

DONATIONS.

Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences. Par MM. les Secretaires Perpetuels. Second Semestre. No. 19, 20. Presented by the Academy.

Statement of the Receipts and Payments of the Royal Society, between Nov. 29th, 1837, and Nov. 29th, 1838. Presented by the Society.

Two Papyri, brought from Thebes in Upper Egypt, by George James Knox, Esq. Presented by Mr. Knox.

January 14, 1839.

SIR W^M. R. HAMILTON, A. M., President, in the Chair.

Major Henry D. Jones ; Charles E. H. Orpen, M. D. ; Thomas Andrews, M. D. ; P. M. Murphy, Esq. ; Rev. James Wills ; Richard Palmer Williams, Esq. ; and Thomas Grubb, Esq., were elected Members.

His Grace, the Archbishop of Dublin, V. P., having taken the Chair *pro tempore*, the President communicated to the Academy the first part of his researches on the Dynamics of Light.

William Bald, Esq., Civil Engineer, read a paper entitled "An Account of the Survey and Map of the County of Mayo."

The author commenced by giving a brief account of the origin and progress of the construction of topographical maps in Europe. In modern times, the first attempt at the construction of topographical maps may be dated from the seventeenth century, and was due to the Swedes. Under Charles the Ninth, a surveying department was organized, placed

under the direction of Buræus, and particularly encouraged by Adolphus. In 1684, the Swedes had completed the general topographical map of Sweden; but it was kept secret, and at the end of a century, they had only published some parts of it. These maps were constructed for the purpose of ameliorating the condition of several provinces of the kingdom, which had been desolated by war. The Dutch also commenced early to construct topographical maps.

The measurement of many arcs of the meridian to determine the figure of the earth, had very much extended geodetical operations, and had, in many cases, become the elements on which topographical maps were based. The numerous geodetical surveys called into activity the inventive powers of the ablest artists in Europe, and instruments of extreme accuracy were produced; and the skill of observing and determining angles kept pace with those improvements connected with this important branch of science. The repeating principle due to the celebrated Tobias Meyer, gave birth to Borda's circle of repetition about 1789, an instrument which has been connected with the most brilliant scientific operations which adorn the annals of the eighteenth century.

Mr. Bald then showed to the Academy some specimens of the new map of France, and noticed briefly the trigonometrical survey of England—the Down survey of Ireland—the maritime surveys of Ireland—the county surveys, and the bog surveys. He made some observations on the great importance of accurate maps, especially to professional men engaged in conducting public works, such as roads, canals, river navigations, harbours, railways, supplying towns with water, irrigations; to the geologist and miner, exploring the strata, and mineral wealth of the country; to the statesman devising improvements, and developing its resources; and to the poor, by affording useful employment to the working classes.

The author then alluded to the map of Egypt, which was made during the period it was under the dominion of the French republic, and which received from Buonaparte all that protection and assistance, which so much distinguished him on all occasions regarding the advancement of the works of science. This map was engraved on fifty-three sheets of copper, and the names are engraved both in Arabic and French.

After this introductory account of the rise and present state of the topographical Art, Mr. Bald proceeded to the details connected with the survey of Mayo.

The instruments used in this survey, were a seven-inch theodolite ; two five-inch theodolites, by Troughton ; a small theodolite, by Dollond ; and also a five-inch one by the same artist. In taking the levels over the bogs, two of Troughton's best levels were used. The barometers were made by Mr. Thomas Jones, of London. There were also two plain tables, a chain for measuring base lines, a sextant four inches radius, and two sextants, each ten inches radius, divided to ten seconds for observing altitudes, one of which was made by Troughton.

The proceedings of the geometrical details of the survey were then given, and the mode of describing the rise and fall of the ground, which was shaded on the map with a depth of colour corresponding to the sines of the angles of inclination. The irregularities of surface were simply delineated by hatching lines, drawn in the direction of the declivities, forming a series of normals, perpendicular to the horizontal lines of equal level.

Dr. Smith read a paper (by Lieutenant Newenham, R. N.), "on a Tumulus or Barrow, near Rush, County of Dublin."

The barrow, called Knocklea, or the Giant's Hill, is situated on the edge of the cliff, about midway between the

village of Rush, County of Dublin, and the martello tower to the northward, called Dromanick, and immediately in front of Sir William Palmer's residence, Kinure Park.

It appears to have been composed of quantities of boulder stones and earth heaped up into a conical form, and sloping away to the base, which was square, as appears from the eastern angle, which yet remains perfect. Within the base of the mound, there was a circle formed of large stones placed on their ends, and about one hundred paces in circumference.

