

Address of Thomas Bell, Esq., V.P.R.S., etc., the President, read at the anniversary meeting of the Linnean Society on Wednesday, May 24, 1854 : together with obituary notices of deceased members.

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ADDRESS

OF

THOMAS BELL, ESQ., V.P.R.S.,

ETC.,

THE PRESIDENT,

READ AT THE ANNIVERSARY MEETING

OF

THE LINNEAN SOCIETY

ON

WEDNESDAY, MAY 24, 1854;

TOGETHER WITH

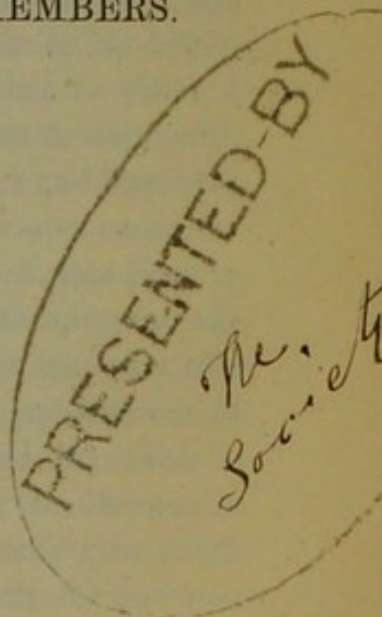
OBITUARY NOTICES OF DECEASED MEMBERS.

Printed at the request of the Fellows.

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LONDON:

PRINTED BY TAYLOR AND FRANCIS,
RED LION COURT, FLEET STREET.

1854.



ADDRESS

THOMAS BELL, ESQ., F.R.S.

THE PRESIDENT,

READ AT THE ANNUAL MEETING

THE LINNEAN SOCIETY

WEDNESDAY, MAY 24, 1831

OF THE SOCIETY

OF THE LINNEAN SOCIETY

RECEIVED BY THE LINNEAN SOCIETY

Printed at the request of the Society

LONDON:

PRINTED BY TAYLOR AND FRANCIS,
AND SOLD EVERYWHERE.

1831

LINNEAN SOCIETY.

ADDRESS

OF

THE PRESIDENT,

ETC. ETC.,

Read at the Anniversary Meeting, May 24th, 1854.

GENTLEMEN,

It has long appeared to me that the character of our Anniversary Meetings, the monotony of which has generally been broken only by the sad though interesting obituary, which has always been so ably drawn up by our talented and estimable Secretary, might be rendered more attractive, and, perhaps, more useful, by a brief account of the progress which the interval between the two annual periods has witnessed in those departments of science, the cultivation of which is the great object of the Linnean Society. This, it was my particular desire to have done upon the present occasion; but circumstances to which I need not particularly refer, have prevented me from doing any justice to so large and difficult a task. Should I, however, again have the honour of receiving your suffrages, and be re-elected your President, I shall hope to be able to lay before you at a future anniversary, some such report as that to which I have alluded. It is certainly useful as well as pleasant to stand still, as it were, from time to time and mark the discoveries and improvements which have attended our progress; and, in our own case particularly, to watch the results of the influence which this Society *ought* at least to exercise, and doubtless *does* exercise upon the advancement and diffusion of natural knowledge. It is true that this is in some measure obtainable by the perusal of the publications of the Society, which give the history of our own doings; but there is still wanting some more extended outline, including the discoveries of naturalists of other countries, which might not only give much interesting information, and point out many subjects for our own study or investigation, but cheer and excite us to further exertion, by the stimulus of a generous emulation.

Whilst, however, I have been prevented from fulfilling the task which I had proposed to myself, there are some circumstances con-

nected with the Society which may afford room for a few observations from me, and thus occupy a portion of the time which must elapse before the result of the ballot is declared.

The past year, Gentlemen, has been to us a painfully eventful one. The number of distinguished men who have been removed from us by death is unusually large; and it is remarkable that whilst on the 7th of last month there had been but *four* deaths on our list, by that day three weeks the number was doubled, by the loss of four of our very distinguished Fellows. The names of Aikin, and Jameson, and Newport, and Stokes, and Wallich need but to be mentioned to show the extent of our loss. It is not my intention to infringe upon the customary task which Mr. Bennett always performs so admirably, but I should not be acting in consonance with your feelings, nor doing justice to my own, were I wholly to omit the expression of my deep and sincere grief, in which I am sure you all sympathize, at the removal from amongst us of so many who were endeared to us not only by a community of pursuit and a congeniality of taste, but by their social qualities, and the frequent reciprocation of kindly feelings and of words and acts of friendship.

I cannot avoid a few passing words expressive of my esteem for some of these lamented friends. My venerable and respected friend Arthur Aikin was, for a period approaching forty years, I believe, my colleague as a lecturer at Guy's Hospital; and was probably, at his retirement from the chair of Chemistry at that school, the oldest lecturer, excepting perhaps myself, in any of the hospitals of the metropolis. Although I was not thrown in the way of any particular intimacy with him, I saw enough of his peculiar simplicity of heart, amiability of temper, and high honourable principle, as well as his extensive information and clearness of understanding, to make me esteem and respect him highly. Besides, who is there, that has now numbered so many years as to have received the education of his childhood half a century ago, that does not recollect with the liveliest pleasure the names of Charles and Arthur, the little heroes of the delightful children's books, written by the father and the aunt, Dr. Aikin and Mrs. Barbauld; and with these reminiscences, who does not feel an additional interest in the consideration that the venerable octogenarian, who has so lately been taken from us, was the identical little Arthur whose name is associated with these early and pleasant teachings?

Of George Newport I would fain say a few words here. I need not advert to his numerous and invaluable publications; they are known to you all, and to every physiologist in Europe. His dis-

coveries in the minute anatomy of Insects, and in the physiology of generation as observed in the Amphibia, are of the first importance, and are acknowledged as such wherever these subjects are known and investigated. These are matters which I may well leave; nor shall I encroach upon Mr. Bennett's province by speaking of the events of his life. But there is one point in his character on which I am anxious to dwell for a few moments, and on which few are able to speak so decidedly as myself. I had known him from the very commencement of his career. It was during the time that I was occupied in lecturing on Comparative Anatomy at Guy's Hospital, that I first met Newport at the house of a mutual friend, and that some of his earliest papers on Insect Anatomy were shown to me. I was even then delighted with their evident accuracy, the elaborate minuteness of detail as well as the beauty of the illustrations with which they were accompanied. I mention these circumstances only to show that I had known and estimated him from a very early period. It happened that I had from that time very frequent communication with him; and latterly, some of his most important papers passed through my hands as Secretary of the Royal Society; and I had also the opportunity of witnessing many of his experiments. Gentlemen, it has been said that his temper was peculiar, and even that he was scarcely fair in acknowledging the merits of those who laboured in the same field with himself. I cannot hesitate to deny in general terms the latter accusation, and to modify the former by the assurance that it was in great measure from the want of knowing him thoroughly, and allowing for and yielding to his peculiarities, that he so often came into painful collision with his fellow-naturalists. I had occasion frequently to differ from him: I never hesitated to tell him frankly of what I considered his faults, and to point out errors and suggest alterations in his papers. I will not say that he always followed the proffered advice, although he has done so even against his existing opinion; but he always received the suggestion in the most friendly manner, and I never had a moment's misunderstanding with him. He loved and followed science for her own sake; and if occasionally he appeared somewhat tenacious of his opinions and over-anxious for his own fame, surely this was pardonable in one who gave up all for the pursuit of knowledge, depriving himself without a murmur of even the most common comforts, that he might devote himself the more unreservedly to the one noble object of his life. He worked for knowledge, and perhaps for fame; but he never prostituted science to gain, nor mingled ignoble motives with his pursuits. I was desirous to say thus much of one whom I really esteemed, and whose

loss, as a profound and ardent investigator of nature, I sincerely deplore.

Of Mr. Charles Stokes, as a man of the most varied and extensive information, of fine and highly cultivated taste, of the most sincere, and warm, and kindly feelings, of unflinching integrity,—as the universal favourite of all who knew him, from the philosopher to the child,—I can tell you nothing that would not be far better told by Mr. Bennett. I cannot wholly pass over without a few words, the loss of our estimable Vice-President Dr. Wallich. Here too I shall leave the history of his life and labours to better hands. As a thoroughly true-hearted man, as a warm and sincere friend, as a man of great intelligence and learning, he was well known to you all; and I feel that, as a Society, we have sustained a severe loss by the death of a Vice-President, who was always ready, as long as his health enabled him to act for us, to afford us the advantage of his great experience, his counsel and support.

