



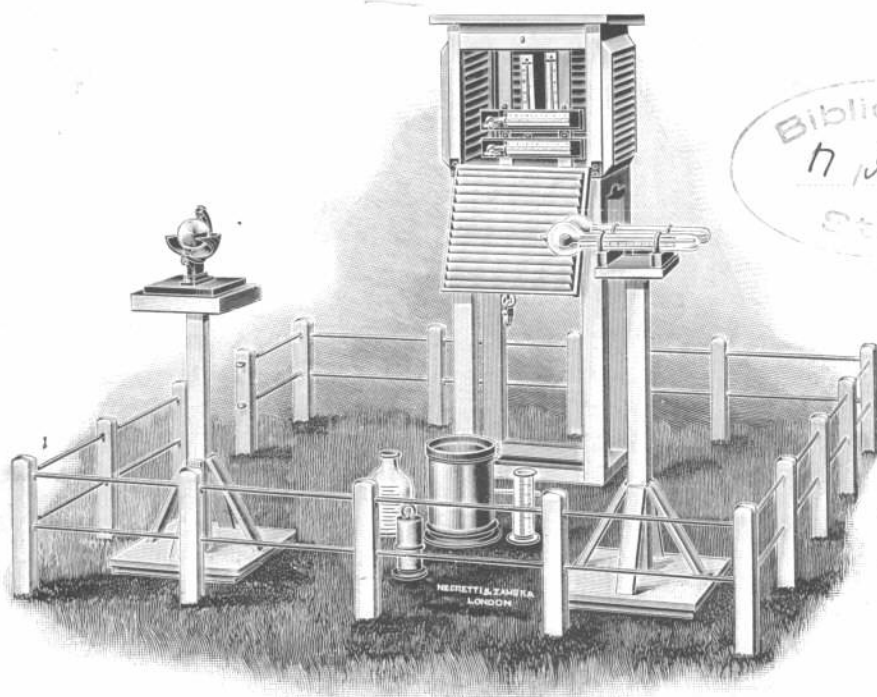
LONDON, 1851.

TRADE MARK.



PARIS, 1900.

# STANDARD METEOROLOGICAL INSTRUMENTS.



MADE BY

## NEGRETTI & ZAMBRA,

Scientific Instrument Makers

TO THE METEOROLOGICAL OFFICE; THE ROYAL OBSERVATORY, GREENWICH; THE ADMIRALTY;  
THE ROYAL METEOROLOGICAL SOCIETY; THE OBSERVATORIES, KEW, TORONTO, WASHINGTON, VICTORIA AND  
CAPE OF GOOD HOPE AND ALL FOREIGN GOVERNMENTS.

### 38, HOLBORN VIADUCT, E.C.,

Branches:—45, CORNHILL, E.C.; 122, REGENT STREET, W.,

## LONDON.

Telegraphic Address: "NEGRETTI, LONDON."

Telephone No. 583 HOLBORN.

**N**EGRETTI & ZAMBRA beg to submit in their present price list particulars and illustrations of  
**some Standard Meteorological Instruments.**

\* \* \*

The list does not, however, profess to describe all the various patterns which are made by them, and which are more fully catalogued in their illustrated price list and in the Encyclopedic Catalogue, but only those which are chiefly in demand for the customary taking of Meteorological Observations.

\* \* \*

Established in 1850, Negretti & Zambra obtained at **The International Exhibition, London, 1851**, the **only Prize Medal for Meteorological Instruments.** Being primarily interested in glass blowing, they invented, in **1852**, their Patent Maximum Thermometer, which was warmly welcomed by all Scientific Authorities, the principle of which may now be said to be adopted in all Maximum Thermometers, including all Clinical Thermometers. This instrument, exhibited at the **Paris Exhibition of 1855**, by the Kew Committee of the British Association, obtained **Honourable Mention.**

\* \* \*

At the **London Exhibition, 1862**, the terms of the award of a Prize Medal to Negretti & Zambra were:—*For many important inventions and improvements, together with accuracy and excellence of objects exhibited.*

\* \* \*

**Prize Medals** followed at Exhibitions wherever the firm showed, including **Paris, 1878**, the latter being the **only Gold Medal** awarded for Meteorological Instruments in the British Section.

