (1 : 17)

4-565 **Paraffin bath;** model P-1, maximum temperature 80°C, with sensitive automatic temperature regulator, upper room 21 × 10 × 25 cm, under room 35 × 35 × 35 cm.



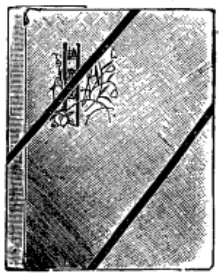
4-568 (1 : 11.5)

4-568 **Plant press;** of wood, with iron screw and bolt. 45 × 30 cm.



4-570 (1 : 3.4)

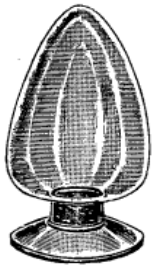
4-570 **Herbarium labels;** 6.5 × 9 cm, 50 sheets a binde



4-573 (1 : 10)

4-573 **Herbarium album ;** 27 × 37 cm. 20 sheets in card board cover.

4-575•type A (1 : 3)



4-575•type B (1 : 3)

4-575 **Specimens jar;** with cork stopper.
type A ..... capacity about 180 cc.
type B ..... capacity about 180 cc.

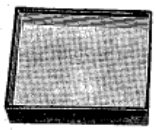
4-577・type A

4-577・type B

4-577 **Sample bottles;** with glass stopper.

type A ..... $\frac{\text{about 300 cc.} \quad \text{500 cc.}}{\text{capacity}}$

type B ..... size as under.



4-585 (1 : 10)

4-584 (1 : 10)

4-580 **Exhibition case for mineral and rock specimens;** of wood, 40×60×12 cm.

4-584 **Circular box;** for mineral and rock specimens use, with glass lid, diameter 5 cm.

4-585 **Square box;** for mineral and rock specimens use, without lid, 7.5×9 cm.

height / dia.	9 cm.	12 cm.	15 cm.	18 cm.	21 cm.	24 cm.	30 cm.
3 cm.	$	$	$	$	$	$	$
4.5 cm.	$	$	$	$	$	$	$
6 cm.	$	$	$	$	$	$	$
7.5 cm.	$	$	$	$	$	$	$
9 cm.	$	$	$	$	$	$	$
12 cm.	$	$	$	$	$	$	$

Specimens for Biology

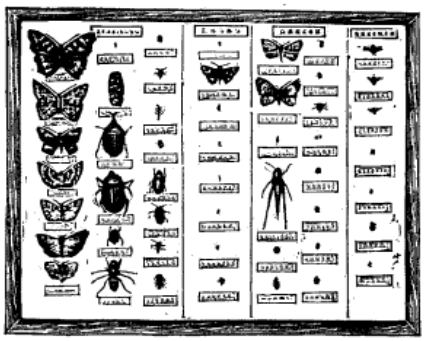
4-600・type A (1 : 12)

4-600 **Classificated specimens of insect;**

type A ..... 100 specimens a set.

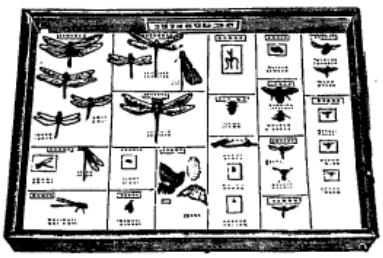
type B ..... 70 specimens a set.

type C ..... 50 specimens a set.



4-602 (1 : 8)

4-602 **Collection of noxious insects;** 30 specimens in a case.



4-605 (1 : 8)

4-605 **Collection of useful insects;** 30 specimens in case.

4-607 **Collection of carry diseasegerm insects;** in case.

4-609 **Specimens to show alarming coloration;** in case.

4-611 (1 : 8)

4-611 **Specimens to show protective coloration;** in case.

4-613 **Specimens to show mimicry;** in case.

4-614 (1 : 9)

4-614 **Specimens to show metamorphosis;** in case.

4-618 **Classificated dried specimens of an-invertebrate animal;** 10 specimens a set.

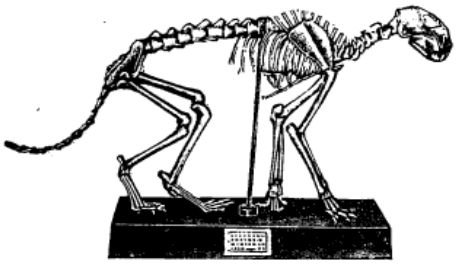
4-619 **Classificated specimens of an-invertebrate animal;** 20 specimens in jares.

4-624 (1 : 6)

4-624 **Skeleton of bull-frog;** on wooden base.

4-625 **Skeleton of snake;** on wooden base.

4-626 **Skeleton of cat;** on wooden base.



4-628 (1 : 7.5)

4-628 **Skeleton of dog;** on wooden base.

4-630 (1 : 9)

4-630 **Skeleton of domestic fowls;** on wooden base.

4-641 (1 : 6.5)

4-646 (1 : 5)

4-641 **Specimens of rat;** dissected and injected specimens.

4-642 **Specimens of viper;** dissected and injected specimens.

4-643 **Specimens of frog;** dissected and injected specimens.

4-646 **Specimens of crucian carp;** dissected and injected specimens.

4-647 **Specimens of dove;** dissected and injected specimens.

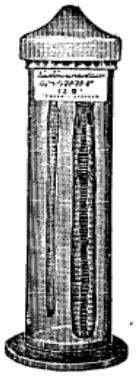
4-650 (1 : 4.4)

4-652 (1 : 5)

4-650 **Specimens of clam;** dissected and injected specimens.

4-651 **Specimens of cuttlefish;** dissected and injected specimens.

4-652 **Specimens of starfish;** dissected and injected specimens.



4-655 (1 : 7)

4-661 (1 : 6.5)

4-655 **Specimens of earthworm;** dissected and injected specimens.

4-660 **Specimens to show comparison of brain;** 4 specimens in a jar.

4-661 **Specimens to show comparison of heart;** 4 specimens in a jar.

4-662 (1 : 6)

4-673 (1 : 8.5)

4-662 **Specimens to show comparison of snake's head;** showing venomous and innocuous snake's head and its poisonous gland & flang.

4-670 **Dissected specimens of nervous system;** of frog.

4-673 **Dissected specimens of lymphatic system;** of rabbit.

4-675 **Specimens of heart;** of cat, dissected and injected specimens.

4-676 **Specimens of lung;** of cat, dissected and injected specimens.

4-677 **Specimens of eye;** of cattle, dissected and injected specimens.

4-680 **Specimens of brain**; of dog, dissected specimens.


4-685 (1 : 9)


4-686 (1 : 7)


4-693 (1 : 7)

4-685 **Specimens of digestive system**; of cat, dissected and injected specimens.

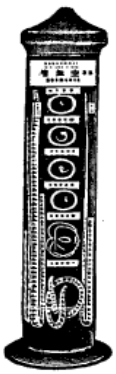
4-686 **Specimens of blood circulating system**; of cat, dissected and injected specimens.