But, Gentlemen, if we have to grieve at the inroads which death has made amongst the most distinguished of our Fellows, there is another side of the picture for our contemplation, to which we may turn for some degree at least of compensating satisfaction. The accession of Fellows during the past year has been more than usually numerous, and amongst those who have recently joined us, are several rising naturalists whom we may expect to follow worthily in the steps of those whose labours are now over. I am sure I may be permitted to congratulate the Society on the accession to our list of one honoured name, of whom we may well be proud; and it is no disparagement to others, if I particularize Mr. Charles Darwin, the philosophic traveller, the acute observer, the accomplished and learned naturalist, and the author, amongst other inestimable works, of one of the most complete Monographies that has ever appeared on any group in the animal kingdom. It was principally on account of Mr. Darwin's Monograph of the *Cirripedes* that the Royal Society awarded to him the Royal Medal of last year, and I trust that we may hope for contributions to our Transactions from the same pen.

On the Foreign list we have lost a large number, six out of fifty, and some of these are venerable names. In selecting their successors the Society has been able to choose men in no wise, I trust, their inferiors.

The name of the veteran *Duméril* stands at the head of the list of Zoologists who have been chosen by us on the recent occasion. This venerable naturalist has now been prominently before the scientific world, as an accurate and learned systematic zoologist and anatomist, for more than half a century. His numerous reports

on various branches of natural history, contained in the *Comptes Rendus*, show the variety and extent of his studies; but, as an original writer, he is best known to the world by his valuable works on Erpetology; for there is scarcely a group of the Reptilia and Amphibia that has not been illustrated by his pen. His most important work is the 'General History of Reptilia,' the last volume of which (the 8th) is now in the press. During the greater part of its progress it was the joint production of himself and my lamented friend Bibron, who was cut off in the prime of life and in the midst of a most promising scientific career, before the work was completed. After a period of twenty years, during which time it has been in progress, it has at last been brought to a conclusion, and must be acknowledged as one of the most complete systematic works that has ever appeared, and worthy to take its place by the side of the 'History of Crustacea' by our distinguished foreign member Dr. Milne-Edwards, which forms one of the same important series of Monographs. It will, I am sure, be a very agreeable and cheering event, at his advanced age, to receive the compliment which has been paid him by the Linnean Society.

Van Beneden, the learned Professor of Louvain, is well known as one of the most original and successful physiological observers of the present day. At a time like the present, when the subjects of Embryology and early development, and the changes which take place during the first periods of life, have occupied the attention of physiologists to an unprecedented extent, the works of Van Beneden have been appreciated as amongst the most important contributions to this branch of science. His papers have usually been published in the Transactions of the Brussels Academy of Sciences, and have treated principally of the anatomy and physiology of *Mollusca*, of *Entozoa*, and of *Polypes*. In the first of these classes his researches into the anatomy of *Dreissena* led him to the knowledge of the true relations of this curious genus and its proper place amongst the *Mytilidæ*. In the *Gasteropoda* his dissection of *Helix Algira* enabled him to clear up some curious points in the anatomy of the pulmoniferous group of this class, and led him to assign a distinct subgeneric character to this species; and in the same group, the early evolution of the nervous system was more fully exhibited than had before been done, in a paper on the anatomy of the common *Limax griseus*. The *Pteropoda* also early engaged his attention, and his examination of *Pneumodermon* enabled him to ascertain that in some parts of its structure it approximates to certain of the *Annelides*. A very beautiful and interesting fact was also observed by this author in his examination of the development of *Aplysia*. This

is, the existence of a nautiliform shell, with an operculum perfectly closing the mouth of the shell, and adherent to a part which becomes the foot of the animal,—a very interesting proof that the real affinities of Mollusca must be studied in their embryogeny. But the discoveries by which he is perhaps best known and most distinguished, are those on the impregnation and development of different forms of Polypes. In these researches many important points in the physiology of these animals are established, and there is a great degree of originality and ingenuity displayed in the manner in which they were conducted and the results deduced. The bisexual character of *Alcyonella*, the occurrence of distinct male and female organisms on the same polypary,—the nature of the former proved by its containing true zoosperms,—the existence of a circulation and of a distinct nervous system in the same polype, its independent, and isolated, and free condition in the early stage of its life, are all facts of great interest in the history of this tribe of animals. I need only further refer to his researches on *Campanularia*, which give the clearest exposition of a distinct metamorphosis in the transition from the form, organization, aspect and habits of the Medusæ to the subsequent condition of the Polype. I need not allude to the important bearing of these facts upon the question of embryonic transformation, so remarkably illustrated in other forms by the researches of Sars, of Lovén, of Dalyell, of Steenstrup, of Huxley, and many others. I must just glance at one more of this excellent observer's demonstrations. In a paper on certain cestoid worms, he shows that this form is nothing more than an early, but not the earliest, condition of the *Trematoda*; that, in fact, the *Tetrarhynchi* are *Scolex* on their first evolution, *Tetrarhynchi* in their second stage, *Bothriocephali* in the third, and finally *Trematoda*; and in the same group he has shown, by his observations on the development of *Linguatula* (*Pentastoma*, Rudolphi), that by its embryology it is nearly related to the *Lernæadæ*, and thus removed from the Helminthoid group, with which it had been previously associated.

In recommending to the Society the American traveller and naturalist *James Dana*, the Council were determined by numerous and valuable works which have evinced a very extensive acquaintance with systematic zoology, as well as with physical geography in its relations to animal life. On the temperature limiting the distribution of Corals, on the structure and classification of Zoophytes, and particularly an elaborate and admirable work on the classification and geographical distribution of the Crustacea; these and many other subjects in natural history have been ably treated by this

gentleman, and, together with his numerous works on mineralogy and on descriptive and physical geology, exhibit the results of great labour and talent.

*Dr. Miquel**, one of the distinguished botanists recently elected on the foreign list, has been for some years the Professor of Botany and Director of the Botanic Garden at Amsterdam; and both there, and previously at Leyden, has been very active in the cultivation of systematic botany. He has worked out with great labour and care some very difficult tribes, especially the *Piperitæ*, of which he published a general Monograph in 1843, besides several preparatory and subsequent supplementary papers in German and English journals. He has also illustrated the Figs in a considerable number of detached papers, particularly a synopsis of them in Hooker's Journal. The Floras of Surinam and of the Dutch East Indian possessions have also been illustrated by him. Amongst his papers on these subjects may be mentioned "*Commentarii Phytographici*," "*Stirpes Surinamenses*," and "*Analecta Botanica Indica*." He also wrote the *Urticeæ* and *Piperitæ* for Martius's '*Flora Brasiliensis*,' and papers in various journals, German, French, Dutch, and English.

Dr. Carl Anton Meyer was first known as a botanical traveller in the Russian dominions, either alone or in company with Ledebour or Bunge, and his earliest works were systematic descriptions, or enumerations of the plants collected, or floras of the localities investigated. These were chiefly an enumeration of the Caucasio-Caspian plants, from the eastern extremity of the chain of the Caucasus and the provinces bordering on the Caspian Sea. A great part of Ledebour's '*Flora Altaica*' was also from his pen, and a supplementary enumeration of plants from the same parts. He afterwards became attached for many years to the Imperial Academy of Sciences of St. Petersburg, and ultimately succeeded Dr. Fischer as Director of the Imperial Botanic Garden. He has during this period published several monographies in the Petersburg Transactions, on *Ephedra*, on *Thymeleæ*, on *Cerium*, &c. I may be permitted here to notice, as a very propitious and agreeable circumstance, that at a time when the political world is surcharged with the desire of war and desolation, and the great empire of eastern Europe is actually awaiting the onset of our fleets and armies; when the feelings of these two great nations are excited to the highest degree of hostility against each other, two of the principal scientific societies of this country, the Royal Society and our own,

* For the sketches of the labours of the three Botanical Foreign Members, the President is indebted to Mr. Bentham and the Rev. M. J. Berkeley.

have each selected for the honour of being placed on the list of its foreign members, a professor attached to the principal scientific institutions of our great political enemy. The Royal Society has just elected the celebrated physiologist Von Baer, and we have conferred the same honour on Carl Anton Meyer. Thus it should always be. Science should know no hostility, national or personal; and well may he, whose mind is devoted to the love and investigation of nature, find reflected in his own heart the pure and holy harmony which characterizes all the objects of his study and regard.