\* \* \*

Endeavouring always to keep up the standard of accuracy and quality of workmanship, the firm were awarded at **Paris, 1900**, **2 Gold Medals**, and for the Instruments exhibited in the Science Section of the Franco-British Exhibition held in **London, 1908**, they obtained **2 Grand Prix**, this being the highest possible award.

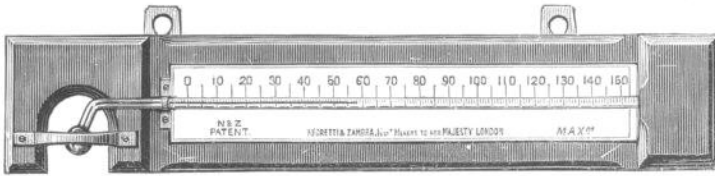
\* \* \*

In the following pages, the greatest attention is paid to those types of Instruments which are approved of by the Chief Meteorological Authorities, and as N. & Z. are in constant touch with the principal Institutions, their clients may be assured of receiving instruments which are the very best adapted for the purpose of taking observations suitable for comparison with other Meteorological Stations.

Dealing firstly with a **Climatological Station**, the simplest method of taking observations, the necessary Instruments are:—

- Maximum Thermometer,** **Screen** for the correct exposure of same,  
**Minimum Thermometer,** **Rain Gauge.**  
**Hygrometer, Dry and Wet Bulb,**

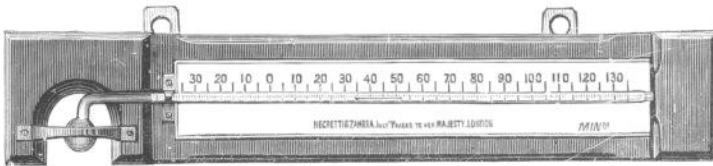
The following are particulars of these Instruments:—



34.

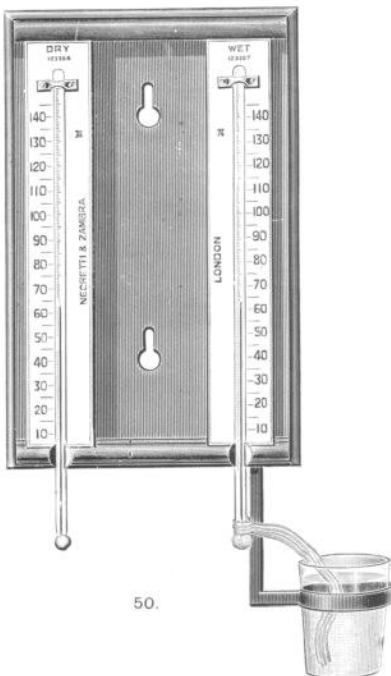
£ 8. 0.

34. Negretti & Zambra's Patent Self-Registering Standard Maximum Thermometer, engine divided on the glass tube to 1° Fahr., opal glass scale on which are indelibly fired the figures, mounted in polished oak board ... .. 1 1 0  
 Kew Certificate (National Physical Laboratory) ... .. 0 2 6



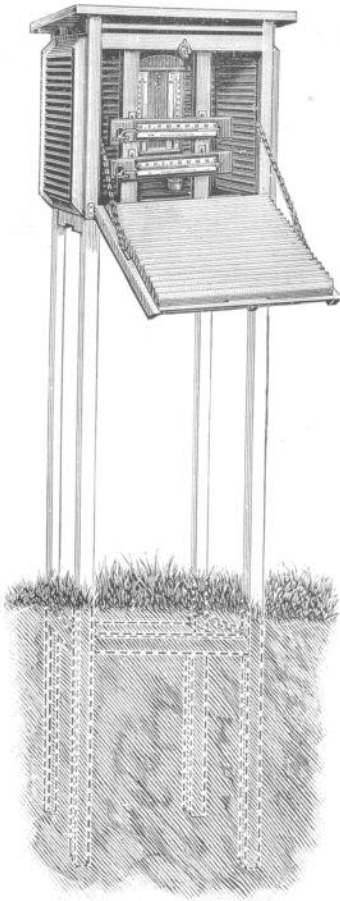
36.