4-689 **Specimens of muscles and articulation**; of frog, dissected specimens.

4-692 **Specimens to show devolping stages of domestic fowls**;

4-693 **Specimens to show developing stages of eel**;


4-694 (1 : 5)


4-702 (1 : 7)

4-694 **Specimens to show developing stages of frog**;

4-700 **Specimens to show ovoviviparous state of ditrema temmincke**;

4-702 **Specimen of human parasites**; 6 specimens in jar.

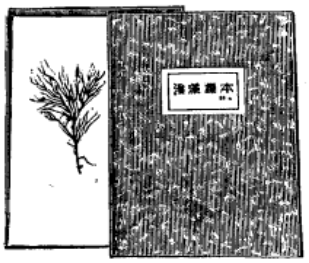
4-750 **Collection of bivalves**; 40 specimens in case.

4-751 **Collection of gastropoda**; 40 specimens in case.

4-754 **Collection of shell specimens**; 80 specimens in case.


4-770 (1 : 14)

4-770 **Classificated specimens of plants**; pressed specimens.
type A ..... 100 specimens in a case.
type B ..... 40 specimens a case.


4-775 (1 : 11)

4-775 **Typical marine algaes**; pressed specimens, 20 specimens a set.

4-779 **Collection of poisonous plants**; pressed specimens, 20 specimens a set.

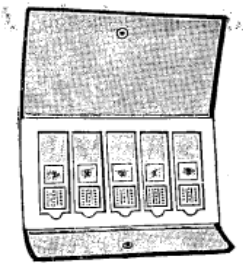

4-782 (1 : 12.7)

4-782 **Collection of medicinal plants**; pressed specimens.
type A ..... 30 specimens a set.
type B ..... 20 specimens a set.

4-785 Collection of insectivorous plants; pressed specimens, 5 specimens a set.

4-790 Collection of parasitic plants; pressed specimens, 5 specimens a set.

Microscopical Preparation Slides



4-807 (1 : 8)

4-800 Preparation for zoology; scale of butterfly, head of mosquito, egg of flea, and etc. 30 pieces in case.

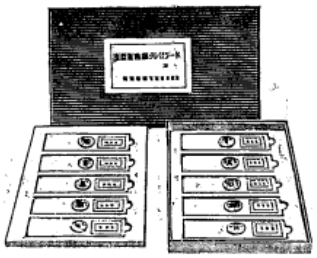
4-803 Preparation for animal histology; 15 pieces in case.

4-805 Preparation for parasitic animal; human's ancylostoma duodennal, ascaris lumbricoides and etc. 10 pieces in case.

4-807 Preparation for protozo'a; foraminifera ,euglena viridis, paranoecium and etc. 10 pieces in case.

4-809 Preparation for plankton; 5 pieces in case.

4-812 Preparation for useful bacteria and harmful bacteria; penicillum crustaceum, bacillus porteus vulgris, saccharomyces and etc. 10 pieces in case.



4-815 (1 : 7)

4-815 Preparation for pathogenetic bacteria; bacillus dysentericus, bacillus tuberculosis, bacillus typhus abdominalis, vibrio cholerea and etc. 10 pieces in case.

4-818 Preparation for biology; skin, pancreas, blood vessel, smooth muscle, trachea, cerebrum large intestine, spllen, vesica, lung, stomach, cartilage, thyroid glahd and etc. 30 pieces in case.

nerve in cerebrum

cerebellum

4-821 Preparation for human physiology; oolemma, vasa lymphacea, glandulae gastricae, ductus subm andibularis and etc. 30 pieces in case.

4-824 Preparation for reproduction; 10 pieces in case.

4-827 Preparation for show developing stage of frog; 10 pieces in case.

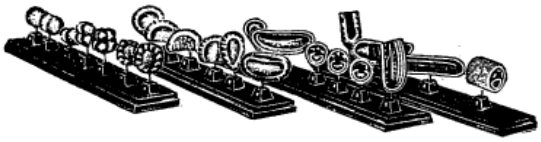
4-830 (1 : 8)

4-830 Preparation for botany; T. S. of leaf, ovary of lily, flower of brassica, annual ring of pine, stem of monocotyledon, tracheids, diatoms, surface of stomata and etc. 30 pieces in case.

4-834 Preparation for fibre; cotton, artificial silk, hemp, nylon, wool, raw silk, pulp and etc. 10 pieces in case.

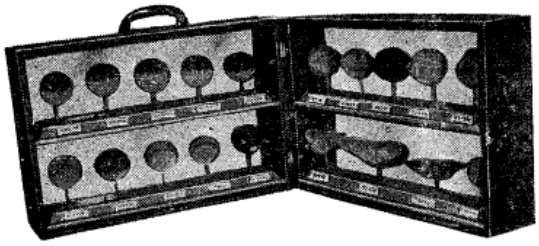
4-836 Preparation for starch grains; sweet potato, buckwheat, Corn, peas, rice and etc. 10 pieces in case.

Model for Biology



4-900 (1 : 18)

4-900 **Model to showing life history of amphioxus;** of plaster 23 stages a set.

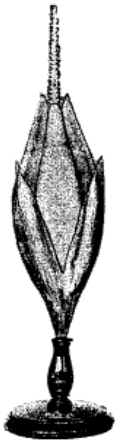


4-903•type A (1 : 10)

4-903 **Model of development stage of frog egg;** of plasrer.
type A ..... 19 stages a set.
type B ..... 15 stages a set.

4-904 **Model of insect head;** bee, fly, butterfly, mosquito, 4 pieces a set.

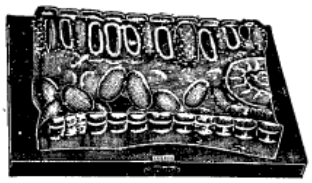
4-910 (1 : 8)



4-911 (1 : 8)

4-910 **Microscopical structure of flower;** rice-plant, of paper mache.

4-911 **Microscopical structure of flower;** barley, of paper mache.

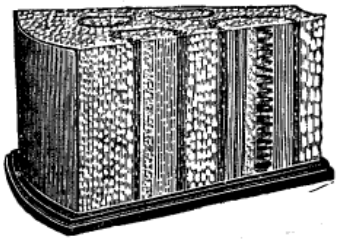


4-915 (1 : 10)

4-915 **Microscopical structure of leaf;** showing longitudinal section and cross section, of paper mache.

4-918 (1 : 10)

4-918 **Microscopical structure of root;** showing longitudinal section and cross section, of paper mache.



4-921 (1 : 10)

4-921 **Microscopical structure of monocotyledonous stem;** of paper mache.

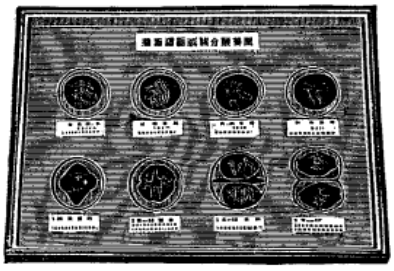
4-924 **Microscopical structure of dicotyledonous stem;** of paper mache.