Dr. Jean François Camille Montagne, who is by birth a Parisian, in very early life entered into the French navy, and was with Napoleon in the expedition to Egypt at the close of the last century, in the capacity of "Timonnier." He did not, however, remain long in the navy, but qualified himself as army surgeon, so as to be with the army at Boulogne at the time of the threatened invasion of England. His original literary tastes tended to philology, in which he made considerable progress, but gradually, in the course of his travels with the French army and subsequent captivity, he acquired a love of natural history which has never deserted him, and which is as lively now that he has passed his seventieth year as it was on its first conception. On his return to Paris after the peace, he found that France was dependent on other nations for all information about the *Cryptogamic* collections brought home by her numerous expeditions, and in consequence he devoted himself to that especial branch of botany, and for many years was almost the only person in his native country who followed it with any success. And at the present time, when numerous admirable Cryptogamists have arisen in France, in great measure in consequence of the example of Dr. Montagne, there is not one who surpasses him in the knowledge of species, or in botanical literature, for which his intimate acquaintance with many foreign languages gives him great facilities. His works are far too numerous to mention, and though the greater part are devoted to descriptive botany, they are by no means confined to it; and he was perhaps the very first to recognise the true structure of the hymenium of the higher Fungi, on which the present advanced state of Mycology mainly depends.

I have to apologize, Gentlemen, for occupying so much of your time by what can only be considered a poor substitute for an anniversary address; yet I cannot conclude without adverting, which I do with the greatest satisfaction, to an event of recent occurrence which must prove of the utmost interest and advantage to botanists, —I allude to the transmission to Kew of the splendid herbaria and library of Mr. Bentham, and their unreserved donation to the country.

It is, I believe, about forty years since this collection was commenced, and it would be impertinent in me to pretend to appreciate the value of forty years' labour of such a man as Mr. Bentham; but I am assured by those who are well acquainted with this collection, and are fully competent to its appreciation, that its value and importance can scarcely be overrated. In this place it would be a work of supererogation, and in me it would be highly presumptuous, to dwell upon the merits of Mr. Bentham as one of the first of existing botanists;—as one, in fact, who adds to an almost unexampled systematic knowledge of plants, a profound acquaintance with their structure and affinities. I will only add, that the circumstance of Mr. Bentham's having taken up his residence at Kew, is an event that must be most gratifying to the botanists of this country; and especially as his magnificent donation, to which I have alluded, will, I understand, be made fully available to their use. I cannot offer a more propitious and grateful close to my address, than this record of an act of munificent generosity, such as is rarely indeed witnessed during the life of the donor.

The Secretary then read the following notices of those Members with whose decease the Society had become acquainted since the last Anniversary.

Arthur Aikin, Esq., was born at Warrington in Lancashire on the 19th of May, 1773. He was the eldest son of John Aikin, M.D., long and honourably distinguished in the world of letters; and the grandson of John Aikin, D.D., eminent for his learning and abilities, Divinity Tutor of Warrington Academy, then the institution for higher instruction in most repute among the Presbyterian Dissenters. The celebrated Mrs. Barbauld was his aunt. In Arthur, the family vocation declared itself from infancy: in his seventh year his father entered him at the excellent free-school of his native town, where he made a rapid progress, and the start thus gained was never lost. He derived from his father, together with an ardent love of literature, ancient and modern, a taste for zoology, for English botany, and for chemistry; and a visit at the age of 12, in the house of Dr. Priestley, then pursuing at Birmingham his brilliant course of chemical discovery, confirmed him in his predilection for the last-named science. His destination was early fixed for the ministry: after some years passed under the tuition of Mr. and Mrs. Barbauld, he became a student of the New College, Hackney, and a favourite pupil, in their respective lines, of Gilbert Wakefield, and of Priestley, who delighted him by claiming his assistance in the arrangement of his new laboratory. For nearly two years Mr. Aikin was the mi-

nister of a highly respectable congregation at Shrewsbury; but at the end of that time (from motives which did him nothing but honour) he relinquished the clerical profession. He made several tours in North Wales, of one of which, undertaken in 1796 in company with his brother Charles and another friend, he published an interesting and instructive account, under the title of 'Journal of a Tour through North Wales and Part of Shropshire, with Observations in Mineralogy and other branches of Natural History,' Lond. 1797, 8vo. Henceforward his home was in London, and for many years in the house of his brother, the late Mr. Charles Rochemont Aikin, in conjunction with whom he delivered Lectures on Chemistry and Chemical Manufactures, of which a 'Syllabus' appeared in 1799, and published 'A Dictionary of Chemistry and Mineralogy,' Lond. 1807, 2 vols. 4to; and 'An Account of the most recent Discoveries in Chemistry and Mineralogy,' Lond. 1814, 4to.

About the year 1814 Mr. Aikin became one of the Secretaries of the Geological Society, then newly established, and of which he was an original member; and published 'A Manual of Mineralogy,' Lond. 1814, 8vo, of which a second edition was called for in the following year. In 1817 he was elected Secretary of the Society of Arts, which office he continued to hold until 1839; and during this period (chiefly in the years 1828-38) he delivered to the Society a series of "Illustrations of Arts and Manufactures," a selection from which he collected into a volume published in 1841. He was also active in the formation of the Chemical Society, of which he became President during the years 1843 and 1844, being the third and fourth years of its existence. The last office which he retained was that of Lecturer on Chemistry at Guy's Hospital, which he resigned in 1852, after holding it for more than thirty years. Through a long career, he preserved, without the smallest deviation, "the even tenour of his way." To an extraordinary variety, extent and accuracy of knowledge, both theoretical and practical, he united a total absence of ambition, simple and courteous manners, an imperturbable temper, and great benevolence of heart. He never engaged in a controversy, and never made an enemy. His election into the Linnean Society dates from 1818; and there is a short communication from him noticed at p. 507 of the fifteenth volume of our Transactions. He died at his residence in Bloomsbury Square on the 15th of April in the present year.

The Right Hon. John Cust, Earl Brownlow, D.C.L., F.R.S. &c., was born on the 19th of August 1779; educated at Trinity College, Cambridge, where he took the degree of M.A. in 1801; and created D.C.L. at Oxford in 1834. He became, in 1802, one of the Mem-

bers for the borough of Clitheroe, which he continued to represent until he succeeded his father in the Peerage as Baron Brownlow in 1807. In 1809 he was appointed Lord Lieutenant of the County of Lincoln, and in 1815 he was advanced to the dignity of an Earl. His Lordship was thrice married, first to Sophia, daughter of Sir Abraham Hume, Bart.; through whose relationship to the Bridgewater family, his eldest son, the late Lord Alford, came into possession of the great estates of the Earl of Bridgewater, which have lately, by a decision of the House of Lords, been confirmed to his grandson, the present Earl. Earl Brownlow was a liberal and intelligent patron of literature and science: he became a Fellow of the Linnean Society in 1828, and of the Royal Society in 1838; and presided with much cordiality at the Meeting of the Archæological Institute, held at Lincoln in 1848. He died at his seat, Belton House, near Grantham, on the 15th of September last, in the 75th year of his age.

Frederick Thomas Henry Foster, Esq., was the son of Lady Elizabeth Foster, daughter of the fourth Earl of Bristol and afterwards Duchess of Devonshire, by her first husband, John Thomas Foster, Esq., of Stonehouse, in the county of Louth. He was elected into the Linnean Society in 1813, and was also a Fellow of the Horticultural Society. His death took place at his house in Pall Mall on the 29th of last June, at the age of 75; and his library, which was extensive, and contained many curious and valuable works, has since been dispersed by public auction.

Robert Jameson, Esq., Professor of Natural History in the University of Edinburgh, was the third son of Thomas Jameson, and was born at Leith on the 11th of July 1774. At the usual age he was sent to the Grammar School, but evinced no particular love for letters, while he gratified thus early his taste for natural history, by collecting such animals and plants as could be found on the beach at Leith and in the neighbourhood. He entered the Humanity-class in 1788, but the love of adventure and the desire of studying nature had induced in him so strong an inclination for the life of a mariner, that his father had actually yielded a reluctant consent to his going to sea, when some friends interfered and prevailed upon him to relinquish his wishes and to become the apprentice of Mr. Cheyne, a surgeon in his native town. In 1792 and the following year he attended the lectures of Dr. Walker, then Professor of Natural History in Edinburgh, and a man deservedly respected for the extent of his knowledge, the soundness of his views, and the benevolence of his character. With him young Jameson soon became a favourite pupil, and was shortly afterwards entrusted with the care of the Museum.

