

which an examination is held. In regard to silk manufacture, Mr. Magnus, in deploring the want of attention given in this country to technical instruction in connection with this important industry, points out the great improvement which has taken place in the silk trade of Crefeld as a result of the establishment of the Weaving and Dyeing School at that place.

Examinations were held for the first time, in 1885, in boot and shoe manufacture and in framework knitting, at which a number of students from the new Technical School at Leicester presented themselves.

It is satisfactory to observe that great attention continues to be paid to making the examinations of such a character as to prevent students possessed only of mere book-knowledge from passing. Practical examinations were held in weaving and pattern designing, in metal-plate work, in mine surveying, and, for the first time, in carpentry and joinery. In all these subjects (except mine surveying), candidates have to send in specimens of work duly certified as having been executed by themselves.

The examinations were held in 167 towns in Great Britain and Ireland, Manchester heading the list of provincial towns so far as regards the number of its successful candidates. The Polytechnic Institution, London, was equally successful, and next in order came Bradford, Leeds, Bolton, and Huddersfield.

With regard to the prospects of the examinations in May of this year, it appears from returns furnished in November last that 6396 persons were receiving instruction in the registered classes of the Institute, as against 5874 in the previous year; and it may therefore be expected that a considerably increased number will present themselves this year.

It must be gratifying to the Institute to have received an application, recently noticed in these columns, from the Board of Technical Education in New South Wales, to extend the examinations to that colony, and we are glad to observe that the Council of the Institute, believing that whatever tends to unite more closely the colonies with the mother country is calculated to improve their mutual trade and commerce, recommend that the application should be acceded to.

The annual meeting of the Governors was held yesterday, under the presidency of Lord Selborne, who delivered an address on the work of the Institute during the past year.

EXHIBITION OF BAROMETERS

THE Royal Meteorological Society held its seventh annual Exhibition of Instruments on March 16 and 17, in the Library of the Institution of Civil Engineers, 25, Great George Street, Westminster. The Exhibition was devoted entirely to barometers, with the exception of a few new instruments which have been brought out during the past year. A very valuable collection of different forms of barometer was brought together, and in those cases where it was not possible to obtain a specimen of the instrument a photograph or illustration of it was shown. The Exhibition therefore practically included almost every known form of barometer.

The instruments were classified under the following headings:—Mercurial Barometers: Adjustable Cistern, Closed Cistern, Siphons; Barographs; Aneroids; Metallic and other forms of Barometer. There were altogether 78 barometers, 9 new instruments, and 33 drawings, photographs, &c., making 120 exhibits.

Some very fine specimens of standard barometer of the Fortin principle were exhibited—Mr. P. Adie showing one with a glass plunger to raise the mercury in the cistern, Mr. Casella showing another with the scale figured to tenths of an inch, and Messrs. Negretti and Zambra showing a third with cistern and tubular casing square in section. By the side of these were placed a port-

able barometer, with ivory float, about 100 years old, and a standard barometer, by Barrow, the pattern used by the members of the British Meteorological Society about 1850-60. Messrs. Negretti and Zambra exhibited a self-compensating barometer with a double rack moved by one pinion, so that, when adjusting the vernier in one position, the second rack moves in the opposite direction, carrying along with it a plunger, which is the exact size of the internal diameter of the tube. This firm also showed a standard barometer with electrical adjustment, and a new standard barometer with overflow cistern adjustment. Some interesting specimens of mountain barometers were exhibited, including one originally used by the North American Boundary Commission in 1857, which since its return has been employed by the Kew Committee on the inter-comparison of the various standard barometers of this country.

Among the closed cistern barometers was the large cistern one made for the Meteorological Society of London in 1837 by Mr. R. C. Woods. The proportion of the calibre of the tube to that of the cistern is as 1 : 50, a proportion which was considered sufficient to obviate the necessity for applying capacity corrections. The tube and cistern originally held 70 lbs. of mercury! The next instrument to this was the Kew barometer, first designed in 1853, in which the cistern is closed and the scale contracted so as to obviate the necessity of correction for capacity. Specimens were exhibited of the marine barometer, as supplied to Her Majesty's ships previous to 1854; the Kew marine barometer, as adopted by the Admiralty; the gun barometer, with the glass tube packed with india-rubber to check the vibration caused by firing; and the coast barometer. The Meteorological Office showed patterns of barometers as used in France, Holland, and Russia. Two specimens of long-range barometer were exhibited, viz. Morland's diagonal, by Messrs. Negretti and Zambra, in which the top part of the tube is inclined more or less from the perpendicular to give an enlarged scale-reading; and Hicks's spiral tube, which gives a range of 8 inches for 1 inch variation of atmospheric pressure.