4-928 (1 : 10)

4-928 **Microscopical structure of fertilized ovule;** of paper mache.

4-930 (1 : 8.4)

4-930 **Mitotic division of plant cell;** 6 pieces in wooden case.



4-931 (1 : 8.4)

4-931 **Reducing division of plant cell;** 8 pieces in wooden case.

4-950 (1 : 26)

4-952 (1 : 21.7)

4-950 **Anatomical model of man's;** with iron stand, height 157 cm, analysis 36 pieces, showing all muscles.

4-952 **Anatomical model of man's;** with iron stand, height 130 cm, analysis 25 pieces, showing all muscles.

4-955 (1 : 26)

4-962 (1 : 23.2)

4-955 **Anatomical model of man's;** with iron stand, height 130 cm, analysis 26 pieces, showing half body muscle's and half skeleton.

4-957 **Anatomical model of man's;** with iron stand, height 121 cm, analysis 23 pieces, showing half body skeleton and half muscle's.

4-960 **Anatomical model of man's;** with iron stand, height 121 cm, analysis 22 pieces, showing all muscle's.

4-962 **Anatomical model of man's;** with iron stand, height 121 cm, analysis 23 pieces, showing half body skin and half muscle's.

4-964 **Anatomical model of man's;** with iron stand. height 112 cm, analysis 22 pieces, showing half body skin and half muscle's.

4-966 **Anatomical model of man's;** with iron stand, height 112 cm, analysis 24 pieces, showing half body skeleton and half muscle's.

4-970 (1 : 24)

4-980 (1 : 22.5)

4-970 **Anatomical model of woman's;** with iron stand, height 145 cm, analysis 50 pieces, showing half body skin and half muscle's.

4-972 **Anatomical model of woman's;** with iron stand, height 121 cm, analysis 22 pieces, showing all mascles.

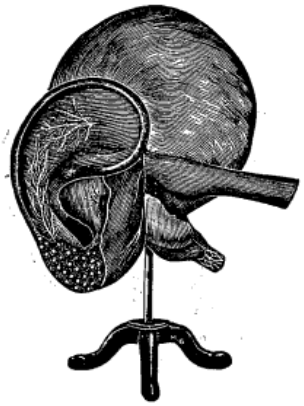
4-975 **Anatomical model of woman's;** with iron stand, height 112 cm, analysis 24 pieces, showing half body skeleton and half muscles.

4-980 **Model of human skeleton;** with iron stand, height 157 cm.

4-985 **Model of human skeletcn;** with iron stand, height 121 cm.

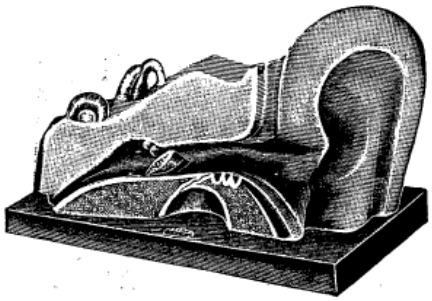
4-1000 (1 : 9)

4-1000 **Model of eye;** of paper mache, with stand.



4-1005 (1 : 8)

4-1005 **Model of ear;** model A, of paper mache, with iron stand.



4-1006 (1 : 11)

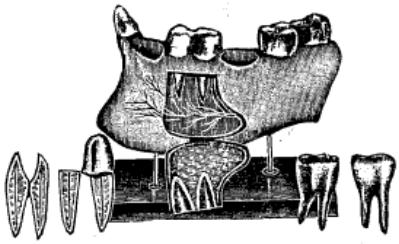
4-1006 **Model of ear;** model B, of paper mache, on board.

4-1010 (1 : 13)

4-1010 **Model of nasal cavity;** of plaster, tablet form.

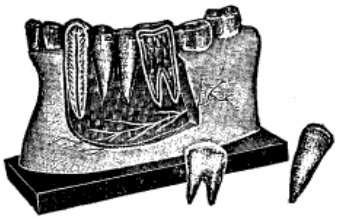
4-1017 (1 : 12)

4-1017 **Model of kidney;** of paper mache, with stand.



4-1020 (1 : 13)

4-1020 **Model of teeth;** model A, with lower jaw, of paper mache, with stand.



4-1021 (1 : 11)

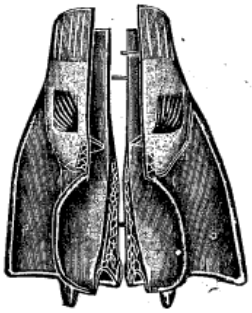
4-1021 **Model of teeth;** model B, with lower jaw, of paper mache, on board.

4-1025 (1 : 12)

4-1025 **Model of heart;** model A, of paper mache. with stand.

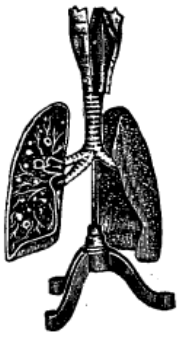
4-1026 (1 : 8)

4-1026 **Model of heart;** model B, of paper mache, with stand.



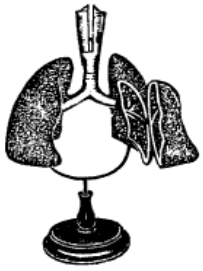
4-1030 (1 : 10)

4-1030 **Model of larynx;** of paper mache.



4-1035 (1 : 11)

4-1035 **Model of respiratory organs;** model A, of paper mache, with stand.

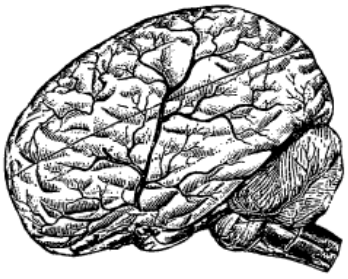


4-1040 (1 : 11)

4-1044 (1 : 12)

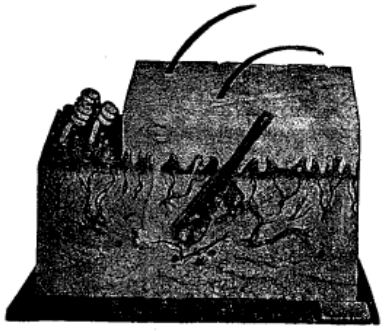
4-1040 **Model of respiratory organs;** model B, of paper mache, with stand.

4-1044 **Model of stomach;** of paper mache, with stand.



4-1048

4-1048 **Model of brain;** of paper mache.
model A ..... enlarged 3 times.
model B ..... enlarged 1.5 times.



4-1050 (1 : 5)

4-1050 **Model of skin;** enlarged 200 times, of paper mache, on board.