36. Standard Minimum Thermometer, constructed and mounted as above ... .. 1 1 0  
 Kew Certificate ... .. 0 2 6

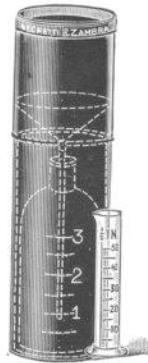


50.

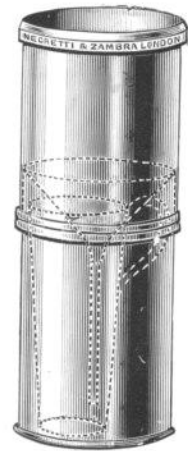
50. Standard Hygrometer, with Dry and Wet Bulb Thermometers, mounted as above ... .. 1 15 0  
 Kew Certificate ... .. 0 5 0



55



124-5.



121-2.

£ s. d.

55. **Stevenson's Thermometer Screen**, for taking Standard Shade Temperatures.

It is constructed of well-seasoned wood, coated with best white paint, with double louvres ... .. 3 10 0

56. Ditto, ditto, with short legs, to stand on a wall, or without legs should the purchaser wish to have them made locally ... 3 3 0

All the foregoing approved by the Meteorological Office and Royal Meteorological Society.

121. **"Meteorological Office" Rain Gauge**, with 8-inch diameter brass rim, constructed of stout metal strongly japanned, with inside bucket, and graduated glass measure to  $\frac{1}{2}$  inch ... 1 7 6

122. Ditto, ditto, constructed in stout **copper** ... .. 1 17 6

123. Kew certificate, if required ... .. 0 4 0

Recommended by the Meteorological Office.

124. **"Snowdon" Rain Gauge**, with 5-inch diameter brass rim, in galvanized iron, with inner can, glass bottle graduated in  $\frac{1}{2}$  inches, and graduated glass measure showing the first '005 inch ... 0 12 6

125. Ditto, ditto, in stout **copper** ... .. 1 2 6

126. Certificate of the British Rainfall Organization... .. 0 2 6

Recommended by the British Rainfall Organization.

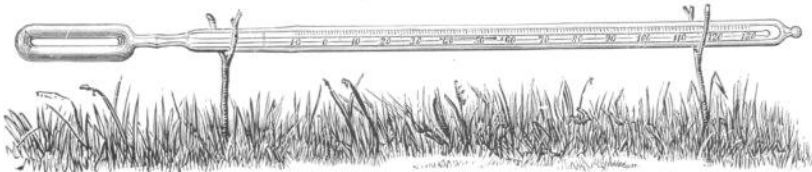
The foregoing Instruments being only the Minimum equipment for a Climatological Station, it is desirable to add instruments for the study of other phenomena. The study of Terrestrial and Solar Radiation involves the use of the following Thermometers:—



38.

- |   |   |    |    |
|---|---|----|----|
|   | £ | s. | d. |
| 38. <b>Terrestrial Radiation Thermometer</b> , for registering the minimum temperature on the grass during the night. It is a standard minimum thermometer, having the degrees and figures etched on the glass tube, and protected by a hermetically sealed glass sheath ... .. | 1 | 1  | 0  |
| Kew Certificate... ..   | 0 | 2  | 6  |

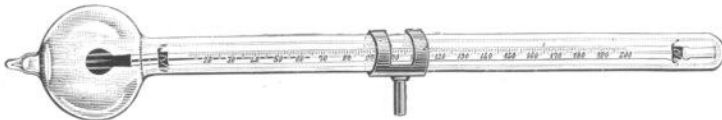
Pattern of the Meteorological Office.



39.

- |   |   |   |   |
|---|---|---|---|
| 39. <b>Terrestrial Radiation Thermometer</b> as above, but with a special bulb in the shape of a link, exposing a larger surface of spirit, and consequently rendering the instrument more sensitive ... .. | 1 | 5 | 0 |
| Kew Certificate... ..   | 0 | 2 | 6 |

Recommended by the Royal Meteorological Society.