Among the siphon barometers were two very old forms, viz. Hooke's double barometer and a Dutch barometer, by Reballio, combining siphon and long-range barometer, thermometer, and hygrometer. An interesting relic was the mounting of the travelling-barometer formerly belonging to, and used by, De Luc. The siphons included Gay Lussac's, Buntzen's, Jones's, Adie's, Dollond's, Bogen's, and Wild's forms of barometer; also a siphon designed by Capt. J. B. Basevi, R.E., and used by him in the high table-lands of Tibet, in connection with the operations of the Great Indian Trigonometrical Survey; Stanley's barometer, with "rising and falling" index; and Guthrie's sensitive barometer, which has a flat horizontal spiral in which is a bubble of air for indicating the variations of atmospheric pressure, the motion of the bubble being four and a half times that of the true barometric variation.

A specimen of Milne's barograph was shown by the Meteorological Office, while Messrs. Negretti and Zambra exhibited their improved form of the same instrument in which the paper is carried on a cylinder. MM. Redier, of Paris, sent two forms (large and small) of their barograph, which works so satisfactorily; and MM. Richard Frères, of Paris, in addition to sending a self-recording mercurial barometer, exhibited several specimens of their self-recording aneroid, which is becoming so popular in this country. This instrument consists of a series of eight vacuum-boxes, by which the effects of the atmospheric pressure are increased and transmitted by a system of levers to an arm carrying a pen. The pen, of a special form, contains an ink mixed with glycerine, and marks the curve of atmospheric pressure on the paper round the cylinder, which revolves once in seven days. This firm also showed

a Bourdon's metallic recording barometer, in which the drum turning in eight days is supplied with a continuous band of paper, serving for six months or a year.

Various specimens of aneroids were exhibited, including skeleton aneroid, showing the various working parts; aneroid with altitude scales; pocket watch aneroid, indicating heights to 20,000 feet; Stanley's surveying aneroid; Field's engineering aneroid; aneroids as supplied to Her Majesty's ships previous to 1854, and the pattern now adopted; and self-registering aneroid with maximum and minimum indexes. Messrs. Lund and Blockley exhibited a barometer dial 6 feet in diameter, the hand of which is kept in its true position by a single aneroid vacuum-box.

Mr. Stanley showed his chrono-barometer, which is a clock that counts the oscillations of a pendulum formed by a suspended barometer. The upper chamber of the pendulum is a cylinder of an inch or more in diameter. By change of atmospheric pressure the mercury in the pendulum is displaced from the bottom to the top, and *vice versa*. The rate of the clock is accelerated or retarded in proportion to the displacement of the mercury.

Among the other forms of barometer were Jordan's glycerine barometer, the cistern and upper part of the tube only being shown, as the instrument, when complete, would be about 30 feet in height; Cetti's long-range mercurial and glycerine barometer; Hicks's flexible barometer; Lowne's handy weather-glass; Ronketti's thermo-barometer; Wilson's differential barometer; and several patterns of sympiesometer.

The most interesting of the new instruments was Immisch's pocket metallic thermometer. This is a watch-shaped instrument, and about the size of a small locket. The index-hand is actuated by the expansion and contraction of a very small Bourdon tube filled with a highly expansive liquid, and hermetically sealed, the motion of the tube being multiplied by an ordinary rack and pinion.

