

boasting that it is the first statue of Her Majesty erected in Scotland. Is there not one in front of Holyrood House, erected ten years ago or more?

Prof. Airy, the Astronomer Royal, has published the results of the series of experiments before alluded to in the *Athenæum* [ante, p. 54] for determining the precise difference of longitude between the Observatories of Greenwich and Paris, in the same manner as we have before explained to have been already accomplished between Greenwich and Brussels [*ibid.*]. The difference in longitude between Greenwich and Paris was first ascertained by surveys made carefully and at great expense, by the Governments of England and France in 1787; and whatever the accuracy or the contrary of the deductions on this special point, their proceedings had one important result, for they led to the construction of our Ordnance maps. It has been always considered advisable amongst scientific men, that the results thus arrived at respecting the longitude should be verified by a series of experiments of a different kind. In 1825 an attempt was made by the Governments of the two countries to accomplish the desired verification by rocket signals, but this experiment failed entirely. Other endeavours have been made by private persons, but without any conclusive results. The success of the submarine telegraph afforded an opportunity for new experiments. The telegraph and railway companies placed their wires at the gratuitous service of the Astronomer Royal, on the British side, and of M. Arago, and since his death at that of M. Le Verrier as superintendent of the Paris Observatory, on that of France. A system of signals was organized, several thousand signals were interchanged, so many, in fact, as to permit of the rejection of the larger portion, retaining only those (to the number of nearly 2,000) which were considered to be made under unexceptionable circumstances. It is unnecessary, therefore, to say that no comparison can be made between the difference of longitude concluded from the former observations, and that found from the mass of the late signals. "The former determination is now shown to be erroneous," remarks Prof. Airy, "by almost a second of time (a large quantity in astronomy), and this correction is nearly certain to its hundredth part. For this gain of accuracy, this veritable advance of science, we are indebted, in the first instance, to the power of commercial association," under which the South-Eastern Railway Company, the Submarine and Electric Telegraph Companies have been brought into successful action. In their encouragement of this scientific object, these companies have shown themselves to be influenced by most liberal and praiseworthy considerations.

As the demand for ornamental productions in metal increases, the facilities of production appear to advance yet more rapidly. The difficulties which surrounded the process of casting a cylinder ornamented in relief externally have hitherto been very great, and hence cylindrical vessels much ornamented have been cast in sections and afterwards soldered together. Messrs. Tyler, of Warwick Lane, have, by a simple, but ingenious method, overcome this difficulty. A brass mould with the pattern required is fitted up on rings, and the mould is warmed. The required quantity of metal is now poured in, and the arrangement being placed on an inclined plane, to rest on, the rings or discs are allowed to run rapidly down it, and on arriving at the bottom it is upset, so that all the metal which does not adhere to the mould flows out. By the centrifugal force thus obtained the metal is thrown forcibly against the sides of the mould and fills the patterns, the result being a perfect coating of the cylinder with the pasty metal. The mould is now removed, and the casting is complete. The amount of finish which appeared on those vases which we saw cast was surprising, little being left for the hand to finish. This process is applicable to busts, statues, and the highest works of Art. By the ordinary process, the pattern which we saw cast would require several hours; by the new process, at least twelve such ornamented urns could be cast in an hour. The economy of the process is such, that we may expect to see reproductions of the best works of our artists

brought before the public in a permanent material at a very cheap rate.

In a former number of the *Athenæum* it was announced that one of Shepherd's Patent Electric Clocks was about to be erected in the Guildhall, Exeter. The Town Council of Exeter voted a sum of money towards the expense, and, through the instrumentality of a few friends to science, the remainder of the requisite sum has been raised by subscription. The clock is now fixed in the Guildhall, and its operation made manifest by means of a communication effected with isolated wires between it and a large fine-toned bell in the Cathedral. When the dial of the Guildhall clock indicates the hour, correct time,—or, in other words, Greenwich mean time—is made known to a considerable distance by the striking of the Cathedral bell.

