Address of Thomas Bell, Esq., V.P.R.S., etc., the President, together with obituary notices of deceased members by John J. Bennett, Esq., F.R.S., the Secretary, read at the anniversary meeting of the Linnean Society on Thursday, May 24, 1855.

ADDRESS

OF

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

ETC.,

THE PRESIDENT,

TOGETHER WITH

OBITUARY NOTICES OF DECEASED MEMBERS,

By JOHN J. BENNETT, Esq., F.R.S.,

THE SECRETARY,

READ AT THE ANNIVERSARY MEETING

OF

THE LINNEAN SOCIETY

ON

THURSDAY, MAY 24, 1855.

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LINNEAN SOCIETY

ADDRESS

OF

THE PRESIDENT,

ETC. ETC.,

Read at the Anniversary Meeting, May 24th, 1855.

GENTLEMEN,

At the last Anniversary Meeting of the Society, I stated my intention on the present occasion, to take a brief review of the progress which has been made during the intervening year in the general interests of Natural History. It is not my purpose, in endeavouring to carry out this intention, to enter into any detail of the various discoveries, more or less important, which may have characterized that period; and still less to analyse the contents of books or other publications on these subjects. These are of course known to the cultivators of every branch of the science respectively; and I conceive that I shall more usefully employ the short time allotted to this duty, by taking, as it were, a bird's-eye view of its present state with reference to the past, and considering some of the means by which the future interests of natural science, and the welfare of the Linnean Society in particular, may be best promoted.

As regards the present state of the Society, I think I may safely congratulate the Members on the fact, that notwithstanding public difficulties, unparalleled during the last half-century, notwithstanding the heavy demands upon every one's income, the depression and sadness of spirit which have well nigh weighed down every heart in the nation, and the concentration of the popular mind upon the harrowing events which have been daily transacting around us, our funds have increased, our Meetings have not fallen off either in numbers or interest, and the communications which have been read

at them will not suffer, in point of variety or importance, in comparison with those of any former period.

Many losses we have indeed sustained both by retirement and by death, and there are some vacancies which it is no disparagement to living excellence to mourn as not likely soon to be filled up. These are the painful features in our annual retrospect; and as time goes on and some of us have to look back upon the recurrence of many of those periods, at each of which some congenial spirit, some respected associate in our pursuits had been taken from us, the sadness of each successive stage seems to increase, and we are warned that ere long we too must give up our place to others, to be missed, we hope, and lamented in our turn. In contemplating the list of those who have been taken from amongst us by death during the past year, I had not intended to offer on my own part any anticipation of the obituary notices which Mr. Bennett will presently read to you; but there is one name in that sad list, which my own personal regrets and the irreparable loss to science occasioned by his removal will not suffer me to pass over without a brief allusion. Had I indeed been called upon to select the individual in our Society, whom, for the variety and extent of his acquirements, the versatility of his genius, the soundness of his judgment, the certainty and depth of his knowledge, the cheerful kindness of his temper, the singleness and simplicity of his heart, his purity and unselfishness of purpose—science and his friends could least have spared, I know not whom I could have named as uniting in himself all these qualities in such harmonious and equally balanced proportion as Edward Forbes; and when we recollect that he had only arrived at that period of life when the mental powers become matured and the judgment ripe,—when too we saw him just raised to that desired position, the very culminating point of his ambition, where all his extraordinary qualities would have had full scope for independent exercise, uncontrolled but by his own cautious and intelligent judgment,—it is impossible not to feel that one has fallen whom we may scarcely hope to replace, and that science has sustained a loss, the depth of which, from the suddenness of the shock, we are only now beginning to realize.

Amongst the circumstances of the Society which call for particular notice at this time, one of the most interesting is the aspect which it presents with reference to its foreign relations. We have every reason to be assured, from the manner in which our choice of Foreign Members last year was received by those distinguished na-

turalists on whom that honour was conferred, that this distinction was never more highly appreciated than at present; and, as this phase of our Society must always be especially important to us, as determining its prestige amongst the most celebrated naturalists abroad, I have thought it desirable to state briefly, as I did at the last Anniversary, the grounds on which the Council recommended the same honour to be conferred upon those eminent persons whom you have recently elected to fill the vacancies which had occurred since that period. Those vacancies having been all produced by the decease of botanists, three persons were selected to succeed them, who were distinguished for their attainments in that branch of natural history.