Occasionally too he accompanied the Professor on dredging excursions down the Frith of Forth, and his note-book shows that on these trips they were often successful in obtaining zoological treasures. During this period he commenced the study of Botany; and gave the first evidence of his mineralogical proficiency in an "Essay on Gems," communicated to his friend Dr. Anderson's periodical entitled 'The Bee.' In the year 1793 he paid his first visit to London, where he was kindly received by Sir Joseph Banks, and other leading naturalists. On his return to Leith he seems to have altogether abandoned the practice of Medicine, although he still continued to study Anatomy under John Bell, and Comparative Anatomy in conjunction with Charles (afterwards Sir Charles) Bell. He also paid much attention to the study of Ornithology and Entomology; and became intimately acquainted with Dr. Rotheram, Dr. Black's assistant, through whom he added to his chemical knowledge a large amount of mineralogical information, and from whom he perhaps acquired the intense desire to visit the mines of Germany, which he was soon after enabled to gratify. His father, in the mean time, entered fully into his views, assigned him a suitable room for a laboratory, and supplied him with the necessary apparatus and with assistants in conducting his experiments.

In 1794 he resided for three months in the Shetland Islands, zealously occupied in exploring their geology, mineralogy, zoology and botany; and in 1797 he visited the Isle of Arran with the same view. The result of these tours was given in his first separate work, entitled 'An Outline of the Mineralogy of the Shetland Islands and of the Island of Arran, with Dissertations on Peat, Kelp, and Coal.' He next, in company with Charles Bell, paid a visit to the Hebrides and Western Islands in the summer of 1798; in 1799 he investigated the Orkneys; and in 1800 he again turned his steps to the Isle of Arran. His 'Mineralogy of the Scottish Isles,' in 2 vols. 4to, records the observations made during these several excursions. In 1800, his long-projected visit to Freyberg was at last paid, and he remained there for nearly two years, studying Mineralogy and Geology under the famous Werner, not merely in the lecture-room, but in the mines themselves; where, clothed in the miners' dress, and going through the same routine duty with them, he acquired much practical knowledge. The state of his father's health recalled him to Scotland, although it appears to have been his full intention to have again returned to Freyberg; but on the death of Dr. Walker, in 1804, he was appointed Professor of Natural History, and his residence became thenceforth fixed in Edinburgh. In the same year he published the first part of a 'Mineralogical Description of Scotland,' which, how-

ever, was not extended beyond the county of Dumfries. In 1808 he founded the Wernerian Natural History Society, of which he was elected Perpetual President; and to its "Memoirs" he became a frequent contributor. His 'Elements of Geognosy' were published in the following year, and first introduced into England in their full extent a knowledge of the doctrines of the Wernerian school. The first edition of his 'System of Mineralogy, comprehending Oryctognosy, Geognosy, Mineralogical Chemistry, Mineralogical Geography, and Œconomical Mineralogy,' appeared in 1808; and a second edition, much enlarged and improved, in 3 vols. 8vo, was issued in 1816.

Such are some of the principal separate contributions of Professor Jameson to Natural History, and especially to Mineralogy and Geology. But these give only a faint idea of the extent of his multifarious labours. 'The Edinburgh Philosophical Journal,' commenced in 1819, and for the first six years conducted by him in conjunction with Dr. (now Sir David) Brewster, but afterwards continued under his sole editorship, constitutes an invaluable repository of scientific information, and contains numerous original articles as well as a multitude of translations and notices furnished by himself. In the 'Memoirs of the Wernerian Society,' in 'Nicholson's Journal,' in Thomson's 'Annals of Philosophy,' and in Napier's edition of the 'Encyclopædia Britannica,' are many papers contributed by him, and not confined to his more immediate subject, but embracing also Meteorology, Mechanics, and Zoology, both recent and fossil. A translation of Cuvier's celebrated 'Discourse on the Theory of the Earth,' which in a short time ran through five impressions of six thousand copies; some excellent articles on the Physical Geography of Africa and India, in the 'Edinburgh Cabinet Library,' and an edition of Wilson's 'American Ornithology,' revised and scientifically arranged to serve as a text-book in schools and universities, gave variety and relief to his more important labours. And these extensive literary undertakings were carried on while engaged in the delivery of two courses of lectures in each year, which were attended by many of the most distinguished naturalists of the present century; for it is no small part of the praise of Professor Jameson that so many of his pupils have since risen to high distinction. During all this period, too, he was busily engaged in the formation of a very large collection in the several branches of Natural History, containing, it is stated, nearly 40,000 specimens of rocks and minerals geographically arranged; 10,000 specimens of fossils; 800 specimens of skeletons and crania; 8000 birds; 900 fishes and reptiles; many thousand insects, &c., together with a fine collec-

tion of drawings, casts, models, geological and geographical maps, and instruments for surveying. This museum, in which all the specimens were arranged and placed by his own hands, forms a highly appropriate memorial of the practical character of the man.

After having filled the Chair of Natural History for half a century, he died at his residence in the Royal Circus on the 19th of April in the present year; and to show their sense of his distinguished merits the citizens of Edinburgh awarded him a public funeral, which took place on the 28th of last month, and was attended by the Members of all the literary, artistic, antiquarian and scientific societies in Edinburgh, the different medical colleges, the Senatus Academicus, the Lord Provost, Magistrates and Council of the City. He was a member of a great number of scientific bodies, both at home and abroad; and joined the Linnean Society as early as 1797, being at the time of his death the fourth in seniority on the list of our Fellows.

George Newport, Esq., F.R.S., F.R.C.S. &c., was born on the 14th of February 1803, in the city of Canterbury, where his father carried on the business of a wheelwright, to which he was himself apprenticed at the age of 14. From an early period he began to devote his leisure hours to the study of Natural History; and in 1825 he became a Member of the Canterbury Philosophical Society, and delivered several short Courses of Lectures before the members on Mechanics and on Entomology. On the opening of the Society's new building in 1826, he was elected Curator, and held that office for about two years; at the expiration of which period his increasing desire for enlarging his knowledge of natural history rendering him anxious to attach himself to a profession in which this taste could be fully indulged, he was apprenticed to Mr. Weekes, a surgeon at Sandwich. After leaving Sandwich he became a Student at University College, London, in which he attended the Medical Classes, still, however, continuing to devote the whole of his leisure time to the study of nature, and especially of Insect-physiology. In 1832 appeared his first contribution to the 'Philosophical Transactions,' consisting of a memoir "On the Nervous System of the *Sphinx Ligustri*, and the changes which it undergoes during a part of the Metamorphoses of the Insect." For this paper, prepared under circumstances of great disadvantage, and with very imperfect means of observation, he obtained the Royal Medal; and this success stimulated him to renewed exertions in a career in which he became greatly distinguished. After becoming a Member of the College of Surgeons in 1835, he was appointed, through the influence of Dr. (now Sir John) Forbes, House-Surgeon to the Chichester Infirmary, on quitting

which he entered into general practice at the West-End of London; but his heart was wholly in his scientific pursuits, and after a few years he resigned the practice of his profession, and depended almost entirely on a pension of £100 a year from the Civil List. He became a Fellow of the Royal Society in 1846, and of the Linnean in 1847; and his time was constantly occupied in researches into the more abstruse points of Animal Anatomy and Physiology, the results of which he communicated chiefly in papers read before those Societies, and before the Entomological Society, of which he was for two years (1844-1845) President. In his researches he was peculiarly remarkable for the sagacity with which he planned his course of observations, the extreme neatness and ingenuity of his contrivances, his ready manipulation, the minuteness of his dissections, and an acquired dexterity in drawing either with the right hand or with the left, which gave him great advantages in microscopical delineations. As an observer it is astonishing how much he accomplished in his earlier days with optical means of a very imperfect kind, and how little he found to correct in these observations when supplied with the best modern instruments. By these, however, he was enabled to enlarge the field of his observations, and to make great advances towards the solution of various problems of high physiological interest, more especially in relation to the reproduction of lost parts, and the impregnation and development of the ovum in vertebrated animals. It was while engaged in searching in the marshy grounds near Shepherd's Bush for his annual supply of frogs and other amphibious animals, with a view to the farther prosecution of his researches on the last-named subject, that he caught a severe cold, terminating in fever, of the effects of which he died at his residence in Cambridge Street, on the 7th of last month, and in the fifty-second year of his age. The following is a list of his papers in the Philosophical and Linnean Transactions, and in those of the Entomological Society:—

1. On the Nervous System of the *Sphinx Ligustri*, and the changes which it undergoes during a part of the Metamorphoses of the Insect. *Phil. Trans.* 1832, p. 383.

2. On the Nervous System of *Sphinx Ligustri* (Part 2) during the later stages of its Pupa and its Imago State; and on the means by which its development is effected. *Phil. Trans.* 1834, p. 389.

3. On the Respiration of Insects. *Phil. Trans.* 1836, p. 529.

4. On the Temperature of Insects, and its connexion with the Functions of Respiration and Circulation in this Class of Invertebrated Animals. *Phil. Trans.* 1837, p. 259.