4-1053 (1 : 11)

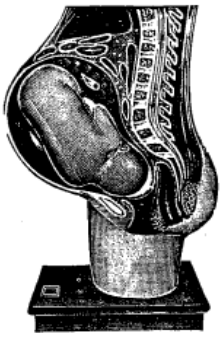
4-1053 **Model of digestive organ system;** of paper mache, 60 cm. long, tablet form.

4-1055 **Model of blood circulation;** height 120 cm, with iron stand.

4-1058 **Model of urinary organ;** of paper mache, tablet form.

4-1060 **Model of nervous system;** height 120 cm, with iron stand.

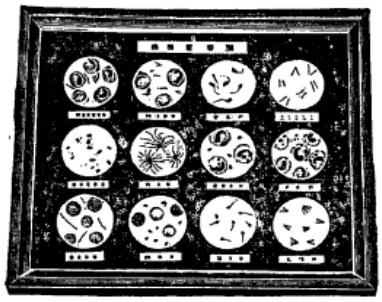
4-1063 **Model of lymphatic gland and system;**



4-1065 (1 : 10)

4-1065 **Model of pregnancy**; with 10 month's baby, natural size, of paper mache.

4-1070 **Model of human embryo**; with stand, natural size, from one month to ten month, 13 pieces a set.

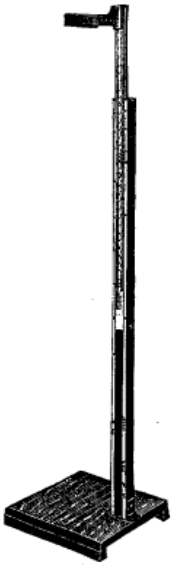


4-1080 (1 : 9)

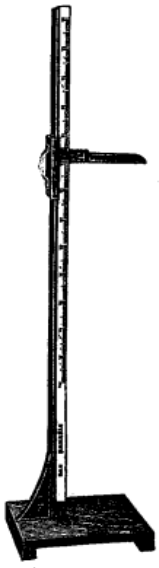
4-1080 **Model of bacteria**; frame of a tablet form, 20 specimens a set.

4-1085 **Model of baby stool**; frame of tablet form, 20 specimens a set.

Apparatus for physical Examination



4-1200 (1 : 36)



4-1201 (1 : 20)

4-1200 **Scale of measure for height**; type A, large type, with weight.

4-1201 **Scale of measure for height**; type B, common type.

4-1205 (1 : 20)

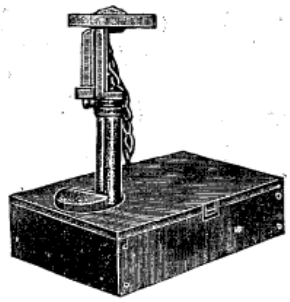
4-1211 (1 : 25)

4-1205 **Scale of huckle-height**; of wood, with iron leg.

4-1210 **Automatic weighing machine**; for bodies, type A, with wheel, 100 kg. graduation.

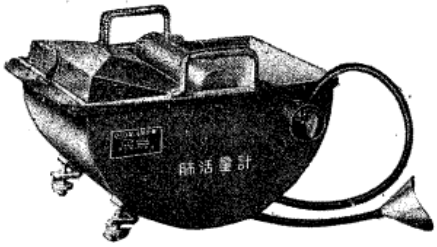
4-1211 **Automatic weighing machine**; for bodies, type B, 100 kg. graduation.

4-1218 **Linen tape measure**; for chest, 2 metre, in metal case.



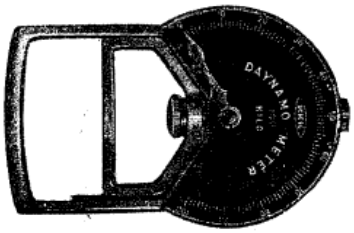
4-1223 (1 : 20)

4-1223 **Scale for back-force**; graduation 230 kg. with wooden box.



4-1225 (1 : 10)

4-1225 **Scale for capacity of lungs**; water tank system.



4-1230 (1 : 4)

4-1230 **Hand-dynamometer**; in wooden case.

4-1237 (1 : 10)

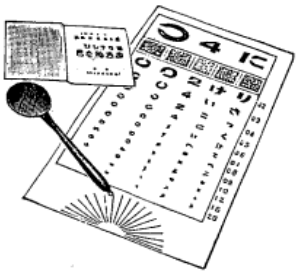
4-1237 **Sphygmomanometer**; in skin case.

4-1240 **Stethoscope**; for experimental use, with rubber tube.

4-1244 **Clinical thermometer**; round type, in case.

4-1247 (1 : 8)

4-1247 **Eye-examination scope** (sciascope); 4 sheets a set, in wooden case.



4-1250, 1251 & 1253 (1 : 20)

4-1250 **International ring test-type chart**;

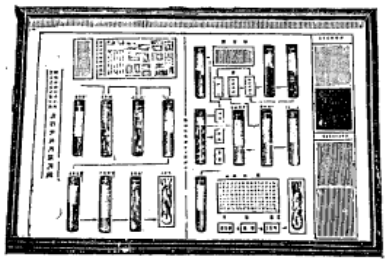
4-1251 **Test book for colour blindness**;

4-1253 **Eye shade**; of wood, for test of vision use.

4-1260 (1 : 11)

4-1260 **"MARIS" First-aidkit**; 25 pieces in portable type case.

(5) SPECIMENS FOR STUDY OF COMMERCIAL PRODUCTS



5-5 (1 : 9)

5-1 Specimens to show manufacturing process of penisilin;

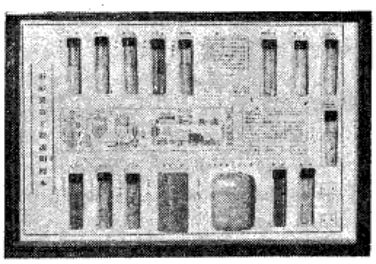
5-3 Specimens to show manufacturing process of vinilon and nylon;

5-5 Specimens to show manufacturing process of artificial silk, acetic acid and rayon;

5-8 Specimens to show manufacturing process of sugar;

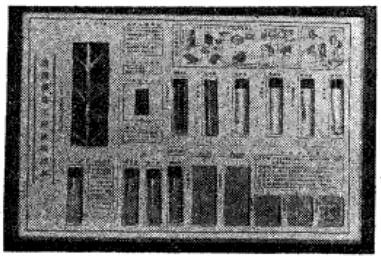
5-11 Specimens to show manufacturing process of glass;

5-15 Specimens to show manufacturing process of porcelain and earthenwares;



5-19 (1 : 9)

5-19 Specimens to show manufacturing process of soap;



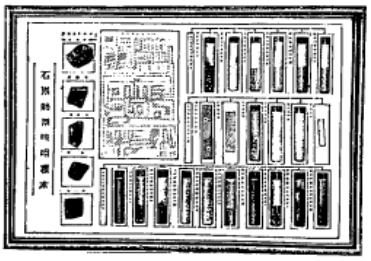
5-23 (1 : 9)

5-23 Specimens to show manufacturing process of rubber;

5-28 Specimens to show manufacturing process of portland-cement;

5-31 Specimens to show manufacturing process of petroleum;

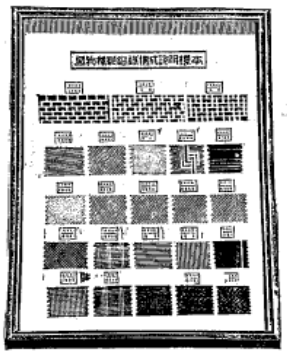
5-35 Specimens to show manufacturing process of paper;



5-38 (1 : 10)

5-38 Specimens to show applied use of coal;

5-42 Specimens of synthetic resin's products; 10 specimens in case.



