large stone " from the European fabric, and the present generation, anxiously bending over the gulf of the future, listens with awe for its fall into the unfathomable deep."

MAJOR-GENERAL THOMAS F. COLBY, was born at Rochester, on the 1st of September 1784: on his father's side he descended from the ancient and wealthy family of the Colbys of Rhos-y-Ghilwin, Pembrokeshire; and among his maternal ancestors, were numbered, General Hadden of the Royal Artillery, Surveyor-General of the Ordnance, Colonel Hadden, Paymaster-General of the Forces in Portugal, and Captain Hadden, who distinguished himself at the siege of Belleisle. His father was Major Colby, of the Royal Marines, who performed brilliant services on several occasions, but especially under Lord Howe, on his glorious victory of the 1st of June, 1794, when he was severely wounded.

Thomas Colby received the first part of his education from Dr. Crockell, at the Northfleet School, whence he was transferred to the Royal Military Academy, at Woolwich, and in December 1801, at the age of seventeen, he received his commission, as a Second Lieutenant in the corps of Royal Engineers, when Major Mudge, the Superintendent of the Trigonometrical Survey, fully appreciating the qualifications already displayed by the young Engineer, obtained permission from the Master-General of the Ordnance, to attach him, as his assistant, to the Survey in January 1802. Shortly after this, in 1803, when on a visit of inspection, to Mr. Robert Dawson, of the corps of Royal Military Surveyors and Draughtsmen, then conducting the topographical portion of the Ordnance Survey, in Cornwall, and since so distinguished for the topographical sketches of Wales, he met with a serious accident from the bursting of a pistol, by which his hand was so shattered as to render necessary its amputation at the wrist, and his forehead received a mark which was never obliterated.

A vigorous constitution, assisted by the kind care of his friends, carried him through this trial, and on his recovery, his services were immediately called into requisition, for the principal triangulation, and the measurement of the arc of the

meridian, between the Shetland Isles and the Isle of Wight. Numerous traditionary recollections are still cherished, by his few surviving friends, of the extraordinary personal energy, which enabled him, during that period, to triumph over climate and country in the wilds of Scotland, and to accomplish his delicate observations, with minuteness and accuracy, under circumstances which would have discouraged most men. A part of each year was also spent, at the Tower of London, in computing and preparing for publication, the results of the previous observations; as also in the construction and engraving of the Ordnance Maps.

His intimate association with the labours of Lieut.-Colonel Mudge may be judged of, from the third volume of the "Trigonometrical Survey of England," published in 1811, which contains "an account of the Trigonometrical Survey, extending over the years 1800 to 1809, by Lieut.-Colonel William Mudge of the Royal Artillery, F.R.S., and Captain Thomas Colby, of the Royal Engineers." It might be added, that in consequence of the declining health of General Mudge, he conducted the Sector Observations, in Shetland, whilst M. Biot, who was on this occasion associated with him, made his equally interesting observations with the pendulum. His scientific qualifications and practical skill, were so generally acknowledged, that on the decease of Major-General Mudge in 1820, he received from the Duke of Wellington, the appointment of Superintendent of the Trigonometrical Survey, upon the strong recommendation of Sir Joseph Banks, then President of the Royal Society.

Meanwhile he successfully attained the ranks of First Lieutenant in 1802,—Second Captain in 1807, Captain in 1812—and Major, (by brevet) in 1821; and at that period he was associated with the late Captain Kater, and MM. Arago and Mathieu, in the verification of the connexion between the Observatories of Greenwich and Paris.