The Wilts Archaeological and Natural History Society held its first annual meeting this week at Salisbury. A Correspondent writes to us that "it has been one of those pleasant gatherings for which science furnishes the excuse, and which in return sometimes do good to science. The meeting was held on Wednesday in the Council Chamber, in which a museum was formed of objects lent by the Dean and Chapter, Mr. Brodie, Mr. Sangster, Mr. Nightingale, of Wilton, and by the representatives of Colonels Grove and Penruddock, beheaded for a Royalist rising in 1655. Among the members present were the Bishop of Salisbury, the Dean, and a large proportion of the Clergy of Wiltshire, Mr. Sidney Herbert, who was the President of the meeting, Mr. Poulett Scrope, and a sprinkling of F.S.A.'s from Somerset House, Dr. Thurnam, Messrs. Akerman, Britton, J. B. Nichols, Thoms, Wansey, &c. Mr. Sidney Herbert made an excellent introductory speech; the Bishop spoke earnestly on behalf of the Society; papers on local archaeological subjects were read by Messrs. Lukis, Jackson, and Fane; and Mr. Akerman explained the more interesting objects collected in the temporary museum. Mr. Jackson's paper was on the Hungerford Chapels in the Cathedral,—and that by Mr. Fane on the History of Boyton Church,—and, in connexion with it, on the Ancient History of the Giffards. The weather on Thursday proved unfavourable; but the noble proprietor of Wilton House received the members, to the number of more than 200, to a collation,—the Marquis of Lansdowne, the Earl of Carnarvon, Lord Heytesbury, and others of the county gentry, being present. Mr. George Scharf, who was to have pointed out the beauties of the Pembroke Collection, was unfortunately absent from illness; but the members inspected the Romanesque Church erected at Wilton by Mr. Sidney Herbert; and Mr. J. E. Nightingale read an able paper descriptive of its peculiarities. In the evening, the Bishop received the members at a *conversazione* in the Palace."

The Stoke Newington Literary and Scientific Institution is about to be added to the long list of institutions of that class which have failed. A general meeting for its dissolution is to be held on the 21st of September instant. Its history, we are told, has been the customary one. Great exertions and some sacrifices on the part of a few—great apathy and occasional party-dissension amongst the many. Under such circumstances, the dissolution may be a prudent and a proper thing, but its necessity is to be regretted. In such cases, dissolution ought not to be resorted to until proper consideration is given to the cause of the apathy exhibited by that class for whom such institutions are specially designed, and the possibility of adopting modifications which would induce them to take an interest in it.

COLOSSEUM, Regent's Park.—Admission, 1s.—The original PANORAMA OF LONDON BY DAY is exhibited daily, from half-past Ten till Five. Museum of Sculpture, Conservatories, Swiss Cottage, &c. The extraordinary PANORAMA OF LONDON BY NIGHT, every Evening from Seven till Ten. Music from Two till Five, and during the Evening.

CYCLOPAMA, Albany Street.—NOW OPEN, with a Colossal Moving Diorama of the City and Bay of NAPLES, MOUNT VESUVIUS, and POMPEII, exhibiting the great Eruption of 79, and present state of the Excavated City. Painted by Mr. J. M'Nevin, from Sketches taken by himself in 1852. Daily at Three and Eight o'clock, with appropriate Music and Description.—Admission, 1s.; Children and Schools, half-price.

PATRON—H.R.H. PRINCE ALBERT.
ROYAL POLYTECHNIC INSTITUTION, under ENTIRELY NEW MANAGEMENT.

The SIXTH of the MONDAY EVENING COURSE of LECTURES to the INDUSTRIAL CLASSES will be given on the 18th inst. by Mr. JOHNS: the Subject—The CENTRE of GRAVITY.
LECTURES by Dr. SCOFFERN, on the DESTRUCTIVE CHEMICAL RESOURCES OF MODERN WARFARE—NATURE-PRINTING, by Dr. BACHHOFFNER—EXHIBITION of DUBOSCQ'S ILLUMINATED CASCADE, in addition to all the DAILY LECTURES, OPTICAL EXHIBITIONS, PHOTOGRAPHIC PORTRAIT GALLERY, &c. &c. &c.—A BAND of MUSIC under the direction of Mr. WAUD, of the Royal Italian Opera. The Gas-lighting by JOHN LESLIE, Esq.

SCIENTIFIC

SOCIETIES.