5. On the Organs of Reproduction and the Development of the

Myriapoda (1st Series). On the Structure, Relations and Development of the Nervous and Circulatory Systems, and on the Existence of a complete Circulation of the Blood in Vessels in *Myriapoda* and *Macrourous Crustacea*. *Phil. Trans.* 1841, p. 99.

6. On the Reproduction of Lost Parts in *Myriapoda* and *Insecta*. *Phil. Trans.* 1844, p. 283.

7. On the Impregnation of the Ovum in *Amphibia* (1st Series). *Phil. Trans.* 1851, p. 169.

8. On the Impregnation of the Ovum in *Amphibia* (2nd Series revised), and on the Direct Agency of the Spermatozoon. *Phil. Trans.* 1853, p. 233.

9. Monograph of the Class *Myriapoda*, Order *Chilopoda*, with Observations on the General Arrangement of the *Articulata*. *Linn. Trans.* xix. p. 265, and p. 349.

10. On the Anatomy and Affinities of *Pteronarcys regalis*, Newm.; with a Postscript containing Descriptions of some American *Perlidae*, together with Notes on their Habits. *Linn. Trans.* xx. p. 425.

11. On the Aqueous Vapour expelled from Bee-hives. *Linn. Trans.* xx. p. 277.

12. Note on the Generation of *Aphides*. *Linn. Trans.* xx. p. 281.

13. On the Natural History, Anatomy and Development of the Oil-Beetle (*Meloë*), more especially of *Meloë cicatricosus*, Leach.—First Memoir: The Natural History of *Meloë*. *Linn. Trans.* xx. p. 297.—Second Memoir: The History and General Anatomy of *Meloë*, and its Affinities, compared with those of *Strepsiptera* and *Anoplura*, with reference to the connexion which exists between Structure, Function and Instinct. *Linn. Trans.* xx. p. 321.

14. The Anatomy and Development of certain *Chalcididae* and *Ichneumonidae*, compared with their Special Economy and Instincts; with Descriptions of a new genus and species of Bee-Parasites. *Linn. Trans.* xxi. p. 61.

15. Further Observations on the Genus *Anthophorabia*. *Linn. Trans.* xxi. p. 79.

16. The Anatomy, &c. (continued). *Linn. Trans.* xxi. p. 85.

17. Further Observations on the Habits of *Monodontomerus*; with some Account of a new *Acarus* (*Heteropus ventricosus*), a Parasite in the Nests of *Anthophora retusa*. *Linn. Trans.* xxi. p. 95.

18. On the Ocelli in the Genus *Anthophorabia*. *Linn. Trans.* xxi. p. 161.

19. The Natural History, Anatomy and Development of *Meloë*.—Third Memoir: The External Anatomy of *Meloë* in its relation to the Laws of Development. *Linn. Trans.* xxi. p. 167.

20. On the predaceous Habits of the Common Wasp, *Vespa vulgaris*, L. *Ent. Trans.* i. p. 228.

21. On the Habits and Structure of the Nests of gregarious *Hymenoptera*, particularly those of the Hive-Bee and Hornet. *Ent. Trans.* iii. p. 183.

22. On the habits of *Megachile centuncularis*. *Ent. Trans.* iv. p. 1.

23. On the means by which the Honey-Bee finds its way back to the Hive. *Ent. Trans.* iv. p. 57.

He was also author of a Prize Essay (proposed in conjunction by the Entomological Society of London and the Agricultural Association of Saffron Walden) entitled "Observations on the Anatomy, Habits and Economy of *Athalia centifoliæ*, the Saw-fly of the Turnip, and on the means which have been adopted for the prevention of its ravages." Lond. 8vo. 1838; as well as of the article "Insects," and several other important contributions in the 'Cyclopædia of Anatomy and Physiology.'

Charles Stokes, Esq., F.R.S., F.G.S., &c., was an eminent Member of the Stock Exchange, and carried into all his pursuits the same clear head and the same sound judgment which distinguished him in the more practical business of life. His leisure hours were devoted with equal energy and success to the cultivation of a taste for the fine arts, and to the study of various branches of natural science. In the former, music, painting and sculpture, each claimed a large share of his attention. An intimate friend of the late Sir Francis Chantrey, by whom he was appointed one of his executors; an ardent admirer of Turner, of whose original drawings he had collected a large and valuable series; an early and intelligent patron of lithography, while yet a new and untried art in England; a zealous encourager of improvements in the microscope; the possessor of a valuable cabinet of coins, remarkable especially for its illustrations of the various phases of the government of France from the commencement of the Revolution in 1789 to the second establishment of the empire under Louis Napoleon in 1851; his good taste, his extensive acquirements, and the ready kindness with which both his knowledge and his collections were imparted to others, gained him universal affection and respect. His natural-history collections were extended into various departments, and were as remarkable as his artistic and numismatic for choice and well-selected specimens; of these the most important were those of zoophytes and of fossil woods, the latter in particular containing many beautiful and instructive illustrations both of structural peculiarities and of the process of fossilization. On the last-named subject he published in the 'Transactions of the Geological Society' a valuable paper, entitled "Notice respecting a piece of

Recent Wood, partly petrified by carbonate of lime, with some remarks on Fossil Woods," in which his views of the progressive steps in the process of petrification are detailed; while another paper in the same Transactions, "On some Species of Orthocerata," characterized like the former by much novel and minute information, and by a powerful and original turn of thought, laid the foundation for all those curious researches concerning Orthoceratites by which Palæontology has of late years been so greatly enriched.

The Linnean Society are indebted to him for the communication of a letter from Mr. M^c Arthur, "On the Discovery of Milk in the Mammæ of the *Ornithorhynchus*," a notice of which is inserted in the seventeenth volume of our 'Transactions.' He became a Fellow of the Royal Society in 1821, and of the Linnean Society in 1808; and died at his residence in Gray's Inn on the 28th of December last, at the age of 70, leaving a void among the large circle of his friends which can never be supplied. The extent of his knowledge in various departments of natural science would be very imperfectly measured by his published writings; and his interest in everything relating to them continued, notwithstanding his sufferings from a painful disease, unabated to the last. His varied acquirements, his conversational powers, his thorough benevolence of heart, united as they were with fine taste in matters of art, and clear judgment upon all subjects, formed a combination of talents and accomplishments too rare not to be highly appreciated in the possession and deeply lamented in the loss.

Charles Baring Wall, Esq., the son of Charles Wall, Esq., by Harriet, daughter of Sir Francis Baring, Bart., was a member of Christchurch, Oxford, where he graduated, B.A. in 1818, and M.A. in 1821. In 1819 he became M.P. for Guildford, and in successive Parliaments represented that town, Wareham, Weymouth and Salisbury. He was possessed of much good sense and sound practical views, and took great interest in all subjects connected with art. For many years he was a Director of the British Institution, and he was generally placed on all committees of the House of Commons in which the interests of art were concerned. He became a Fellow of the Royal Society in 1830, and of the Linnean Society in 1831; and died at his family-seat, Norman-Court, near Stockbridge, Hants, on the 14th of October last, at the age of 58.

Nathaniel Wallich, Doctor of Medicine and Philosophy, F.R.S. Lond. and Edinb., and one of the Vice-Presidents of the Linnean Society, was born at Copenhagen on the 28th of January 1786. He commenced his botanical studies under the direction of Professor Vahl, and went to India in the year 1807, at the age of

one-and-twenty, in the capacity of surgeon to the Danish settlement at Serampore. Immediately on his arrival in Bengal he became acquainted with Dr. Roxburgh, then Superintendent of the Company's Botanic Garden at Calcutta, by whose friendship he continued to benefit until 1812, when the state of his health obliged him to proceed to the Mauritius. About a year after his return to India from this excursion, he received a commission in the medical service of the East India Company; and on the departure for England of Dr. Buchanan Hamilton, in the beginning of 1815, he was nominated to the temporary charge of the Calcutta Garden, which appointment was subsequently permanently confirmed on the recommendations of Dr. Fleming, Mr. Colebrooke and Sir Joseph Banks. At this time the Botanic Garden had been in existence nearly thirty years; during which period, by the combined exertions of Colonel Kyd, its founder, and of Dr. Roxburgh, it had become one of the finest establishments of the kind in existence; and the unwearied energy of Dr. Wallich during the thirteen years that elapsed before his first return to Europe, not only added enormously to the extent of its collections, both living and preserved, but enabled it to transmit to Europe and America, for distribution among all the more important public and private gardens, a vast and quite unprecedented amount of plants and seeds. In 1820, Dr. Carey commenced at Serampore the publication of Dr. Roxburgh's manuscript '*Flora Indica*,' and to this volume, as well as to a second, which succeeded it in 1824, Dr. Wallich contributed numerous "*Descriptions of Plants more recently discovered*," which greatly enhanced the value of the work. In the mean time Dr. Wallich had been deputed in 1820 on a botanical excursion to Nepaul, which lasted till the beginning of 1822, and in the course of which he made very extensive collections of plants, a large proportion of which were entirely new, and sets of which were immediately transmitted with great liberality to several of the principal herbaria in London and elsewhere. A severe fever, caught on his descent to the plains, which he had in vain endeavoured to root out by a cruise at the head of the Bay of Bengal, confined him to his bed for two months, and compelled him to seek benefit from a voyage to Penang, Singapore, and some other places in the Straits of Malacca, from which, after an absence of five months, he returned on the last day of the year 1822, with renovated health and rich botanical collections. In 1824 he commenced the publication of a selection from his Nepaul collections, under the title of "*Tentamen Floræ Napalensis Illustratæ*," of which two numbers, each consisting of 25 plates, were issued. These plates were the botanical firstfruits of the new art of lithography