5-45 (1 : 10)

5-45 Specimens of cloth; 20 specimens in case.

5-50 (1 : 10)

5-50 Specimens of fiber; 10 specimens in case.

5-61 (1 : 10.5)

5-61 Collection of useful wood; 20 specimens in case.

5-63 Collection of structure and furniture used wood; 15 specimens in case.

5-68 (1 : 9)

5-68 Specimens of bamboo; 10 specimens in case.

5-70 (1 : 11)

5-70 Specimens of cosmetics; 10 specimens in case.

5-73 Specimens of dyestuff; 20 specimens in case.

5-80 (1 : 10)

5-80 Specimens of metal; 15 specimens in case.

5-82 Specimens of metalic compound; 10 specimens in case.

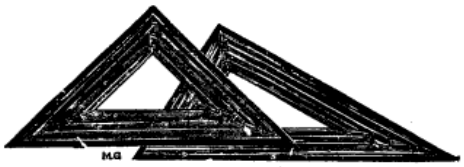
5-85 Specimens of telegraphic wire; 10 specimens in case.

(6) INSTRUMENTS FOR TEACHING OF MATHEMATICS

6-1 Black-board for graph; one face graph, and other face non graph, 90 × 90 cm.

6-4 (1 : 10)

6-4 Compass; for black-board use, of wood, 50 cm. long.



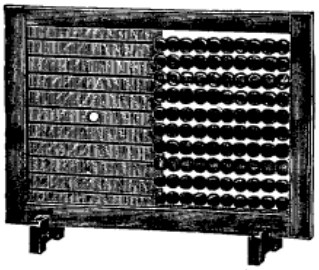
6-5 (1 : 12.5)

6-5 Triangles; for black-board use, of wood, 2 a set, 60 cm. long, with handle.

6-8 (1 : 17)

6-8 **Ebony lined T square;** of wood, 90 cm. long.

6-10 **Protractor of half circle;** of wood, 60 cm. long.



6-20 (1 : 15)

6-20 **Hundred bead instructor;** of wood, 53 × 60 cm.

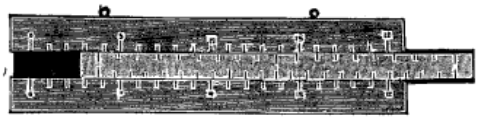
6-23 (1 : 9)

6-23 **Clock instructor;** model A, movable by spring and pendulum.

6-24 (1 : 10)

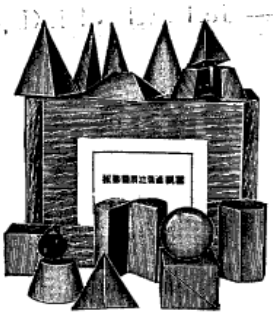
6-24 **Clock instructor;** model B, of metal plate, movable by hand.

6-28 **Explanation apparatus of Pytagolous's law;** of wood.



6-31 (1 : 10)

6-31 **Model of vernier;** of wood.



6-35 (1 : 14.7)

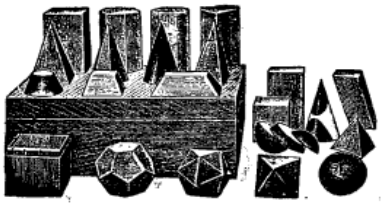
6-35 **Sectional model for solid of drawing;** 12 pieces in wooden case.

6-40

6-40 **Transparent celluloid measure;** for explanation use, cylindrical form.

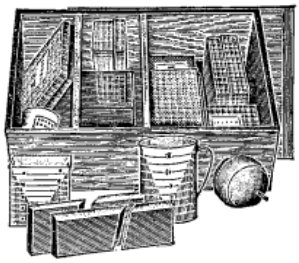
0.1 0.5 1 litre
capacity

6-41 **Transparent celluloid measure;** for explanation use, square form, capacity 1 litre.



6-45 (1 : 12.5)

6-45 **Model of geometry solid;** of wood, 22 kinds in wooden case.



6-50 (1 : 12.5)

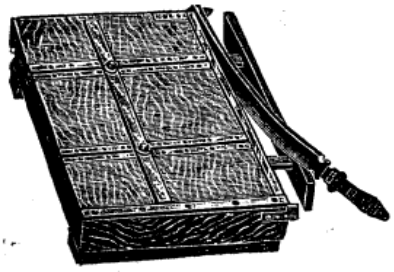
6-50 **Model for explanation of dimensions and capacity;** model A, 19 pieces (17 kinds) in wooden case.

6-51 **Model for explanation of dimensions and capacity;** model B, 6 pieces (7 kinds) in wooden case.

(7) TOOLS FOR HANDICRAFT

7-1 (1 : 3.5)

7-1 **Glass cutter;** with wooden handle.

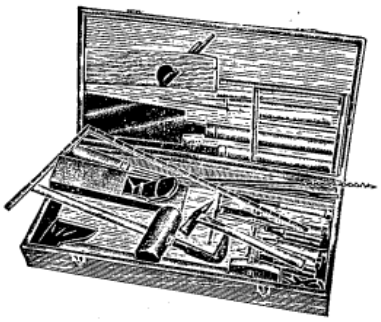


7-8

7-8 **Trimming cutter;**

36	42	48	54	60 cm.

length of edge

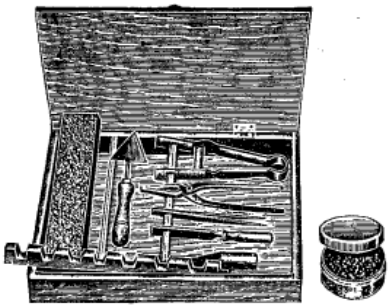


7-15 (1 : 14)

7-15 **"MARIS" Set of wood handicraft tools;** handsaw, plane, gimlet, chisel, hummer, screwdriver and etc. 26 pieces in case.

7-25 (1 : 17)

7-25 **"MARIS" Set of metal handicraft tools;** files, saw, solder, soldering-iron, pench, hand-drill, center-ponch, anvil and etc. 12 pieces in case.