ENTOMOLOGICAL.—Sept. 4.—Edward Newman, Esq., President, in the chair.—Mr. Evans, of Darley Abbey, sent for exhibition a new British Noctua, recently taken in North Wales, apparently the *Spalotis Valesiaca*, (Auderegg).—Mr. Stevens exhibited several rare Lepidoptera, lately captured, including *Agrotis lunigera*, from the Isle of Wight, and *Spalotis cataleuca*. He also exhibited a box of insects collected by Mr. Wallace in the neighbourhood of Singapore, containing many interesting species of Lepidoptera and Coleoptera.—Mr. Bond exhibited *Acidalia degeneraria*, from the Isle of Portland, *Orthosia hyperborea*, from Perthshire, hitherto unique in the collection of Mr. Douglas, and *Acosmetia caliginosa*, from the New Forest.—Mr. Edward Sheppard exhibited a box of Coleoptera from the New Forest, including *Phloiortya rufipes*, *Platypus cylindricus*, *Elatér sanguineus*, and other rarities.—Mr. Hudson exhibited a hermaphrodite *Polyommatus Alexis*, remarkable for having the right side female and the left male, contrary to what usually occurs in such cases.—Mr. F. Smith exhibited specimens of *Myrmica cespitum*, males, females, and workers, the females and workers only being hitherto known; *M. flavidula*, a new species, and both sexes of *Bombus soroensis*, taken from the nest, all captured near Shobury, in Essex.—Mr. Oxley exhibited a collection of insects made by him in South Australia, in which were a number of species of the smaller Lepidoptera.—Mr. Curtis exhibited the anomalous *Acentropus Garnorsii*, with the apterous female and a mass of eggs, which he believed to be those of this species.—Mr. Westwood communicated a letter from a correspondent, stating that the beetle *Phædon betula* now existed in countless thousands on the white mustard crops in the Isle of Ely, feeding on the leaves and seeds, and causing great deterioration and diminution of the produce. Mr. Westwood also read a letter from another correspondent, giving an account of the discovery in a hayrick of a vast quantity of an *Acarus*, which although removed as soon as discovered, was speedily replaced by as great a number. In general appearance this insect is like a common cheese-mite.—Mr. W. H. Walkeys, by a letter to the Secretary, informed the Society, that he had observed wasps carrying away to their nest portions of the dry stems of nettles, to be used, he thought, as building material. Mr. Smith observed, with reference to some former discussions, that wasps do, sometimes at least, use solid materials in the construction of their nests, for he had observed them gnawing off particles from sound deal wood in which certainly was no fungus.—Mr. G. F. Wilson sent some seeds of *Copernicia cerifera*, the wax-palm of the Brazils, in which were feeding some beetles which proved to be *Caryoborus Bactris*, a species of Bruchids.

FINE ARTS

Eight Coloured Sketches, and a Chart by Lieut. E. Gurney Cresswell, of H.M.S. Investigator, (Captain M'Clure, Discoverer of the North-West Passage). Day & Son.

THESE interesting sketches seem faithful, though not very artistic. The colouring is heavy, and there is a want of delicacy in detail, which is peculiarly felt in snow scenes, where the tints are so soft and evanescent. The variety of surface is not conveyed to the eye, and the result is an appearance of inaccuracy which we are sure does not exist. The few notes of the letter-press convey a forcible impression of the dangers

and peculiar perils of Arctic voyaging; the heavy floes that crush a ship as if it were of glass, or "nip" it into a shapeless heap of broken timbers. The bold headland of Barry Island is a specimen of the rock scenery in high latitudes, that strikes us from its bare and desolate grandeur. The sledging expedition to Melville Island in search of assistance is well conveyed in the drawing; the main-force pulling of the sledges over hummocky ice and through ice lakes, and the determination to prolong the expedition for 1,000 miles down to a Canadian settlement, if Melville Island had been found deserted, all strike us with admiration.

The discovery of a north-west passage to Asia has been to English sailors for two centuries what El Dorado and the Fountain of Youth were to the Spanish voyagers of the sixteenth century. There is always an incitement to adventure in the unknown. Mystery furnishes food for the imagination, and for such food the dullest imagination has a craving. The mystics of a bygone age found it in the futile researches for the philosopher's stone,—the mediæval pilgrims, in their journey to the unknown region of Prester John. It is this principle in the human mind that urges forward the navigator. This sent Columbus to the hot savannahs of Hispaniola, and Frobisher to the Frozen Seas. This drove forth Hudson and Baffin, as if impelled by an ungovernable inspiration. Every mind has the same instinctive passion for the indefinite. The child seeks it in the future; the old man longs for it in another world. The Argonauts, if there ever was such a craft as the Argo, could not have felt more superstitious anxiety when they reached the Pillars of Hercules than Chancelor ice-bound at Nova Zembla. The old Portuguese mariners and the early Dutch discoverers had to conquer fears which modern science have now for ever allayed.