42.

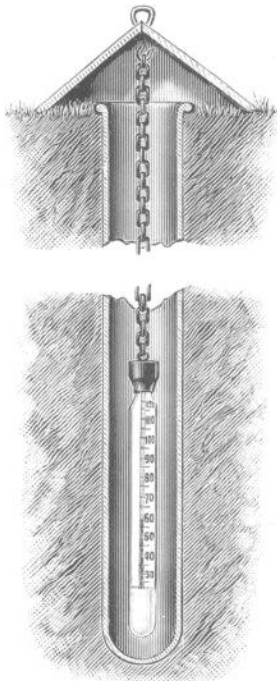
- |   |   |   |   |
|---|---|---|---|
| 42. <b>Negretti &amp; Zambra's Patent Solar Radiation Thermometer</b> , with a blackened bulb, in order to obtain uniform absorption of the solar rays, and enclosed in a glass sheath from which all the air has been exhausted. The vacuum is to ensure the thermometer indicating the temperature of the sun's rays, without being affected by breezes, &c. ... .. | 1 | 5 | 0 |
| Ditto, ditto, <b>with bright bulb</b> ... ..  | 1 | 5 | 0 |
| Kew Certificate... ..   | 0 | 5 | 0 |

Approved by the Royal Meteorological Society.

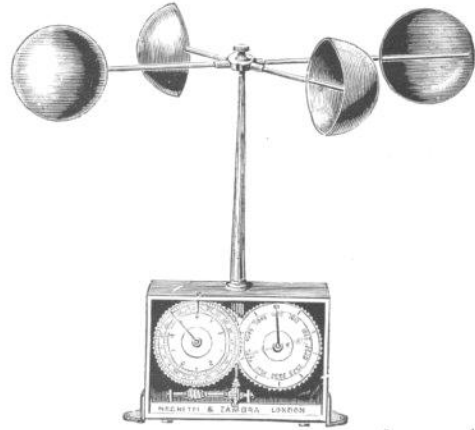
The Kew Certificate mentioned above is for corrections (if any), to be applied to the scale of the Thermometer **before** being placed in its sheath. If a certificate of comparison with the Standard Thermometer in vacuo is desired, the price will be increased by 2/6 EXTRA.

- |   |   |    |   |
|---|---|----|---|
| 43. The above fitted with NEGRETTI & ZAMBRA'S small mercurial gauge in the globe, from which the observer may be assured of the condition of the vacuum—the maintenance of which is very essential, especially where comparative readings have to be taken ... .. | 1 | 16 | 0 |
|---|---|----|---|

NOTE.—(The clip illustrated in fig. 42 represents a small brass stand for holding the Solar Thermometer, price 4/-.)



60.



81.

£ s. d.

59. **Standard Earth Thermometer**, pattern devised by the late Mr. G. J. Symons, F.R.S. The tube on which the scale and figures are etched is mounted in a hermetically sealed glass tube, and the bulb is surrounded with a non-conductive wax, in order that the action may be as slow as possible ...  
Kew Certificate ... ..

0 17 6  
0 2 6

60. The above is supplied firmly secured to the requisite length of brass chain, with a janned copper top, and also with a length of iron barrel to fix into the earth to the desired depth:—

|         |     |     |     |     |     |     |   |    |   |
|---------|-----|-----|-----|-----|-----|-----|---|----|---|
| 1-foot  | ... | ... | ... | ... | ... | ... | 1 | 5  | 0 |
| 2-feet  | ... | ... | ... | ... | ... | ... | 1 | 10 | 0 |
| 4-feet  | ... | ... | ... | ... | ... | ... | 1 | 12 | 6 |
| 6-feet  | ... | ... | ... | ... | ... | ... | 1 | 15 | 0 |
| 12-feet | ... | ... | ... | ... | ... | ... | 2 | 2  | 0 |

Adopted by the Meteorological Office.