M. Hofmeister's contributions to botanical science are confined to physiological researches, and these are of the highest interest and value, having been always conducted with the greatest skill and judgment, and illustrating the most difficult and obscure facts in vegetable embryogeny. The results of these observations are so well known in this country through the correct translations of Professor Henfrey, published in the 'Annals of Natural History,' and the Reports of the British Association, that I need do no more than allude to them here. The most elaborate and important is his work on the Reproductive Organs of *Lycopodiaceæ*, and on the Embryogeny of *Coniferæ*, published at Leipsic, a quarto volume, illustrated by 33 beautifully executed plates. M. Hofmeister has also published Essays on the Fecundation of *Œnothera*, and on the Reproductive Organs of *Equisetum* and of the Ferns, in the Proceedings of the Royal Society of Science of Saxony, and others on the Embryo of Phænogams, &c. Besides throwing great light on these subjects and developing many new facts, M. Hofmeister has displayed, in all his researches, a thorough knowledge of his subject, and a rare delicacy and skill in microscopical investigation, which have, in comparatively few years, raised him to the rank of a proficient in physiological botany.

M. Planchon is the "Aide" Professor of Botany at Montpelier. He commenced the study of this science under Professor Dunal of that place, and in 1844 published his first essay on the Origin and Development of *Arilli*, and on the Ovules of *Veronica* and *Avicennia*. This treatise, which I believe was his inaugural dissertation on presenting himself for the degree of Doctor in Science at the University where he now holds his Professorship, at once established for him at a very early age, the reputation of a talented and promising botanist. But M. Planchon may be said to have a peculiar claim upon our

sympathy and good will, as he ten years since accepted the office of Curator of Sir William Hooker's Herbarium at Kew, where he devoted himself for five years indefatigably to the study of systematic botany. A series of most important memoirs have from time to time proceeded from his pen, consisting for the most part of monographs of little-known genera and small families of plants contained in the Hookerian herbarium. These all display remarkable sagacity and talent, together with a great amount of original research, an extensive acquaintance with the literature of botany, skill in the discrimination of genera and species, and above all a rare and comprehensive knowledge of the structure and affinities of the natural orders of plants:—a wide range of attainments this, which entitle M. Planchon to be considered one of the first systematic botanists of the day. Amongst his more important botanical papers are those on the Natural Order *Melianthea*, published in our Transactions; on *Lineæ*, *Ternstræmiaceæ*, *Simarubeæ*, *Saururea*, and many others, in Hooker's 'Journal of Botany;' and on *Droseraceæ* and *Nymphæaceæ* in the 'Annales des Sciences Naturelles;' besides minor contributions to these and other journals.

Heinrich Robert Göppert, Professor in the University of Breslau, is highly distinguished for his labours in vegetable physiology, and particularly in fossil botany. The following list of his principal works will show how extensive and important have been his contributions to botanical science, and especially to our knowledge of fossil botany:—"On the Condition in which Fossil Plants are found, and on the process of Lapidification." This paper gives an account of some curious experiments in producing imitations of fossils, by placing recent ferns, &c., previously steeped in a solution of sulphate of iron, between layers of soft clay, which, after having been dried in the shade, were gradually heated till they became red-hot. By this means exact counterparts of fossil plants were produced, some of which, Mr. Kippist informs me, were exhibited at one of our meetings many years ago. His 'Systema Filicum Fossilium' occupies an entire supplemental volume of the Acta Acad. Naturæ Curiosorum, and is beautifully illustrated with plates of the fossils themselves and comparative figures of their analogues amongst recent forms. 'De Floribus in Statu Fossili Commentatio;' 'Flora of the Tertiary Period;' 'Flora Fossilis Formationis Transitionis;' 'Account of Fossil Woods collected during Middendorff's Siberian Travels;' 'On Fossil Plants found in Amber;'—these are amongst his extensive publications on fossil botany; and in addition to these he has

published several papers on vegetable physiology; for instance, "On the Development of Heat in the Living Plant;" "On the Time of Flowering of Plants," &c., and two papers on the *Balanophoreæ*. This brief account of the labours of the three distinguished men whom you have recently elected upon your Foreign list, will, it is believed, afford a satisfactory justification of your choice.