In 1824, after a careful investigation of the question, by a Committee of the House of Commons, the Survey of Ireland was ordered to be made; and being directed by the Master-General of the Ordnance, to plan and superintend its execution, Major Colby entered upon the task with all the skill and energy he so pre-eminently possessed. This was really the great work of his life, for which all his previous labours were only the

fitting preparation, and for this he may be said, to have created the means of execution, whilst devising the mode of proceeding. On it he employed, not only the Royal Sappers and Miners, but also the Irish peasantry; bringing into harmonious action, the labours of about forty observers and of several hundred surveyors and draughtsmen. Not approving the differential rods used by the French philosophers, or the measuring bands of mica, proposed by the late Captain Drummond, he invented the compensation bars, which bear his name, and would alone suffice to give to their author a claim to a high place, in the list of improvers of geodetic science.

In connexion with the field labours, it was essential to establish an equally perfect office, for recording the observations and drawing and engraving the maps; and hence arose the Survey Office, at Mountjoy, in the Phœnix Park, Dublin; where, under the immediate superintendence of Captain (now Lieut.-Colonel) Larcom, R.E., that system of accuracy and beauty of work, was attained, which has stamped so high a reputation on the Irish Survey: and that establishment, superior in all its details to the old Map Office, in the Tower, served as a model for the Map Office, at Southampton, which is, in fact, only its reflected image.

Major Colby was not only fully aware of the direct advantages of an accurate survey of the surface of the country, but was the first to point out the collateral benefits, to be derived from combining with it searching investigations into the geology, mineralogy, natural history, statistics, and antiquities of the country, and his reports to Sir Henry Hardinge, then Clerk to the Ordnance, the collections of minerals and fossils, &c., made in connection with the Survey, the "Memoir of Londonderry," drawn up under his directions, by Captains Larcom and Portlock, and Messrs. Petrie and Donovan, and the able "Report of the Geology of Londonderry and Tyrone," by Captain (now Lieutenant-Colonel) Portlock, R.E., in 1843, without doubt suggested the Statistical Papers of the Irish Census Commission, drawn up by Major Larcom, and induced the establishment of the Geological Survey, which latter in the able hands of Sir Henry de la Beche and his assistants, Professors Phillips, Forbes, Ramsay, Lyon Playfair, Percy, Jukes, Hooker, &c., has been productive of so much benefit.

It would not be practicable, within the limits of this sketch, to even mention the principal facts connected with the Surveys, but it is imperative to allude to one operation, in which Major Colby felt great pride—the measurement, with his compensation-bars, and under his personal superintendence, of the great base line at Lough Foyle, of which so interesting an account has been given by Captain W. Yolland,[1] who for several years acted under him in his arduous duties. The compensation-bars have also been satisfactorily employed by Mr. Maclean at the Cape of Good Hope, in measuring a base of eight miles, in 1840-41; by Lieut.-Colonel Everest, for several base lines, in India;[2] and, by Captain Yolland, in the re-measurement, in 1849, of Major-General Mudge's base line, of about seven miles, on Salisbury Plain. The same principle of compensation was used in the preparation of some metal rods, to assist in the restoration of the standard-yard, after the destruction by fire of the Houses of Parliament, in October 1834.

The reproduction, by the electro-deposit process, of duplicates of the engraved plates, from which the maps are printed, instead of using and wearing out the original plates, was extensively employed for the maps of the Ordnance Survey, and the alterations, or additions required for the Geological Survey, were thus easily and inexpensively made. In fact, whenever any ingenious process, likely to facilitate labour, was brought under the notice of Colonel Colby, he examined it with the determination of using it, if it appeared at all feasible; and when any officers under his command made any useful proposition, he not only authorized the experiment, but, if successful, gave them the full merit of the work; indeed he was first to direct attention to the great abilities of Captain Drummond, afterwards Under-Secretary of Ireland, of Lieutenant-Colonel Larcom, now holding that important post, and of Lieutenant-Colonel Dawson (Assoc. Inst. C.E.), now at the head of the 'Copyhold Commission,' and he readily availed himself of the services of Lieutenant (now Lieutenant-Colonel) Portlock, R.E.,

[1] "An Account of the Measurement of the Lough Foyle Base, with its verification and extension by Triangulation;" published by order of the Board of Ordnance in 1847.