217. **Earth Thermometer**. Improved type of the above for facilitating the takings of readings. The range of scale is from 10° to 90° in divisions of 1° Fahr., and the Thermometer is mounted on a boxwood scale for protection ...  
Kew Certificate ... ..

0 17 6  
0 2 6

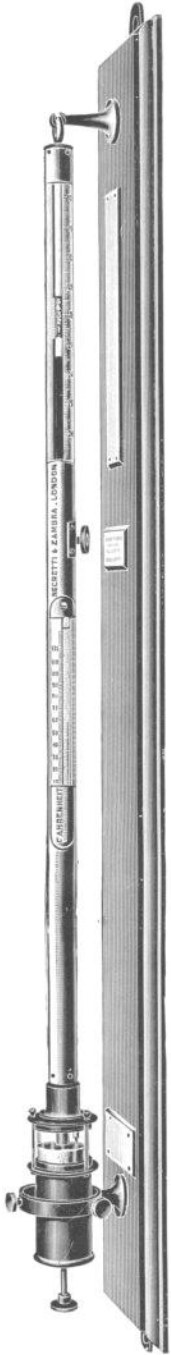
218. The above is supplied with the requisite length of brass chain with a solid cast brass top, and also with iron barrel 1½-inch diameter, shod with cast-iron point for inserting in the ground.

|         |     |     |     |     |     |     |   |    |   |
|---------|-----|-----|-----|-----|-----|-----|---|----|---|
| 1-foot  | ... | ... | ... | ... | ... | ... | 1 | 5  | 0 |
| 2-feet  | ... | ... | ... | ... | ... | ... | 1 | 10 | 0 |
| 4-feet  | ... | ... | ... | ... | ... | ... | 1 | 12 | 6 |
| 6 feet  | ... | ... | ... | ... | ... | ... | 1 | 15 | 0 |
| 12-feet | ... | ... | ... | ... | ... | ... | 2 | 2  | 0 |

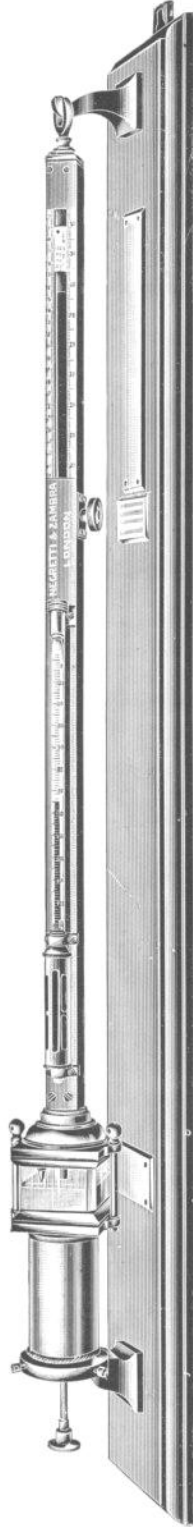
Recommended by the Royal Meteorological Society.

81. **Anemometer**, for indicating the velocity of the wind by noting the number of miles indicated on the dial for a definite period of time. The outer dial is graduated in divisions of 1/10 mile up to 5 miles  
The inner " " " 5 miles " 505 "  
The second " " " 505 " " 5050 "  
80. Ditto, ditto, with only **one** dial, indicating only up to 505 miles  
82. Ditto, ditto, fitted with doubled tailed wind vane and four cardinal points ...  
83. Kew Certificate if desired ... ..

5 15 0  
4 10 0  
7 7 0  
0 15 0



1.



7.



16.