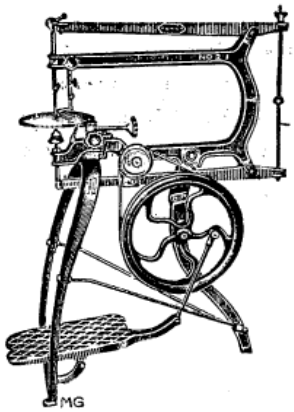


7-35 (1 : 9.5)

7-35 **"MARIS" Set of glass handicraft tools;** file, trowel, whetstone, pincette, and etc. 10 pieces in case.

7-45 (1 : 12)

7-45 **"MARIS" Tool set for bicycle;** 13 pieces in wooden case.



7-60 (1 : 23)

7-60 **Machine saw;** model No. 37, put in motion by foot.

7-63 **Machine saw;** model No. 21, put in motion by foot.

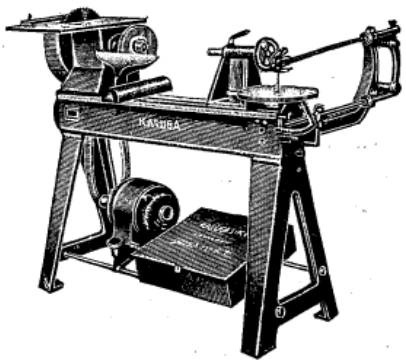
7-68 **Machine saw;** model No. 21-A, put in motion by foot, but able to instale motor, without motor.

7-75 **Saw for fret-saw;**

7-77 **Saw for metal handicraft-saw;**

7-80 **Saw for machine-saw;**

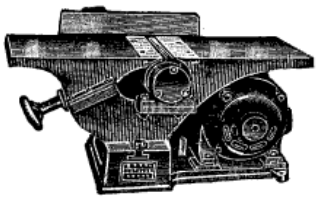
# 1	# 2	# 3
number		



7-100 (1 : 20)

7-100 **Universal wood working machine;** with ¼ motor fitted to Driven speed lathe, Circular saw, Machine saw, Hollow chisel and Grinder, with other all accessories.

7-110 **Plane machine;** with ¼ motor, when fit with motor of universal wood working machine (7-100), able to put in motion without this machine's motor (7-110).



7-110 (1 : 13)

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— THE END —

TRADE  MARK

MAEKAWA SCIENTIFIC APPARATUS MFG. CO., LTD.

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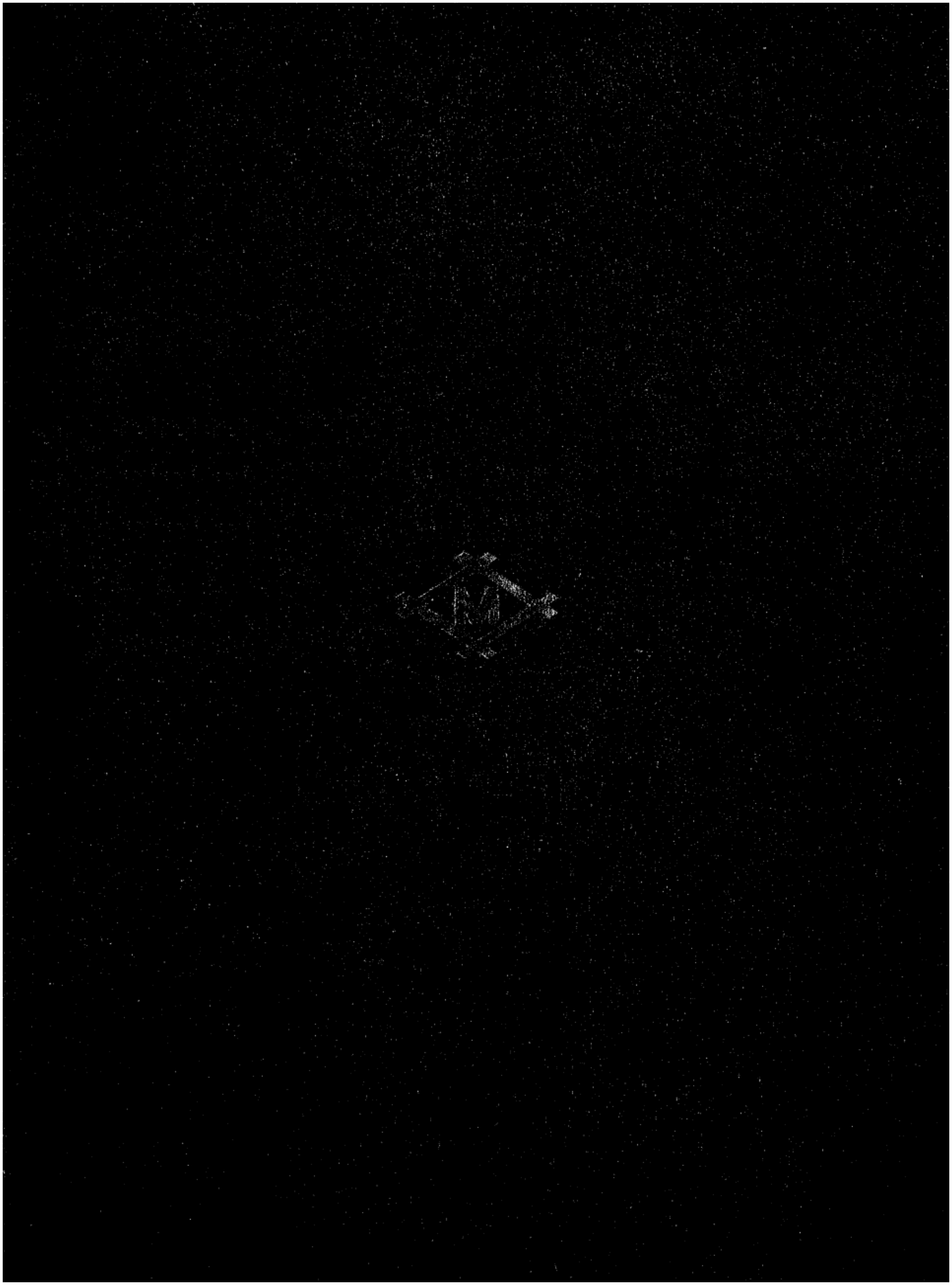
Cable Address : "MAERIVER OSAKA"
Codes : BENTLEY'S 2nd.
Bankers : The Bank of Tokyo Ltd.
The Daiwa Bank, Limited.
Tokyo Branch Office : 2-chome, Kandata-cho, Chiyoda-ku, Tokyo, Japan.
Telephones : Kanda ㉕ 0643, 6765.



APPAREILS SCIENTIFIQUES MAEKAWA DISPONIBLES EN NOS MAGASINS.