in India, and both drawings and lithographs were executed by native artists under Dr. Wallich's superintendence. In the following year he was deputed by the Government to inspect the timber forests of the Western Provinces, and availed himself of this favourable opportunity to examine and collect the plants of the kingdom of Oude, the province of Rohilcund, the valley of Deyra, &c.; and in the two succeeding years, 1826 and 1827, he accompanied a mission from the Indian Government to the Court of Ava, visited the mountains in the neighbourhood of that capital, and proceeded afterwards to the newly-acquired territories on the coasts of Martaban and Tenasserim, in all of which he made most extensive collections. Such were the principal excursions in which Dr. Wallich was himself personally engaged up to the close of the year 1827; but the resources liberally placed at his command by the Government enabled him still further to increase the immense stores which he had thus accumulated. More than three hundred persons were employed in the Botanic Garden itself, and collectors connected with it were stationed in various parts of India, such as Sylhet, Nepaul, Kamaon, Penang, &c. The zeal and liberality of many private individuals also contributed much to its enrichment; inso-much that the number of indigenous plants (as well as those of foreign origin) in the Garden was largely increased, and the herbarium was ultimately extended to upwards of 8000 species. From this collection specimens were frequently transmitted to the principal herbaria in Europe, and many of the more important novelties were published in various works. Dr. Wallich's health had now, however, become so much impaired by repeated attacks of illness that it was deemed indispensable that he should visit Europe for his recovery; and he arrived in England in the year 1828 with the great bulk of his collections. Here, instead of converting his leave of absence into a period of leisure, he immediately obtained permission of the Directors of the East India Company to proceed to the distribution of his duplicate specimens, together with those of the other herbaria of Continental India in their possession; and after these duplicates had been most liberally distributed among all the great public establishments and principal private herbaria throughout the world, the type-collection, containing a complete series of all the species, was munificently presented by the Court of Directors, on the recommendation of Dr. Wallich, to the Linnean Society, of whose museum it forms a most valuable and important part. During the period of this laborious and absorbing occupation, Dr. Wallich also found time to commence and bring to a conclusion his '*Plantæ Asiaticæ Rariores*,' Lond. 1830-2, 3 vols. folio, consisting of no less

than 300 beautifully-executed coloured plates, selected chiefly from a collection of 1200 drawings, made by native artists, and rendered peculiarly valuable by carefully executed details and by accurate and elaborate descriptions. In these respects it is well worthy to rank with his predecessor Dr. Roxburgh's 'Plants of the Coast of Coromandel,' and the two together form a most magnificent contribution to botanical science.

In 1833, Dr. Wallich returned to India and resumed the charge of the Botanic Garden, which he continued to enrich both with native and exotic plants, and to render eminently useful by the transmission of Indian species to the gardens of Europe. From a Report presented to the Government of Bengal, and quoted by Dr. Joseph Hooker, it appears that between January 1836 and December 1840, that is to say in the space of five years, 189,932 plants were distributed from it to nearly 2000 different gardens. Soon after his resumption of his official duties, Dr. Wallich was placed at the head of a scientific mission, the chief object of which was to examine and report on the nature of the cultivation of the Tea-plant in the newly conquered province of Assam, which the members of the Commission thoroughly explored in every direction, bringing with them on their return large collections in every department of natural history. In 1843, his health again failing, it became necessary to seek a milder climate, and he visited the Cape of Good Hope; but even under these circumstances of broken health, he still pursued his favourite avocation, and gratified his friends in England by the transmission of a considerable collection of South African plants. Once more he returned to Calcutta, but after a vain struggle against his old enemy, the pestilential climate, he was compelled finally to quit it, and to return to England, where he arrived in 1847.

In addition to the active duties of his position, which he performed with consummate skill; to his numerous and arduous excursions in almost every part of both the Indian Peninsulas; to the Herculean labour of amassing, arranging, and naming his immense collections; to the superintendence of the native artists, employed in the production of a large and important series of botanical drawings; and to the publication of the splendid works already mentioned, Dr. Wallich was the author of numerous reports and papers on horticultural and botanical subjects, published in the 'Transactions of the Asiatic Society of Calcutta,' the 'Transactions of the Society of Arts,' Sir W. J. Hooker's 'Journal of Botany,' the 'Linnean Transactions,' and other scientific collections. Those which appeared in our own 'Transactions' are two in number,

being a "Description of two new Genera of Plants from Nepal (*Colquhounia* and *Hemiphragma*)," in the 13th volume, and a "Description of a new Genus of Plants belonging to the Order *Nymphaeaceæ* (*Barclaya*)," in the 15th. To our Society he was always most devotedly attached; he became a Fellow in 1818; and in 1849, on the election of Mr. Brown to the Presidency, he became one of its Vice-Presidents. We owe to him not only the munificent gift of the great Indian herbarium, presented at his recommendation by the Court of Directors of the East India Company in 1832, but also a continued succession of benefits and services during the whole period of his connexion with the Society; and the very last expressions which he addressed to the Secretary, little more than a week before his death, were a request that he would convey "to his dear, good, kind friends of the Linnean Society his most affectionate remembrances." He was a man of warm affections, of ready wit, and of pleasing manners, a most amusing companion, steady in his attachments, and indefatigable in his exertions for the advancement of his favourite science. He died at his house in Upper Gower-street, on the 28th of April, in the 69th year of his age, and was buried in the cemetery at Kensal Green, on the 3rd of the present month, the President and many other Fellows of the Society paying the tribute of respect due to his memory by attending his remains to the grave. He became a Fellow of the Royal Society in 1829; and nearly all the more important scientific societies of Europe, America, and the East had enrolled him among their members.

The loss among our *Foreign Members* has been unusually severe, no fewer than six having died within the year.

Gotthelf Friedrich Fischer, M.D., Professor of Natural History in the University of Moscow, and Vice-President of the Medico-Chirurgical Academy, was born at Waldheim, in Saxony, on the 15th of October 1771. He became a pupil of the celebrated Mining Academy at Freyberg, at the same time with Von Buch and Alexander von Humboldt; and completed his medical studies in the University of Leipzig, where he also paid much attention to Botany and Comparative Anatomy, of his proficiency in which latter pursuit he gave early evidence in his 'Versuch über die Schwimmblase der Fische,' Leipzig, 1795, 8vo. After leaving the university he accompanied the brothers Humboldt on a tour through Germany and France, and remained for some time in Paris, where he attended the lectures of Cuvier, and diligently investigated the natural-history collections of the Museum. Among the results of his studies at this period may be mentioned his treatise 'Ueber die verschiedene Form des Intermaxillarknochens in verschiedenen Thieren,' Leipzig, 1800,