For **First and Second-Order Stations**, all the foregoing instruments are necessary or desirable, and in addition is required a

**STANDARD BAROMETER.**

|   | £  | s. | d. |
|---|----|----|----|
| 1. <b>Standard "Fortin" Barometer</b> , with tube, having <b>'4-inch</b> internal diameter, divided and reading by vernier to '002 inch, mounted on polished oak or mahogany board, with opal glass reflectors, &c. ... ..  | 8  | 8  | 0  |
| 2. Ditto, ditto, graduated <b>both</b> English and Metric scales ... ..   | 9  | 9  | 0  |
| 3. Ditto, ditto, with tube, <b>'45-inch</b> internal diameter, graduated <b>both</b> English and Metric scales ... ..   | 10 | 10 | 0  |
| 4. Ditto, ditto, ditto, <b>'5-inch</b> , graduated <b>both</b> English and Metric scales ... ..   | 12 | 12 | 0  |
| 5. Ditto, ditto, ditto, <b>'6-inch</b> " " "  | 15 | 15 | 0  |
| 6. <b>Standard Barometer</b> , graduated English and Metric scales, with tube <b>'6-inch</b> internal diameter, mounted in a square tubular frame, giving greater strength and an imposing appearance ...   | 21 | 0  | 0  |
| 7. <b>Standard Barometer</b> , with square frame and square cistern, all parts being very finely polished and lacquered; the Thermometer is extra large with a bold bore, and the complete instrument of a very handsome appearance, <b>suitable equally for an Observatory or for a Public Institution</b> ... | 25 | 0  | 0  |
| 8. <b>Standard Barometer</b> , originally designed by <b>Newman</b> , and since constructed solely by <b>NEGRETTI AND ZAMBRA</b> . Complete with Kew Certificate ... ..   | 30 | 0  | 0  |
| 16. <b>Standard Barometer</b> , known as the <b>"Kew" pattern</b> , reading to '002 inch, and fitted on polished oak or mahogany board, with opal glass reflector, &c. ... ..   | 5  | 5  | 0  |
| N 26. <b>Kew Certificate</b> for Fortin Barometer ... ..  | 0  | 10 | 6  |
| N 28. Ditto, ditto, for Kew Barometer ... ..  | 0  | 15 | 0  |

**IMPORTANT NOTE.**—NEGRETTI & ZAMBRA take the greatest possible care in packing Barometers, &c., but cannot hold themselves responsible in any way for any breakage that may occur in transit.

They strongly advise, in the case of these delicate instruments, that the customer should take it **by rail in his own charge**.

If, however, this course is impracticable, the most satisfactory method is to have the Barometer placed **in charge of the guard of a through train**—for the customer to meet the train at his station, and by **taking the case from the guard** he ensures that it does not meet with the same treatment as the rest of the luggage.

Barometers should always be carried with the **cistern end uppermost**, and the cases and parcels are always made up with the handle in such a position as to ensure this.



SUNSHINE RECORDERS.

“CAMPBELL-STOKES.”

Adopted as Standard by the Meteorological Office.

£ s. d.



102.

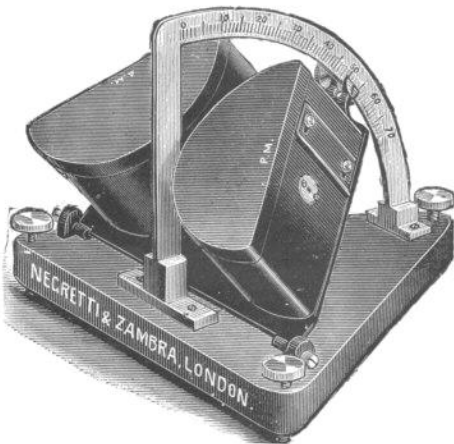
102. The Campbell-Stokes Sunshine Recorder constructed for use at one particular station, the frame being made for any

given latitude, and the ball supported on a pillar ... .. 9 0 0

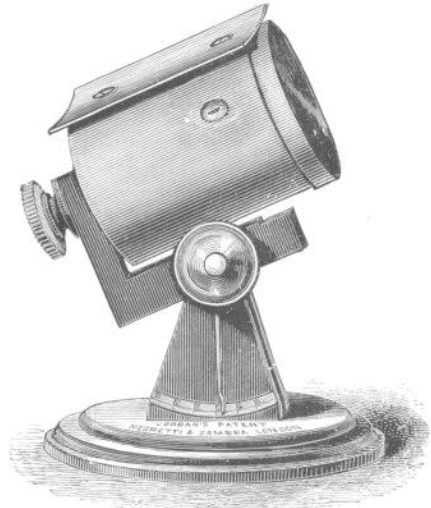
NOTE—For latitudes between 0° and 43° the ball cannot be supported on a pillar, but must be kept in position by clamps.