No Réf	Marchandises	Quantité disp	Prix unita
0-70	Vernier Callipes	3	186$50
0-71	Micrometer Screw	1	284,80
0-73	Curvi meter	2	127,80
0-78	Spherometer avec plaque en verre	4	1.045,20
0-130	Table balance cap. 500g	1	711,60
0-150	Table qutomatique balance cap. 7k	1	281,--
0-139	Physical balance cap. 500g	1	1.441,30
0-158	Spring balance 7Kg	4	61,00
0-202	Voltmeter for direct and alternating	4	369,20
0-204	Précision Voltmeter	2	454,40
0-209	Amperemètre pour courant Alternatif 1A et 10A.	1	338,00
0-210	Amperemètre pr courant Alt. direct 10A	5	369,20
0-211	Precision ammeter	2	454,40
0-220	Galvanometer	1	364,60
0-222	Vertical Galvanometer	2	784,60
0-223	Vertical Galvanometer for student use	5	113,60
0-226	Mesureur universel.	1	984,00
0-237	Lamp scale apparatus	1	1.760,80
0-240	Wheatstone's bridge with 23 plugs	1	2.663,80
0-260	Universal meter for lecture use	1	2.788,00
1-1	Set of apparatus for experiments of fundamental.	4	1.115,00
1-5	Pulleys without weight for balance	1	81.70
1-19	Inclined plane B	1	
1-30	Weights for experiment of dynamics	1	55,40
1-35	Centrifugal machine	5	513,40
1-36	Watt's governor	5	292,60
1-37	Elastic ring	1	144,40
1-44	Bohnenberger's gyroscope	1	1.033,00
1-63	Stell spiral	7	60,40
1-101	Double cylindre d'Archimede	8	69,00
1-110	Communicating tubes	3	43,40
1-125	Apparatus to show upward pressure of water	3	96,60
1-126	Apparatus to show lateral pressure of water.	1	112,20
1-130	Apparatus for demonstrating pascal's principle with weights.	1	1.301,80
1-134	Model of Bramah's hydraulic press	1	1.318,50
1-153	Rubber sheet for experiment of cartesian	1	7,00
1-160	Apparatus for Boyle and Torricellian experiment.	4	905,30
1-165	Glass tube for Torricellian experiment	5	95,00
1-173	Magdeburg hemispheres	3	292,60
1-175	Bell in vacus	1	170,40
1-180	Vacum pump model No4	2	6.237,40
1-186	Bel for air pompe Ø 19cm	2	211,00
1-200	Radiometer	1	159,80
1-210	Pyromètre à dilatation	4	566,60
1-211	Appareil pour démontrer ladilatation urbique des métaux	4	85,20
1-220	Appareil pr démontrer le point d'ébullition.	1	362,90

1-221	Appareil pour démontrer le point de congélation.	1	98,20
1-238	Modèle en coupe de moteur a combustion interne	3	378,80
1-239	Sectional model of diesel engine	2	1.230,50
1-242	Model of steam engine	2	1.235,00
1-245	Sectional model for demons"of steam engine, model A	1	1.069,80
1-246	Sectional model for demonstration of steam engine ; model B	3	879,00
1-303	Lamp for optical experiment 6 V	3	211,60
	Spare bulbs for 1-303	13	25,00
1-310	Bane d'optique model A	4	3.017,50
1-311	Bane d'optique model B	2	1.046,00
1-324	Cuve en verre pour experiment optique	3	304,60
1-326	Réfraction apparatus	3	74,00
1-337	Plane mirroir	1	162,70
1-341	Convex mirroir Ø 9cm	5	142,00
1-345	Concave mirroir Ø 7,5cm	2	112,00
1-345	Concave mirroir Ø 9 cm	2	142,00
1-349	Double convex lens Ø 7,5cm	1	112,00
1-349	Double convex lens Ø 9cm	4	142,00
2-955	"Maris" chimical experiment set	7	753,00
2-956	"Maris" chimical experiment set	3	
3-5	Telescope Cornet	2	2.982,00
3-9	Telescope 2 1/2 in equatorial	1	5.195,80
3-15	Telescope EROS avec accessoires	1	12.040,20
3-235	Portable rain jauge	2	166,20
3-244	Measuring cylinder for rain jauge	4	190,30
3-256	Recording barometer	2	3.349,80
3-259	Aneroid barometer	2	482.80
3-265	Recording thermometer	3	1.616.70
3-275	Thermomètre maxima et minima	18	68.20
3-285	Earth thermometer 50cm long	3	237.--
3-293	Hygromètre enregistreur	1	1.796.--
3-294	Recording hair hygrometer with certif.	2	2.469.40
3-297	Hair hygrometer	8	158.--
3-494	Boring 1 meter long	3	191.70
3-620	Collection of rocks, 50 spécimens, type B	4	489.80
3-620	Ditto, type A	3	852.--
3-630	Collection of minerals, type D	8	48.--
	Ditto, type A	3	852.--
	Ditto, type B	7	558.--
3-650	Collection of zoological fossils	4	426.--
3-651	- - botanical -	1	221.--
3-652	- - fossils	3	492.--
3-710	Tree globes set	3	1.297.90
3-740	Modèle de cristallisation minerale, type A	3	694.--
4-290	Microscope HESPER	8	942.90
4-403	Trousses de dissection	100	171.20
4-525	Cylinder's microtome with knife	3	637.20
4-563	Boites pr. préparation microscopique	91	53.30
4-600	Classificated specimens of insect, type A	4	795.20
4-602	Specimens d'insectes nuisibles	1	315.--
4-800	Preparation for zoology	13	176.10
4-803	- - animal	6	90.--