In considering the means by which the study of Natural History may be most extensively and effectually advanced, it is impossible not to turn with the most anxious anticipations to our great seats of learning, the Universities of Oxford and Cambridge. It is not for me to criticise the course of education, which, established by the wisdom of our ancestors and hallowed by the long list of great men whom it has formed, has been corrected and expanded by successive ages of accumulative experience, and accommodated, in some degree at least, to the spread of knowledge and the increasing requirements of advanced civilization. Nor am I disposed to join in the cry which has been got up against the great importance which is attached to the study of the exact sciences in the one, or to the acquisition of classical literature in the other. The severe mental discipline and logical exactitude ensured by the former, and the essential application of the course of study involved in it to astronomical and physical science, are considerations so important as scarcely to admit of an over-estimate; and, on the other hand, amidst many minor though very material advantages derived from the critical study of classical literature, it must never be forgotten that upon it depends the permanent preservation, in their purity and integrity, of the "ipsissima verba" of the Holy Scriptures. Far be it then from us to depreciate the graver studies which have so long been identified with those great schools, whilst we claim and earnestly demand some degree of their patronage, for those not less interesting and scarcely less important pursuits, to which our attention is especially directed.

One of the most important and delightful objects in connection with the spread of natural knowledge, is the genial and elevating effect which an acquaintance with natural phænomena must produce upon the heart and intellect of a population so generally addicted as ours to the drudgery of business, and so subject to the narrowing influence which its exclusive pursuit is calculated to exercise on the mind. And this is not less applicable to the rich than to the poor—to the merchant or the manufacturer who counts his wealth by hundreds of thousands, than to the humble labourer the sweat of whose brow procures his daily pittance. But where are we to look

for the sources from whence this blessing to the common mind of our country is to flow? Where but to the higher and influential classes of society, whose example as well as patronage seems to be necessary to any wide and systematic extension of this unspeakable good. And yet how few comparatively of the nobility, the landed gentry, the wealthy merchants or manufacturers, on whom the masses are mostly dependent, possess even the most superficial acquaintance with these branches of knowledge, or evince the slightest indication that they are aware of the enjoyment which they lose for themselves, and of which, by their indifference or opposition, they are depriving others! Is it not true that, as a general rule, these studies are confined for the most part to men engaged in the incessant duties of one or other of the learned professions, and especially, from the very nature of their professional education, to the practitioners of medicine; or to those who, though engaged in business or in rural occupations, have from early associations or from a refined and pure taste, sought their relaxation from toil in these calm and tranquillizing pursuits?

If then the masses are ever to be influenced in that direction, the question recurs, from whence is the impulse to be given, by whom is the influence to be sustained? Doubtless in a great degree by those who have received their education in the great national Universities;—in a word, by the representatives of our aristocracy, and still more immediately and extensively by the clergy of the church, who, it must be remembered, are intimately connected with education in every rank of life, as the professors of colleges, the masters of public and private schools, and the managers and directors of every national school in the country. It is this consideration which has induced me to dwell with what may perhaps be felt by some a tedious prolixity, upon the importance of the Universities as the great prospective sources of a general extension of the knowledge of natural history. Not that I am disposed to underrate the value of other appliances concurring to the same great end, but that the importance of this means is so obviously paramount, that it forces itself upon our primary consideration.

The changes which have recently taken place in the constitution of the University of Oxford, and those which are in contemplation in that of the sister University, are, I humbly conceive, entirely out of the sphere of my present object, but I have thought that a few remarks on the progress which natural science is making there may not be wholly uninteresting or useless.

It is generally known, (and I now speak from the authority of one

whose position gives him the best means of correct information,) that within the last few years, the facilities for studying natural history at Oxford have greatly increased by the acquisition of several very important collections in various branches both of botany and zoology. I may particularize the splendid collection of insects and other zoological specimens presented a few years since by Mr. Hope, the collections of shells received from Lady Harvey and Sir Walter Trevelyan, the extensive herbarium collected by Mr. Fielding, and made over to the University by his widow, the vast accumulation of geological specimens brought together by Dr. Buckland, and the minerals presented by Dr. Simmons: the care also bestowed upon the arrangement of the old Ashmolean Museum by Mr. Philip Duncan and his deceased brother is worthy of especial notice.

Such collections as these demanded from the authorities the erection of a museum commensurate with their extent and value; and it is most gratifying to be able to state that the University has determined to apply no less a sum than £30,000 to the erection of such a building, in which the greater part of these collections, together with appropriate lecture-rooms, may be brought into connection with each other. This design has lately been finally resolved upon, and it is intended to proceed at once with its accomplishment. Here then are means and appliances for the study of natural history in many of its branches, which, although not yet completed, may be looked upon as constituting a great and important step towards the speedy establishment of a most extensive and efficient school in those sciences.