SONNET

To the Savilian Professor of Astronomy in the University of Oxford, Author of a Memoir on the Proper Motion of Forty Stars in

THE PLEIADES,

On his receiving the Gold Medal of the Royal Astronomical Society for his Investigations of the Relative Brightness of the Fixed Stars

PRITCHARD! thy praise is lifted to the skies,
Who in the starry fields find'st pure delight,
Noting each ray that gilds the brow of night
From pale gems set in depths beyond surmise.
Press on, where Fame's sublimest summits rise—
Time's stroke falls lightly on his sacred might
Who ploughs from morn to eve his furrow right
Then sinks to rest 'midst sunset's gorgeous dyes.
Hail! faultless herald of the bright-eyed throng
Heir to the wand, once Tycho's, to assign
What place and precedence to each belong:
Whilst yet with watery ray yon Pleiads shine
Or strew with sands of gold their hair divine,
Thy name shall flourish in immortal song.

NOTES

HER MAJESTY THE QUEEN has been pleased to intimate her intention of opening the Colonial and Indian Exhibition on Tuesday, May 4.

M. VULPIAN has been elected by a majority of one over M. Alphonse Milne-Edwards, Permanent Secretary of the Paris Academy of Sciences, in the place of the late M. Jamin.

THE death is announced of Mr. Charles George Talmage, F.R.A.S., on Saturday. He was director of the private observatory of Mr. J. G. Barclay, at Leyton.

THERE has recently died in Calcutta one who, though not in any sense a man of science, has done much for science as an artistic delineator. A Belgian by birth, Jules Schaumberg more than twenty years ago found his way to India, in search of the picturesque, and was at first associated with M. Rousselet, author of "Les Indes des Rajahs," during which time he made many admirable sketches and water-colour pictures illustrative of the architecture and life in the cities of Central India. His capital having been exhausted, he accepted an appointment as artist in connection with the Geological Survey of India. The number of plates drawn by him for the Survey and also for the *Journal* of the Society amount to hundreds, and those who knew Schaumberg well remember the interest and spirit he threw into the drawing of plates representing animated life. He lately officiated as Principal of the Bengal School of Art, and died suddenly at the age of forty-six.

THE Biological Section of the Canadian Institute of Toronto proposes to petition the Dominion Government to reserve one of the islands in Lake Superior for the preservation of native Canadian animals.

MR. EDGAR HALL, of Queenborough, sends us a cutting from the *Sydney Echo* of February 4, giving an interesting account of a vessel which is reported to have been set fire to by a meteor. The vessel, a schooner, the *J. C. Ford*, was on her voyage from the Pacific Coast to Kahului, Maui, and the communication originally appeared in the *Pacific Advertiser*, published at Honolulu. The letter is dated "Kahului, Dec. 22, 1885," and addressed to the Hon. S. G. Wilder. It is signed "T. H. Griffiths, captain; B. J. Weight, passenger." On Saturday, Dec. 12, according to the letter, being in latitude 23° 53' N., longitude 143° 26' W., at 1.30 p.m., the weather being fine and wind moderate, the first mate, Mr. Mercer, discovered the mizen-staysail, which was clewed up, to be in flames at the mainmast-head. With all possible speed the fire was put out by means of water, beating, and cutting away. "It is needless to say that all hands wondered at a fire occurring at the mast-head, but the finding of fragments of some metallic-like substance showed us that something of a meteoric nature was the cause. Those on the deck were picking up burning fragments and throwing them overboard. The pieces of the strange substance were found at the base of the mainmast. A piece as large as a man's hand was thrown overboard quite hot by Mr. Weight, and a piece as large, or larger, which was burning the mainsail, was thrown overboard by one of the hands. The above are the facts, as we remember them, and as they are recorded on the ship's log. In the night previous the weather was clear, but meteors were very numerous, and the mate and man at the wheel noticed their frequency and numbers, and also that they would burst in a manner resembling a rocket. No shock was noticed, the first intimation of the occurrence being the staysail in flames. Our theory is that the substance found is the crust of a meteor or fragment projected laterally. As there was a large quantity of kerosene and other combustible matter on deck, there were doubtless more than the two pieces thrown overboard in our anxiety to avoid disaster."

A PRIZE of 25,000 francs, or 1000*l.*, is offered every year by Leopold II., King of the Belgians, for the best essay on some predetermined subject tending to advance the well-being of mankind. The competition is alternately restricted to Belgians and thrown open to the whole world, being settled by an international jury. The subject of this year's competition, open to the whole world, was "The Best Means of improving Sandy Coasts"; and the prize has been awarded by an international