APPAREILS SCIENTIFIQUES "MAEKAWA" DISPONIBLES EN NOS MAGASINS

°. réf.	Marchandises	Quantité	Prix unitair
1-350	- Double convex lens	20	..... 28$10
1-353	- Double concave lens ø 7cm5	1	..... 112.—
1-353	- Ditto, ø 9cm	4	..... 142.—
1-360	- Set of 6 lenses.....	2	..... 170.40
1-361	- Lens holder.....	3	..... 132.80
1-364	- Achromatic lens.....	2	..... 305.—
1-365	- Glass square block.....	1	..... 27.—
1-369	- Prism model A.....	4	..... 201.70
1-373	- Right angled prism.....	1	..... 68.70
1-374	- Achromatic.prism.....	2	..... 176.10
1-398	- Spectroscope.....	1	..... 5.680.—
1-405	- Newton's colour disc.....	4	..... 248.50
1-417	- Transparent iceland spar.....	6	..... 142.—
1-426	- Educational polarization apparatus.....	1	..... 990.50
1-429	- Set of tourmaline tongs.....	3	..... 312.40
1-450	- Natrium lamp with cover, starter and transformer	4	..... 3.573.50
1-451	- Mercury - - - - - ...	4	..... 2.399.80
1-455	- Set of fluoresce substance.....	2	..... 111.50
1-456	- Set of phosphoresce substance.....	3	..... 111.50
1-471	- "MARIS" Day-light screen, type A.....	1	..... 1.433.50
1-480	- Heating telescope	1	..... 2.640.—
1-483	- Reading microscope.....	1	..... 8.110.—
1-500	- Diapason sur caisse résonnance.....	1	..... 214.50
1-503	- Jeu de 13 diapasons.....	1	..... 1.100.50
1-508	- Two turning forks.....	4	..... 522.60
1-511	- Organ pipe.....	1	..... 174.—
1-515	- Monochord.....	1	..... 654.—
1-520	- Appareil de Melde.....	2	..... 1.420.—
1-525	- Miroir tournant sur pied.....	1	..... 847.50
1-532	- Tubes de Kundt.....	2	..... 801.—
1-535	- Apparatus for determining frequency of tuning fork by resonnance.....	3	..... 586.80
1-560	- Metronome with bell.....	2	..... 450.20
1-600	- Bar magnets, type A et B	10	..... 63.10
1-607	- Aimants en fer à cheval type A.....	9	..... 38.40
1-607	- Ditto, type B	5	..... 16.40
1-620	- Barre en fer doux.....	14	..... 6.—
1-621	- Barre d'acier.....	10	..... 6.—
1-625	- Limaille de fer en tubes.....	30	..... 4.—
1-629	- Boussole de déclinaison.....	5	..... 12.—
1-632	- Oersted's apparatus.....	4	..... 67.50
1-639	- Electro-aimant pr. magnétisation.....	1	..... 655.50
1-645	- Dip and declinaison needle.....	3	..... 995.50
1-700	- Baton de verre.....	3	..... 6.—
1-701	- Baton d'ebonite.....	9	..... 9/30
1-705	- Silk rubber.....	2	..... 8.—
1-706	- Cat-skin rubber.....	7	..... 41.20
1-710	- Stand for supporting rod.....	1	..... 82.—
1-713	- Electric pendulum.....	8	..... 26.30
1-730	- Electroscope.....	4	..... 73.20
1-733	- Electrophore.....	2	..... 159.20

# Réf.	Marchandises	Quantité	Prix unitaire
1-738	- Appareil pour démontrer l'influence électrique	1	2.438$80
1-765	- Bouteille de Leyde	1	92.--
1-808	- Bobine primaire et secondaire	1	372.30
1-815	- Induction coil	1	1.086.30
1-829	- Appareil pour démontrer le principe du moteur	1	1.013.--
1-834	- App. pr. démontrer le principe du moteur dynamique	1	434.--
1-840	- Hand demonstration apparatus of dynamo	1	2.353.70
1-841	- Appareils de démonstration des dynamos	3	1.289.--
1-842	- Hand demonstration apparatus of three current dynamo	2	1.743.--
1-896	- Crookes tubes	4	237.--
1-897	- Crookes tubes to show mechanical action of cathode rays	2	468.60
1-899	- Crookes tubes	2	205.20
1-900	- Crookes' tubes	1	767.50
1-920	- Geissler's tube	3	117.20
1-922	- Tube fluorescent N°2	4	196.--
1-931	- Photo electric bulb	1	543.30
1-935	- X-ray apparatus for demonstration	1	2.855.--
1-941	- Telegraph Sounder	1	1.042.--
1-990	- Volta's cell	2	63.20
1-989	- Volta's pile	1	280.40
1-992	- Leclanche's cell	1	114.40
1-993	- Bichromate	5	345.--
1-1010	- "MARIS" electric power supply 5A	1	2.055.--
2-405	- Bec Bunsen	36	66.--
2-408	- Chalumeaux	6	320.--
2-437	- Bain-marie electrique	2	4.536.--
2-555	- Copper still 5 lit/h.	4	2.556.--
2-562	- Electrical automatic distillation apparatus	1	5.248.--
2-686	- Saccharimètre	2	1.261.80
2-700	- Mohr's pinchcook	94	3.--
2-705	- Pinces pour tubes à essais en métal	78	5.--
2-705	- Ditto, en bois	700	5.--
2-708	- Pinces à creuset	43	28.80
2-718	- Trépieds type A	56	21.--
2-718	- Ditto, type B	39	18.--
2-727	- Supports universels	40	[illegible] 44
2-730	- Supports pour tubes à essais No.12	5	15.--
2-734	- Supports pour entonnoirs	54	27.--
2-742	- Supports pour 10 pipettes	25	54.70
2-750	- Goupillons pr. tubes à essais	130	3.--
2-751	- Goupillons pour béchers	5	12.70
2-756	- Goupillons pour ballons	25	21.--
2-835	- Triangles	18	5.--
2-850	- Toiles métalliques	45	3.--
2-865	- Perce-bouchons série de 6	4	56.--
2-878	- Foot bellow type A	7	264.30
2-881	- Centrifugal apparator	3	220.90
2-905	- Hoffman's electrolysis apparatus	2	967.--
2-906	- Ditto, model B	4	431.70
2-910	- Appareil pour l'électrolyse de l'eau	3	154.10
2-917	- Eudiometer	2	575.--
2-950	- "MARIS" universal experiment app. for chemical	3	90.90

Nos. réf.	Marchandises	Quantité	Prix unitaire
4-809	- Preparation for plankton	6	..... 65$--
4-812	- - - useful bacteria...	11	..... 116.--
4-815	- - - pathogenetic bacteria.....	3	..... 65.--
4-818	- - - biology.....	12	..... 176.10
4-830	- - - botany.....	10	..... 176.10
4-863	- - - starch grains.....	5	..... 153.40
4-1000	- Modèle de l'oeil.....	1	.....1.022.40
4-1053	- Modèle des organes de l'appareil digestif.....	2	.....1.249.60
4-1055	- Modèle de l'appareil circulatoire	2	.....2.840.--
4-1230	- Dynamomètre à main.....	1	..... 336.50
5 - 61	- Collection bois.....	1	..... 315.--
5 - 68	- - bambous.....	1	..... 474.--
5 -80	- - métaux.....	1	..... 272.--
5 -82	- - d'alliages.....	1	..... 221.--
6 -4	- Compass 50cm long	3	..... 66.--
6 -45	- Model of geometry	3	..... 545.30
7 -15	- "MARIS" set of wood handicraft....	1	..... 687.--
7 -25	- - - - metal -	1	..... 444.--
7-35	- - - - glass - tools	1	..... 220.--
Set 5	- Set of stand.....	3	.....1.267.--
- 10	- - - measurement scale.....	2	..... 754.--
- 102	- - - experiment on inclined plane	3	..... 452.--
- 110	- - - - in heat.....	2	..... 362.--
- 130	- - - - on colour.....	2	..... 157.--
- 133	- - - - in optics.....	2	.....1.115.--
- 143	- Set of experiment on gramophone...	1	..... 445.--
- 160	- - in resistance...	6	..... 303.--
- 162	- - in wheatstone's bridge.....	2	..... 382.--
- 164	- Set of experiment on motor.....	2	..... 636.--
- 170	- - in electrolysis	1	..... 318.--

Saigon, le 8 Octobre 1959.