But this is not the only advance made by the University in this direction. It has also introduced certain changes into its system, intended to favour the study of these branches of knowledge. Formerly, as is well known, physical science, together with the branches of natural history dependent upon it, was virtually ignored; for although lectures were delivered on these subjects, no student was obliged or even encouraged to attend them. Now, however, an attendance upon the lectures of the Professors, and a certain acquaintance with some branches of knowledge besides the classics, are required for a Degree. The *new* branches at present insisted upon must be two or more, either of them connected with Physics, or with History or Law, or with Mathematics. Thus, it will be observed, a knowledge of Physics still continues merely optional at Oxford; but it is even now to a certain extent encouraged by the award of honorary distinctions to a proficiency in any of its branches, and the same boon extends also to Natural History. This, Gentlemen,

may be accepted as an instalment, but only as such. In order to attach to these sciences that degree of attention at Oxford to which their importance unequivocally entitles them, some portion of the endowments which are at present devoted exclusively to the encouragement of the classics and mathematics, must be given to those who have attained a proficiency in the studies in question. One who is better acquainted with the statistics of that great and rich University than I am, assures me that, after rewarding with Fellowships all those persons who had distinguished themselves as scholars and mathematicians, and who are in circumstances to require any such assistance, there would remain ample means for the encouragement of all the other studies which the University by its recent regulations has acknowledged as important. This change (I quote from the same authority) it might be difficult in all cases for the Colleges themselves to effect without infringing upon their statutes; but as a Commission is now sitting, composed of persons exempt from those oaths which shackle the *existing* members of the different Colleges, and constituted expressly for the purpose of bringing about those useful changes which the latter feel themselves prohibited from undertaking, it is earnestly to be hoped that the appropriation of a portion of the revenues of the Colleges for the more direct encouragement of Physical Science and Natural History may be, as it assuredly ought to be, one of the first measures that will engage their attention. There is, I am confident, an increasing interest and desire in the minds of the educated portion of the community to cultivate an acquaintance with these branches of knowledge. It is for the authorities at Oxford and at every other great seat of learning to take care that this interest should not be discouraged, that this desire should not be repressed. The prospect is at present bright, —let us hope it will not again be clouded. I should be unjust were I not here to express my sincere appreciation of the continued and successful exertions of our esteemed Fellow, Dr. Daubeny, in promoting the changes to which I have alluded. Not only have those exertions been unremitting and judicious, but they have been followed up by a step which manifests the earnestness and singleness of purpose by which he has been actuated, in resigning one of the professorships which he held, that of Chemistry, in order that he may devote his time and talents the more exclusively to the promotion of his own particular branch of natural science.

That the interests of Natural History will as far as is possible be promoted by the Professors themselves at both the Universities, we

may be well assured from the character of those who now hold the Chairs in connexion with these branches of science; and whatever may be the eventual state of Cambridge as regards these objects, the well-known zeal, intelligence and attainments of the Professors are a sufficient guarantee that if there be a deficiency in the teaching, it will not be from any failure in the teachers. We have, however, the satisfaction of knowing that a movement has taken place there also, which promises at some future, and I trust not very remote period, to effect a great and lasting improvement. On this subject I have again sought information from one who is most competent from his position to speak authoritatively, and I feel that I cannot do justice to his most interesting communication but by giving it to you in his own words:—"There has been a vast improvement effected, in abandoning the old garden of three acres, situate in a smoky locality, with old-fashioned plant-houses, for a scientifically-arranged new garden of twenty acres, half a mile from the town, with some portions of a projected range of handsome plant-houses completed and filled; the rest (more than two-thirds of the whole) to be erected whenever sufficient funds shall have been found for the purpose. I hear, on all sides, of the growing interest taken in this establishment, and of the willingness on the part of the majority of the Senate to appropriate as much from the scanty funds in the University chest, as our necessities may justify. A plan has lately been devised for building lecture-rooms and museums on the excellent site afforded by the old Botanic Garden. Here the Professor of Botany will enjoy the opportunity of displaying properly prepared specimens, as in the great national establishment at Kew. Here will be deposited the valuable herbarium bequeathed by the late Dr. Lemann, rendered doubly valuable from containing 30,000 species whose names will be authenticated by Mr. Bentham, from comparison with those in his own most extensive herbarium, so munificently presented by him to the nation, and recently removed to the Royal Gardens at Kew. A subscription has been commenced on the part of some of the Colleges for the purpose of defraying the expense of erecting those buildings; and the Vice-Chancellor informs me that he has already heard of offers to the amount of £10,000, although a few Colleges decline rendering any assistance. So far then as these outward demonstrations may enable us to judge, these are doubtless symptoms of decided progress. But, I regret to add, the scheme devised four or five years ago, for slightly connecting the natural sciences with one portion of our University Curriculum, has proved to be of little service as an educational measure.