8vo; his 'Naturhistorische Fragmente,' Frankfurt am Main, 1801, 4to; and 'Das National-Museum der Naturgeschichte zu Paris,' Frankfurt, 2 vols., 1802-3, 8vo. In 1800 he received a call as Professor of Natural History in the Central School at Mayence, but found on his arrival that the chair had been given to another, and accepted in its stead the appointment of Librarian, which for a time led him away to an entirely new study, that of typographical antiquities. On this subject he published several valuable works, including an 'Essai sur les Monumens typographiques de Jean Guttenberg,' Mainz, 1804; 'Beschreibung typographischen Seltenheiten und merkwürdigen Handschriften, nebst Beiträgen zur Erfindungsgeschichte der Buchdruckerkunst,' 6 Hefte, Nürnberg, 1801-5; and a 'Notice du premier Monument typographique en caractères mobiles avec date,' Mainz, 1804. As a member of the Municipal Council of Mayence he was sent to Paris on a special mission, the object of which was to procure for that town some commercial privileges, and obtained from the First Consul a considerable grant of books for its library. He also founded at Mayence a Natural-History Society, of which he became Secretary; and, as a proof that he had not abandoned his former studies, published his 'Anatomie der Maki und der ihm verwandten Thiere,' Frankfurt, 1804, 4to. In the last-named year he was appointed Professor and Director of the Museum of Natural History at Moscow, where a new field was opened to his talents, in which he continued to labour with indefatigable industry to the close of his life. In 1805 he founded the Society of Naturalists of Moscow, which afterwards obtained permission to take the title of Imperial, and whose labours under his active and vigilant superintendence are so well known and appreciated by the scientific world. In the same year he also published the first volume of his 'Description du Muséum d'Histoire Naturelle,' the copper-plates of which, in the absence of any competent artist, he engraved with his own hands. This museum, which he had greatly enriched, and which contained, among other remarkable objects, a very large and valuable collection of skulls, intended as the foundation of a general Comparative Anatomy of Crania, of which he published the 'Prodromus' in 1811, was destroyed by the burning of the city in 1812. Undeterred, however, by this great calamity, he immediately set to work to replace, as far as possible, the treasures which had been lost, and exerted himself so strenuously that the new museum in the course of a few years became the depository of a very rich collection of natural objects. Soon after his removal to Moscow, he began to turn his attention more particularly towards Entomology and Fossil Zoology, and his numerous contribu-

tions to the Bulletin and Memoirs of the Moscow Society in both these departments of science attest the zeal, energy, and perseverance with which he laboured in their promotion. Among the more important monuments of his extensive knowledge in these two branches, it is proper especially to mention his '*Entomographia Imperii Rossici*,' Moscow, 1820-43, 4 vols. 4to; his '*Oryctographie du Gouvernement de Moscou*,' Moscow, 1830-7, fol.; and his '*Bibliographia Palæontologica Animalium Systematica*,' Moscow, 1810, 4to. As works of a more general nature, which exercised an important influence on the rising naturalists of the empire, and contributed to the enlargement of science beyond its limits, it may be sufficient to refer to his '*Zoognosia*,' of which the third edition, in 3 vols. 4to and 8vo, was published at Moscow in 1813-14; and his '*Museum Demidoffianum*,' Moscow, 1806-7, 3 vols. 4to. His separate publications and papers in Transactions and Journals, enumerated in the '*Bibliographia Zoologiæ et Geologiæ*' of the Ray Society, amount to no fewer than 150, and embrace almost every variety of subject, Comparative Anatomy, and the systematic arrangement and description of Mammalia, Birds, Reptiles, Fishes, Mollusca, Insects, Worms, and Polypes, (recent and fossil), Minerals, and their geognostic and geological relations. He was elected a Foreign Member of the Linnean Society in 1820, and was Knight of several of the principal Russian Orders. He died at Moscow on the 6th of October last, having nearly completed his 82nd year.

Charles Gaudichaud, Member of the Academy of Sciences of the Institute of France, was born at Angoulême, on the 4th of September 1789. He became *Pharmacien de la Marine*, and in that capacity made three important voyages of discovery in the ships *l'Uranie*, *la Physicienne*, *l'Herminie*, and *la Bonite*, under the command of Captains Freycinet, Durand, and Villeneuve Bargemont. In the course of these voyages he visited successively South America, the Mauritius, Bourbon, St. Helena, New Holland, the Sandwich Islands, Tierra del Fuego, the East Indies, and part of China, dwelt on five different occasions at Rio Janeiro, and thrice doubled Cape Horn. The shipwreck of the *Uranie* in the Falkland Archipelago, on the 14th of February 1820, had nearly led to the loss of all his collections, his herbaria remaining under salt water for forty days; but a large portion of them, amounting to 2500 plants, were saved by repeated washings in fresh water during the four months' residence of the crew in those islands, a Flora of which, published in the '*Annales des Sciences Naturelles*,' was among the earliest of his contributions to botanical science. The botanical part of the '*Voyage de l'Uranie et de la Physicienne*,' Paris, 4to and folio,

1826, was his next great work, and in this he introduced (besides a general view of the nature of the vegetation of the several countries visited by the expedition) a remarkable dissertation on the structure and systematic arrangement of Ferns, in which he especially dwelt on the importance of the characters to be derived from the attachment of their stipites and the relative number and position of the vascular bundles contained in them. At a subsequent period he devoted himself almost wholly to the study of Vegetable Physiology, and warmly adopting the views of Du Petit Thouars on the growth of plants, he published a multitude of memoirs on this important subject, which led him into a lengthened controversy with M. Mirbel, whose doctrines he strenuously attacked. Rejecting as merely hypothetical the existence of the cambium, he explains the phænomena of growth by the development of the bud, which he calls the *phyton*, and which he regards as being composed of ascending (tigellary) and descending (radical) fibres, by the elongation of which, and not by the solidification of the cambium, he maintains that the trunk increases in its several dimensions, while it is from the buds themselves that it derives both nutriment and life. The principal of these memoirs, the result unquestionably of a long series of careful observations and of much philosophical discrimination, is entitled '*Recherches générales sur l'Organographie, la Physiologie et l'Organogénie des Végétaux*,' Paris, 4to, 1841. It was during his visit to the Isle of Bourbon, on his second voyage in 1836, that he received the intelligence of his election into the Botanical Section of the Academy of Sciences at Paris; and his election as a Foreign Member of the Linnean Society dates from 1837. In later life he suffered much from the deterioration of his health by the exposure and fatigues of his different voyages; and he died at Paris on the 16th of January in the present year.

Adrien de Jussieu, M.D., Professor of Rural Botany in the Jardin des Plantes, the only son of Antoine-Laurent de Jussieu, the celebrated author of the '*Genera Plantarum*' (himself the nephew of Bernard de Jussieu and of two other distinguished botanists), was born in Paris, on the 23rd of December 1797. He commenced his scientific career by the study of medicine, but soon directed his attention more particularly to the accessory sciences, and after a while devoted himself, like his illustrious predecessors, entirely to botanical pursuits. His first important publication was his inaugural thesis, '*De Euphorbiacearum generibus medicisque earundem viribus tentamen*,' Paris, 1824, 4to, which contained a complete generic monograph of that extensive and difficult family, his general ob-

servations on which were at the same time published in the 'Mémoires du Muséum d'Histoire Naturelle,' under the title of "Considérations sur la Famille de Euphorbiacées." He next occupied himself in the preparation of monographs of several important families of plants, among which may be especially noted *Ternstræmiaceæ*, *Rutaceæ*, *Meliaceæ*, and *Malpighiaceæ*. To his investigations of the latter family he appended a remarkable dissertation on their structural peculiarities, and in particular on the singularly anomalous character of many of their stems. On the return of M. Auguste de St.-Hilaire from Brazil, he became associated with that botanist in the publication of the 'Flora Brasiliæ Meridionalis,' to which he contributed the characters and descriptions of numerous families. In these various works he established his character as a systematic botanist of the highest class. His "Mémoire sur les Embryons Monocotylédons," published in 1839, in the 'Comptes Rendus' of the Academy of Sciences, and in the 'Annales des Sciences Naturelles,' is remarkable for giving, in a few pages, with great precision and clearness of expression, the results of a most extensive series of observations, conducted with his habitual caution and sagacity, into the structure and development of a great number of monocotyledonous embryos, and throwing new and important light on a very obscure point of botanical investigation. Numerous other papers in the 'Mémoires de la Société d'Histoire Naturelle de Paris,' the 'Mémoires du Muséum,' the 'Annales des Sciences Naturelles,' and the 'Dictionnaire Classique d'Histoire Naturelle,' (among which latter the articles on Systems and Methods, and on Botanical Geography deserve particular mention,) attest the extent, the variety and the depth of his botanical knowledge. His last great work, his 'Traité élémentaire de la Botanique,' is unquestionably the clearest, the completest, and the most succinct exposition of the present state of the science, free from vague and disputable theories; it has been translated into English and various other European languages, and is calculated more than any other work of a similar character to attract and inform the student, and to lead him to more elevated views. In 1826 Adrien de Jussieu succeeded his father, who then retired, as Professor at the Muséum d'Histoire Naturelle; in 1831 he became a Member of the Academy of Sciences; and in the same year a Foreign Member of the Linnean Society. He died at Paris on the 29th of June last, in the 56th year of his age, leaving no male heirs, and apparently the last botanist of an illustrious race, which has for three generations, and for nearly a century and a half, stood in the foremost rank of botanical science. To his high scientific attainments he added much

and varied erudition, great simplicity of manners, and a lively and amiable disposition, which rendered him a universal favourite. His funeral, which took place on the 1st of July, was attended by a numerous concourse of friends and pupils; and discourses commemorative of his services and character were pronounced over his grave by M. Brongniart in the name of the Institute, M. Duméril in that of the Museum, M. Milne-Edwards in that of the Faculty of Sciences, and M. Decaisne as the representative of the Agricultural Society.