The farmer who rents the land on which it stands has removed about one-half of the mound, for the sake of the earth as a manure, and nearly one-half of the circle of stones on the south side, for the purpose of building a wall, part of which is erected on the stones forming the western side of the circle. In the course of his depredations, he discovered a passage which opened on the south side;* its entrance was funnel-shaped, and the walls of this passage were formed of flag stones placed on their ends, and roofed in with the same. It was about eleven yards long, and one in width; and led to a low chamber about eight feet long, and six wide, which was situated nearly in the centre of the barrow, and formed of stones in the same manner as the passage.

The farmer removed all the stones forming the western side of the passage, and in the course of his excavations, found some human bones on the south side of the chamber, and within the circle of stones. The lines of stones forming the sides of the passage appear to continue on through the mound towards the north side; and a few feet below the present surface of the barrow, a little to the north of the chamber, there is a bed of periwinkle shells, about eight inches thick, with some limpet and muscle shells intermixed;

* Mr. Newenham thinks, that, as far as his observation has extended, the entrance of all barrows is on the south side.

and beneath this bed of shells there is a quantity of rich dark mould, with some reddish earth which has the appearance of being burned. A few human bones, and some bones of small animals, were found in the earth beneath.

Outside the circle of stones, and on the very edge of the cliff, near the western angle of the mound, there was found a rudely-formed grave, containing a human skull, with the bones of the arm, leg and thigh, which apparently had never been disturbed; the bones of the back, ribs, &c., could not be discovered.

There are several remains of entrenchments and smaller mounds in the neighbourhood.

Circles of stones are found enclosing many similar barrows in Ireland. At New Grange, near Dowth, in the County of Louth, the circumference of one measured about four hundred paces; and in a barrow near Drogheda, an engineer officer found a gigantic skeleton, a pair of elks' horns, and a spear, in an upright position: the horns were above the skeleton. There are many barrows in the neighbourhood of Drogheda, which, if opened under the direction of competent persons, would probably lead to many very interesting discoveries.

The President gave an account of a singular appearance of the clouds, observed on the 16th December, 1838, at the Observatory of Trinity College, Dunsink. They appeared, for at least the last four hours of day light, to be arranged in arches which converged very exactly to the N. E. and S. W. points of the horizon; while the breaks or joints in these arches were directed, though with less exactness, to two other horizontal points, which seemed to be always opposite to each other, but ranged from N. W. and S. E. to N. and S. Conjectures were offered with respect to the cause of this appearance.

The following alteration in Chapter VIII. Section 3, of the By-laws, was recommended by Council:—

“That in the Order of proceedings on the nights of meeting, the reading of the Minutes shall precede the Admission of new Members.”

Adopted by the Academy.

The following alteration in Chapter IX. Section 3, of the By-laws, was recommended by Council, on the suggestion of the Committee of Publication:—

“That it is expedient to transfer to the Committees of Science, Polite Literature, and Antiquities, the duty of reporting, in future, on papers offered for publication in the Transactions.”

Adopted by the Academy.

It was Resolved,—“That the Academy request, that any alteration in a By-law, proposed by the Council, shall be stated in full to the Members of the Academy, together with the existing By-law, so proposed to be amended.”

The Academy then adjourned to Monday, the 28th of January.

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Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences. Par MM. les Secretaires Perpetuels. Tome Sixième; premier Semestre, Janvier — Juin, 1838; et second Semestre, Nos. 21—25. Presented by the Academy.

Annales Academiæ Gandavensis, &c. &c. 1817-1828. 11 Vols. Presented by the Academy.

Amputations dans la Contiguïté des Membres. Par le Docteur Ch. Phillips, de Liège. Presented by the Author.

Notice sur la Vanille Indigène. Par Ch. Morren. Presented by the Author.

Morphologie des Ascidies. Par M. Ch. Morren. Presented by the same.

Quelques Remarques sur l'Anatomie de l'Ascaride Lombricoïde. Par Ch. Morren. Presented by the same.

Proceedings of the Royal Society. No. 35, 1838. Presented by the Society.

Address of his Royal Highness the Duke of Sussex, K.G., &c., the President. Read at the Anniversary Meeting of the Royal Society, on Friday, November 30, 1838. Presented by the same.

Proceedings of the American Philosophical Society. Vol. I. No. 4. Presented by the Society.

Eulogy on Nathaniel Bowditch, LL.D., President of the American Academy of Arts and Sciences; including an Analysis of his Scientific Publications. By John Pickering, Corresponding Secretary of the Academy. Presented by the same.

An Eulogy on the Life and Character of Nathaniel Bowditch, LL.D., F.R.S. By Daniel Appleton White. Presented by the same.

A Discourse on the Life and Character of the Honourable Nathaniel Bowditch, LL.D., F.R.S. By Alexander Young. Presented by the same.

Religion of the ancient Irish Saints, before A. D. 600. By Henry J. Monck Mason, LL.D. Presented by the Author.

Historical Essay on the first Publication of Sir Isaac Newton's Principia. By Stephen Peter Rigaud, M.A., F.R.S., Hon. M.R.I.A., &c. Presented by the Author.