Till, however, a short time since, there was still one unknown region of the world where imagination could revel in as boundless contemplations as it does when it meditates on death or eternity. Science has slowly stripped the visible of its enchantment. It has pronounced the rainbow a coloured phantasm, and the moon the luminous cinder of a burnt-out world. Clouds were no longer the homes of angels, but painted vapours of the marsh; and the world itself not the centre of space, but a mere satellite revolving amid larger spheres. Mythology and natural history had surrendered, too, their wonders. Will-of-the-wisps and corpse candles appeared mere exhalations from gaseous earth;—the unicorn grew visible as the antelope;—but still there remained this untrod nook of the unknown, in which faith and poetry might still wander, peopling it with their own mirages and Brocken spectres, turning it into a show, where the scenes were visions and the actors mere creatures of our dreams.

It is but the full noon of yesterday that dispersed the darkness that had hung over the Arctic region since the creation. The experience of the first voyagers must have rather heightened than lessened the old imaginings. The seamen's eyes were bewildered by mock suns;—the frost smoke dazzled them;—they were blinded by the glare of the sun upon the snow. Then came nine months of Egyptian darkness when the dreadful desolation was lit only by the tremulous glimmer of the Northern Dancers. They had to rob the osprey's nest for their scanty food, or to tear it from the bloody jaws of the wounded bear. Through long moonless nights the silence was only broken by the yelp of foxes, the snorting of the walrus, the clang and scream of the sea-fowls, the thunder-spouting of the whale, or the harsh barking of innumerable seals. But the long darkness had an end. Spring came, and the icebergs fell to pieces. The rocks no longer split asunder with the frost; the ice-mountains fall with the sound of a parting world; the crystal vaulting of its prison rends asunder, and lets loose the imprisoned monsters; the seas are foaming with the rush of the floating ice; and the icebergs drift—like mountains of emerald—into warmer latitudes. The northern valley grows green with soft spongy moss, on which the reindeer feed, and the yellow poppy flowers amid the saxifrage and the sorrel.

The Theory and Practice of Landscape Painting in Water Colours. By George Barnard. Orr & Co.

THIS is a useful instruction book, illustrated with coloured diagrams printed by the chromatic process, and edited by the Professor of Drawing at Rugby School, a gentleman already known as the author of several educational works. The writer considers that the present treatises on water-colour painting are deficient in examples, and require too much thought and patience to be useful to mere beginners. The diagrams now suggested have all been tried for the purposes of instruction, and found useful; and the book begins with a summary of the natural philosophy of colour. Mr. Barnard says truly:—

"It should be understood that the study of colour comes last in the order of artistic education; and those who take up this important branch must have already acquired a good knowledge of linear perspective—the very foundation of drawing—and of the effects of light and shade,—the chief agents in embodying form, and giving it solidity. This knowledge once attained, the attention of the pupil may be directed to colour; until his eye, having been sufficiently trained to discriminate its properties with the same ease and with the same certainty with which it determines form and arranges light and shade, he may proceed to combine all these powers in one subject. Very erroneous ideas are entertained regarding the capability of the mind to acquire correct perceptions of colour, and to realize them in artistic effects. Too much is ascribed to genius,—too little to study and perseverance. Both the appreciation of colour and the power of expressing it are doubtless attainable by education; and, under proper direction, the laws relating to harmony of colour may be as readily understood and practised as those relating to perspective when representing forms without colour; the pursuit demanding nothing more than the general capabilities required in the study of the latter: but the student who desires to attain excellence must devote his time and labour with that untiring energy which a love of the art alone can excite; he must be prepared to find that the greater the progress he makes, the more evident will appear his distance from perfection; and yet, each time that he takes a step in advance, he will feel that he has already reaped a certain reward of his industry, and gained another motive for perseverance."

This will be sufficient to attract the attention of all persons interested in the subject to Mr. Barnard's volume.

The Dictionary of Architecture. Parts I. to III. Printed for the Architectural Publication Society.

THIS Dictionary is the fifth year's publication of this Society, which contemplated an encyclopædia, in many volumes, but has been obliged to lower its aspirations to an elaborate and efficient dictionary. In four years the Society's publications have grown to merely a volume of 240 pages of letter-press, 174 woodcuts and 99 plates, all forming illustrations to the now abandoned encyclopædia. The Dictionary promises to be rich in architectural topography and biography, and enters into the botany, chemistry and geology of building materials. In biography, the compilers consider the ancient remains and modern condition of cities, and give the chapter and verse of all the principal authorities they quote. We hope the profession will not leave the Committee in the lurch, and let a scheme be abandoned that must sooner or later be worked out, and, if not by such hands as these, by far less competent ones.