Kaspar Georg Karl Reinwardt, Member of the Royal Academy of Sciences of Amsterdam, was born on the 3rd of June 1773, at Lüttringhausen, in the Duchy of Berg, now forming part of the government of Düsseldorf. From the age of 14 he resided in Holland, and studied ancient and modern languages, natural history, pharmacy and medicine in the University of Amsterdam, where he took the degree of Doctor of Medicine and Philosophy. In the year 1801 he was named Professor of Chemistry, Botany and Natural History in the University of Harderwyk, in which position he so distinguished himself by his acquirements in those branches of science and by his talent in communicating knowledge to his pupils, that in 1808 he was appointed Director of the Royal Museum of Natural History and Professor of Natural History and Medicine first at Amsterdam, and afterwards (in 1810) at Leyden. In 1815 he received from the Government of the Netherlands a commission to visit the Dutch possessions in India in the capacity of Director of Agriculture, Arts and Sciences; in the execution of which he travelled through the greater part of those possessions between that year and the year 1822. While resident in Java, the Society of Arts and Sciences at Batavia was reconstituted under his presidency; and the 9th volume of its Transactions contains a detailed description from his pen of the Mountain Chain of the Island of Java, which he had investigated both with reference to its physical characters and its geographical relations. After his return to Europe he published important observations on the Gold Mines and the Natural History of the Moluccas, and a multitude of Essays, Observations, Dissertations and Academical Discourses on subjects connected with Natural History, Agriculture, Medicine and Pharmacy, the greater part of which are contained in the Memoirs of the Institute of Sciences of Amsterdam and Haarlem, of which (as well as of the Academy which has now succeeded to its place) he was a distinguished Member. A few years ago he relinquished his professorship, and he died in Leyden on the 6th of March in the present year, and in the 81st year of his age, of a chronic bronchitis under which he had long been suffering.

His scientific attainments in various branches of knowledge were accompanied by great kindness of heart and a most friendly disposition; and not only were his doors freely opened to men of science from all countries, but his extensive collections, and his rich and valuable library, were liberally placed at their disposal. His election into the Linnean Society dates from 1835.

Auguste de Saint-Hilaire, was born at Orléans in the year 1779. At an early age he evinced a predilection for the study of natural history, and when scarcely seventeen attached himself with ardour to entomology. His inclinations were, however, thwarted for a time by the necessity of making a journey into Holstein; but while there, the acquisition of the German and English languages greatly enlarged his means of obtaining scientific information. On his return after a few years to France, he again applied himself to entomology, but soon quitted it for botany, to which he devoted the remainder of his life. He had been offered the post of Auditor of the Council of State, and many motives combined to induce him to accept this appointment; but after a fortnight's consideration he resolved to refuse it, as incompatible with his favourite pursuit. Living at a distance from any large collections, having no teacher, and but few books, his observations were at first limited to the plants of his immediate neighbourhood, which he submitted to a rigorous examination. His earlier contributions to science were published in the 'Bulletin de la Société des Sciences Physiques, &c. d'Orléans,' in Desvaux's 'Journal de Botanique,' and in the 'Bulletin de la Société Philomatique.' He next entered on the preparation of an 'Histoire complète des Pistils et des Fruits des Plantes de la France,' for which he collected extensive materials, but finding that its completion would require many years of travel and observation, he determined to extract from it a series of memoirs calculated to throw light on some of the more important points of vegetable physiology. With this view he published in the 'Annales,' and in the 'Mémoires du Muséum d'Histoire Naturelle de Paris,' several valuable memoirs, the most remarkable being the first of a series "Sur les Plantes auxquelles on attribue un placenta central libre," which at once placed him in the rank of the more scientific and philosophical botanists of the day. About this time an opportunity offered itself of observing the vegetation of a warmer country, and he eagerly embraced the permission given him by the Duke of Luxemburg, who was appointed ambassador at Rio, to accompany him to Brazil, in the southern provinces of which empire, in the Cisplatine province, and in Paraguay, he travelled during the six years from 1816 to 1822. His various journeys reached an extent of 2500 French leagues, and

his collection amounted to about 7000 species of plants, of most of which he made analyses on the spot, 2000 birds, 16,000 insects, and 129 quadrupeds, besides reptiles and other animals. While in Brazil he continued his communications to the 'Mémoires du Muséum d'Histoire Naturelle'; and immediately after his return he set about the publication of the results of his travels in the various departments of botanical science. These were chiefly given in an 'Aperçu d'un Voyage dans l'Intérieur du Brésil,' in the 'Mémoires du Muséum;' in his 'Histoire des Plantes les plus remarquables du Brésil et du Paraguay,' 4to, Paris, 1824; in his 'Plantes usuelles des Brésiliens,' 4to, Paris, 1824-8; in the 'Flora Brasiliæ Meridionalis,' of which 24 fasciculi forming 2 vols. and a part of a third were published by him with the assistance of Adrien de Jussieu, Cambes-sédes and other botanists, between 1825 and 1833; in his 'Voyage dans le Province de Rio Janeiro et de Minas Geraes,' Paris, 1830, 2 vols. 8vo; and in his 'Voyage dans le district des Diamans et sur le litoral du Brésil,' 2 vols. 8vo, Paris, 1833. His health in the mean time became greatly deteriorated by his labours, both in the cabinet and in the field; he fell into an extreme state of nervous debility; lost the faculty of speech, and in a great degree of sight also; and was compelled to retire to Montpellier, where the pure air, and the care of his friendly physicians, Dunal and Lallemand, at length restored him in a great measure to his former activity. He resumed his contributions to the 'Mémoires du Muséum,' and published in 1840, in 8vo, his last great work, under the title of 'Leçons de Botanique, comprenant principalement la Morphologie végétale, la Terminologie, la Botanique comparée, et l'Examen de la Valeur des Caractères dans les diverses Familles naturelles.' In this work he has given a *résumé* of the philosophical ideas which formed through life the groundwork of his botanical investigations, and which fixed the stamp of originality on his views, while the accuracy of his observations gave a high value to his systematic labours. He was elected a Correspondent of the Academy of Science during his absence in Brazil, and in 1830 succeeded Lamarck as a Member of the Botanical Section. His election into the Linnean Society dates from 1827, and he died on the 3rd of May 1853.

Christian Friedrich Schwägrichen was the son of Christian Gottfried Schwägrichen, a merchant of Leipzig, in which town he was born on the 16th of September 1774. He took the degrees of Master of Arts and Doctor of Medicine in the University of Leipzig, and in 1799 published a Dissertation, entitled 'Topographiæ Botanicae et Entomologicae Lipsiensis Specimen Primum,' which was followed in the same year by 'Topographiæ Botanicae Lipsiensis Specimen

Secundum,' and in 1804, on his appointment to the chair of Extraordinary Professor of Natural History, by 'Topographiæ Naturalis Lipsiensis Specimen Tertium.' In the title-page to the latter he dropped his first Christian name, and ever afterwards used that of Friedrich only. In 1803 he published an elementary work on Natural History, entitled 'Unterricht in der Naturgeschichte für Schülen,' 2 vols.; and in 1819, 'Topographia Naturalis Lipsiensis ad Anthropologiam et Medicinam applicata.' But by far the most important of his works are those which treat of Mosses and Hepaticæ. On the latter he published 'Historiæ Muscorum Hepaticorum Prodromus,' Lips. 1814, 4to; and in regard to the former he commenced by editing, in 1801, the posthumous work of his predecessor Hedwig, entitled 'Species Muscorum Frondosorum,' which he followed up in successive years, until 1842, with numerous supplements, containing together three hundred and twenty-five 4to plates. Besides these more important works he also edited an enlarged edition of F. Adolf Heyne's 'Pflanzen Kalender'; he translated into Latin the text of Schkuhr's 'Enchiridion Botanicum'; and he commenced a 'Species Muscorum Frondosorum' in continuation of Willdenow's edition of the 'Species Plantarum' of Linnæus. As a descriptive muscologist he is remarkable for his elaborate descriptions, and the multitude and accuracy of his figures. In 1815 he became Ordinary Professor of Natural History in the University of Leipzig, resigned his Professorship in 1852, and received on his retirement the Prussian Order "Pour le mérite." His election as a Foreign Member of the Linnean Society took place in 1823, and he died in his native town on the 2nd of May 1853.