104. A year's supply of specially prepared and printed **Cards**, consisting of—  
 150 short curved cards for Winter ;  
 150 long curved cards for Summer ; and  
 100 straight cards for Equinoxes ... .. 1 10 0

105. A very useful **Template or Gauge** for totalling the records of these cards has been devised by Mr. R. H. Curtis, F.R.Met.Soc. It consists of a glass on which are accurately etched the hour lines and subdivisions, and which is placed over the card ... 0 10 0



106.



109.

106. **Jordan Photographic Sunshine Recorder**, with twin cylinders, best finish ... .. 4 10 0

107. Ditto, a less expensive pattern, without levelling screws, &c. ... 3 15 0

108. **Charts** sensitized, ready for use (supply for 100 days) ... .. 0 10 0

109. **Jordan Single Cylinder Recorder** in which **one** chart only is used for a daily record. It has not the advantages of the twin cylinder pattern, but the price is correspondingly lower ... 2 10 0

110. Ditto, simple form ... .. 1 7 6

111. **Charts**, sensitized ready for use (supply for 100 days) ... .. 0 5 0

NOTE.—Full Particulars in N. & Z.'s Section “SUNSHINE RECORDERS.”

## SELF-RECORDING INSTRUMENTS.

Instruments giving a pen-trace upon a weekly or daily chart are of the greatest interest in studying the nature of various phenomena, and mention is made here of ONLY the chief instruments.

Full particulars are found in NEGRETTI & ZAMBRA'S sectional price list of "Recording Instruments."

|   | £ | s. | d. | £  | s. | d. | £   | s. | d. |
|---|---|----|----|----|----|----|-----|----|----|
| 284. <b>Barograph</b> —self-recording Barometer, in polished mahogany case, with glass front and sides.<br>Scale of 1-inch to 1-inch of pressure... |   |    |    | 5  | 5  | 0  | 7   | 10 | 0  |
| 282. Ditto. Open Scale ... ..   |   |    |    | 10 | 10 | 0  | 12  | 12 | 0  |
| 285. Ditto. Small size ... ..   | 4 | 4  | 0  | 4  | 15 | 0  | 6   | 6  | 0  |
| 289. <b>Thermograph</b> —self-recording Thermometer, in japanned metal case ...   |   |    |    | 6  | 10 | 0  | 7   | 0  | 0  |
| 292. <b>Dry and Wet Bulb Thermograph</b> , as above ... ..  |   |    |    |    |    |    | 10  | 0  | 0  |
| 436. <b>Hygrograph</b> , giving the percentage of moisture ... ..   |   |    |    |    |    |    | 6   | 10 | 0  |
| 146. <b>Recording Rain Gauge</b> , NEGRETTI & ZAMBRA pattern ... ..   |   |    |    |    |    |    | 10  | 10 | 0  |
| 150. <b>The "Hyetograph"</b> ... ..   |   |    |    |    |    |    | 6   | 15 | 0  |
| 147. <b>Electrical Rain Gauge</b> , recording at distance ... ..  |   |    |    | 15 | 15 | 0  | 17  | 10 | 0  |
| 149. <b>Recording Rain Gauge</b> , Halliwell's patent... ..   |   |    |    |    |    |    | 17  | 0  | 0  |
| 170. <b>Recording Anemometer</b> ... ..   |   |    |    |    |    |    | 12  | 0  | 0  |
| 172. <b>Electrical Anemometer</b> , recording at distance ... ..  |   |    |    |    |    |    | 20  | 0  | 0  |
| 86. <b>Recording Anemometer</b> , Dines' pattern ... ..   |   |    |    |    |    |    | 38  | 0  | 0  |
| 84. <b>Recording Anemometer</b> , Beckley's pattern ... ..  |   |    |    | 75 | 0  | 0  | 100 | 0  | 0  |
| 175. <b>Micro-Barograph</b> ... ..  |   |    |    |    |    |    | 15  | 0  | 0  |