NEW PUBLICATIONS.

"Our Father which art in Heaven." Painted by A. Hennings; Engraved by G. H. Every. Boys.

WE cannot congratulate Mr. Hennings upon any advance upon his 'Choristers.' He has got the religious print-buying public by the button; but, if he wishes to retain his hold, he must throw more strength into his productions or attempt less ambitious subjects. We have here Christ surrounded by children. The head of Our Saviour is a mere indistinct recollection of the old masters, with no originality of expression and no attempt at individualization. The children are vapid, smooth-cheeked children, well behaved and smug as if trimmed out for a party. In no respect, either of composition, light and shade or expression, has this engraving much merit. The earnest feeling now thrown into art and literature—the determination to excel—the resolution to do one's best—the fervent love of one's subject—all require more stamina than is here shown. Mr.

Hennings has relaxed with success; and, if he does not progress, he will have to fight over again for the ground he will have lost.

Portrait of Cardinal Wiseman. Painted by J. R. Herbert, R.A.; Engraved by J. R. Ward.

AN effective engraving in the mixed style. Mr. Herbert has done his best to idealize a shrewd, but somewhat heavy countenance. The eyes are keener and the brow fuller and more corrugated with thought than in the original. The full lips and thick neck are well suppressed; the richness of the official costume is thoroughly elaborated; the contrasts of light and shade are effectively managed, and the tasselled chair, &c. has quite a Pontifical character. The hands would be more in character if they had more flesh upon them. The popular lecturer and the writer of books on Art are characters not often combined in the person of a zealous Roman Catholic dignitary.

MUSIC AND THE DRAMA

FOREIGN CORRESPONDENCE.

An Organ Concert in Switzerland.

SOME travellers may like to know that a new organ,—sweet, powerful, well balanced in tone, having three manuals, pedals, &c., and more than forty stops,—has just been erected in the Cathedral of Constance, which for some years has been under repair. The builder of the instrument is Herr Braun, of Hofen, near Spaichingen, in Württemberg. His work at Constance appears to be conscientiously executed. Some points in the management of the wind are asserted to be new; but the touch is heavy, and Mr. George Barker's invention, of which the French builders have availed themselves so largely, does not yet seem to have penetrated Germany. The case, moreover, is elaborately ugly; and the Cathedral has not beauty enough to carry off the intrusion of an eyesore so glaring.—Surely, the cultivation of the art of organ-playing should be revived by the increased attention now paid to the instrument. During the travelling season, good performances, in the foreign towns, given at a fixed hour, four or five times a week, would repay the inhabitants, without its being necessary that those enjoying them should be taxed as heavily as tourists are taxed at Haerlem. Yet, so far as I am aware, Swiss Fribourg is the only other place in which the custom just recommended has been adopted.

There is, at all events, an amount of movement in the matter which is without precedent. In more than one Swiss town, not far from Constance, may the mark of the modern organ-builder's hand be traced. We halted for a day at Winterthur, led thither by some indistinct recollection of an organ of renown in the *Stadt Kirche*;—and tempted to remain for the sake of a sacred concert, given for the benefit of a charity, in which the instrument was to be employed, both to replace an orchestra and in *solo* performance.—Not many persons, I imagine, would care to stop a day at Winterthur unless driven thither commercially or by stress of weather. Yet the place has a physiognomy of its own, sufficient, for a few hours, to occupy those who can dispense with regular beauty for the sake of character. The small, thriving Protestant town, tightly compressed within boundaries which were once walls,—whose former existence is attested by four arched gateways—is neither French nor German in its air; although at Winterthur we are not yet in the Switzerland of *chalets* and cowbells,—of herdsmen who *jodeln* and milkmaids who wear amazing head-tires. The belt of garden-houses that forms its suburb shows more than usual luxury and neatness. The "Wild Man," its principal inn,—which presses as close upon the gate-house as if the Savage meant to keep the keys of the town,—ought rather to be called "The Court Lady," so exquisite is its cleanliness. The walnut-wood doors of its rooms shine like mirrors,—the floors are as white as if they had been bleached. And let it be noted (*aside*) that the old Goldenberger wine, in its very civil host's cellar, is worth serious attention.

Thus much as regards the "substantials" of Winterthur. The easy opulence which seems to