[2] "An Account of the Measurement of Two Sections of the Meridional Arc, in India;" by Lieut.-Colonel Everest, &c.; published in 1847.

who was intrusted with the observations for the principal triangulations in Ireland, (excepting those in the immediate vicinity of Lough Foyle,) and who also had charge of the secondary and minor triangulation, and of the computations for the supply of distances and altitudes, until he was appointed to conduct the Geological branch of the Survey, whilst its execution formed part of the duties of the officers of the Ordnance Survey in Ireland.

In addition to those officers who have been more particularly alluded to, the names of Lieutenant (now Major) Robinson, who was employed in settling the northern boundary line, on the frontiers of the United States, Lieutenant Murphy, who was engaged on the Euphrates expedition, under Colonel Chesney, and died after its successful termination, Lieut.-Colonel Mudge, Lieut.-Colonel A. W. Robe, Captain Bennett, and Major James (Assoc. Inst. C.E.), who has been recently appointed to superintend the Survey, should be mentioned, as having taken active part in the labours of Colonel Colby, and their devoted services and personal attachment to him were always a pleasant theme for his reminiscences.

In 1825 he was promoted to the rank of Lieutenant-Colonel, became Colonel in 1837, and Major-General in 1846, when, by the (much-to-be-regretted) rules of the service (first applied in his case), it was considered incompatible for him to retain his connexion with the great work he had so long and so ably directed, and with which his name will ever be most honourably associated.

He was one of the original Fellows of the Astronomical Society, and assisted in framing the rules for its government, at the period of its formation in 1820. He succeeded General Mudge, as a Member of the Board of Longitude; was a Fellow of the Royal Societies of London and Edinburgh; of the Geological, Geographical, and Statistical Societies of London; a Member of the Royal Irish Academy, and of the Geological Society of Dublin; an LL.D. of the University of Aberdeen, and a Knight of Denmark.

He became connected with this Institution, as an Associate, in 1820, and was transferred to the class of Honorary Members in the same year. He was much attached to many Members of the Society, very frequently attended the meetings, took

part in the discussions, was always ready to afford information, or assistance, and at every annual meeting, the Council had the pleasing task of recording General Colby's unceasing attention and liberality, in procuring for and presenting to the Library, the Ordnance Maps, and many other valuable documents, as soon as they were published.

The scientific services of General Colby are given, in considerable detail, in the Annual Reports of the Royal and the Astronomical Societies for 1852, and in a Memoir, worthy of its object, by Lieutenant-Colonel Portlock, published in the Professional Papers of the Corps of Royal Engineers, Vol. III., New Series, 1853. His life was a course of scientific research, and his name will hereafter be inseparably connected with the history of the Ordnance Survey. His character was distinguished for genuine simplicity and honesty, and his frank, open-hearted manner, and genial hospitality, created for him a host of friends, who loved and admired him; and at his decease, which occurred at New Brighton, Cheshire, near Liverpool, on the 2nd of October 1852, in the sixty-ninth year of his age; it might be said of him, that few men were more sincerely regretted.

MR. JOHN GEORGE CHILDREN was born on the 18th of May 1777, at Ferox Hall, near Tonbridge, and received the early rudiments of his education at the grammar-school of that town, under the eyes of his father, a gentleman of considerable fortune and an active magistrate, whose life was devoted to the care of his only son. From thence he was removed to Eton, and in 1794, was entered a Fellow Commoner of Queen's College, Cambridge. He quitted the University in 1798, and went to Lisbon, where he stayed a few months, for change of scene, after a severe domestic affliction. In 1802, he sailed for North America, and, with his cousin, visited, not only the principal cities and towns in the United States, and in Canada, but penetrated far into the backwoods. His return to Europe was hastened by a violent attack of the lake fever; but on his arrival at home he entered the West Kent Militia, as one of its Captains; and served actively, until another severe fit of illness compelled him to resign his commission.

Henceforward his time and talents were directed to scientific