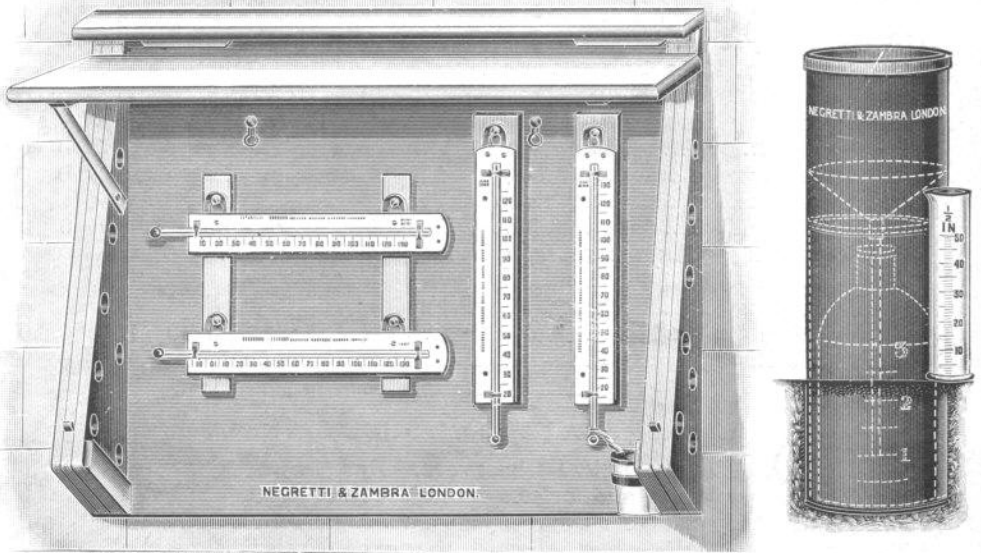
## BOOKS, CHARTS, and PUBLICATIONS.

|   |   |   |
|---|---|---|
| 195. <b>Hints to Meteorological Observers.</b> By W. MARRIOTT ...   | 1 | 6 |
| 205. <b>The Observers Handbook</b> ... ..   | 3 | 0 |
| 196. <b>Elementary Meteorology.</b> By R. H. SCOTT, F.R.S. ...  | 5 | 0 |
| 190. <b>Hygrometrical Tables</b> , adapted to use of <i>Dry and Wet Bulb</i> Hygrometer. By J. GLAISHER, F.R.S. ...   | 2 | 6 |
| 206. <b>Pocket Rain Register.</b> By Dr. H. R. MILL ...   | 1 | 6 |
| 202. <b>Pocket Meteorological Register and Note Book.</b> By R. STRACHAN, F.R.Met.Soc. ...  | 2 | 6 |
| 203. <b>Meteorological Register</b> , for one year. By G. J. SYMONS, F.R.S.   | 2 | 0 |
| <b>Negretti &amp; Zambra's Charts</b> for keeping a record of the variations of the Barometer and Thermometer. Each sheet is ruled and figured for one month's observations, and twelve of these sheets are neatly mounted on a board, so that when one month's readings are ended the sheet can be removed by cutting round the edge with a sharp knife, and a fresh sheet will be exposed. These records form a most interesting and valuable reference for comparing present and past weather. |   |   |
| 199. Price per pad of 12 sheets for <b>Barometer</b> Readings ...   | 2 | 6 |
| 200. Ditto, ditto, <b>Thermometer</b> Readings ...  | 2 | 6 |
| 201. Ditto, ditto, <b>Combined</b> Barometer, Thermometers, Hygrometer, &c., &c. ...  | 2 | 6 |

# Negretti & Zambra's

"PUBLIC SCHOOL"

SET OF METEOROLOGICAL INSTRUMENTS.



£3. 15s. 0d.

A complete simple Climatological Station at a moderate price, introduced by N. & Z. with the assistance of the Royal Meteorological Society, to appeal to Schools, Educational Authorities and Private Observers as an aid to the Science of Meteorology.