A few of our non-reading men have been induced to turn their attention to some branch of natural history, who otherwise might not have thought of taking up any such pursuit. I believe some of these have become attached to natural science, and, having quitted the University, are likely, in due time, to take no inconspicuous rank among naturalists. I have just had the satisfaction of signing the recommendation of one for admission to the Linnean Society, and I hope to see more exhibited in the same good cause. Those who go out in mathematical and classical honours are not compelled (like non-reading men, as all others are called) to attend Professorial lectures, and very few of them who remain after taking their B.A. degree, attempt to take honours in the Natural Sciences Tripos. Not without several meritorious exceptions, those who become Fellows or Tutors of Colleges pay very little or no attention to the natural sciences. Entirely ignorant of the position which these deservedly occupy in the estimation of all who have learnt to comprehend their bearing upon the highest interests of mankind, they are too apt to think and speak contemptuously of them. They are no judges whatever how far they are calculated to discipline the mind, in common with the other instruments ordinarily employed in a just and liberal *education*. It would, perhaps, be out of place to enter into details, and revert to various causes which have operated in diminishing the hopes of those who have been desirous of seeing the Natural Sciences assume the position to which they would be found justly entitled as fruitful branches, when fairly engrafted upon a general scheme of sound University education; but I will just allude to two obvious causes why the candidates for honours in the Natural Sciences Tripos have hitherto been so few, scarcely amounting to half a dozen annually. *First*, the examination is not conducted on the plan so worthily adopted in regard to those who compete for honours in Mathematics and Classics. If a board of examiners or advisers appointed by the Senate, were to determine the extent to which they consider candidates, whether for a pass examination or for honours, ought to have become acquainted with any particular science, which may be too vast in its general bearing to be grasped within the limited period allotted to its culture, something like a definite standard for ascertaining the comparative merit of students in each subject might be derived, and the different Professors would be better prepared to instruct their classes, up to such standard. It might then also be left as much or more to others as to themselves to determine how far they had succeeded in doing this. *Secondly*, the Natural Sciences Tripos will be little attractive

to many men of ability, until proficiency in Natural History shall be allowed some weight as well as proficiency in Mathematics and Classics, towards obtaining University rewards, whether Prizes in Books or Medals, or in Scholarships and Fellowships. I may add, that until our Professorships shall have been properly endowed, the University is not likely to command the life-long services of a body of men, proficients in their respective departments, and devoting their undivided attention to the duties of their respective offices. These duties, I strenuously assert, ought not to be restricted to the mere delivery of short elementary courses of lectures; but they should include the exertions necessary for promoting original discovery, to the general advantage of the country and the special reputation of the University."

At neither of the Universities is there a Professor of Zoology. At Oxford the only means for studying this important subject are the Lectures on Comparative Anatomy and Physiology, which the Reader in Anatomy may in his own zeal and judgment be led to volunteer. That Dr. Acland will do this to the utmost of his means, and with all the earnestness and talent for which he is so conspicuous, we are well assured; but it still remains a lamentable defect in the regime of so great and rich a University that there is no special provision for teaching this science.

At Cambridge there is, though to a less extent, the same want, and there is also a similar collateral and voluntary supply. There is a Chair of Comparative Anatomy and Physiology filled by one possessed of very high attainments, who notwithstanding his clerical duties and the time and labour which his Professorship of Anatomy demands, still keeps himself *au niveau* with the science of the day, and, as far as is practicable, supplies the deficiency to which I have alluded. This gentleman thus expresses himself on this subject in a letter with which he has lately favoured me.—"It is much to be regretted that we have no Professorship of Zoology. Not that I suppose, if we had such a chair, the lectures given would be at once largely attended, but because it is a proof, amongst many other indications, how little zoological science is cared for in England, as a means and an element of education." In Comparative Anatomy there is an annual course of fifty lectures given by the excellent person to whom I have just referred, between October and Easter. "They are," says Dr. Clark, "thinly attended, but scarcely a year passes without several of the attendants showing peculiar taste and talent for the subject of them." A translation of Van der Hoeven's 'Handbook of Zoology,' from the Dutch, is being printed at Cambridge under

Dr. Clark's auspices, with the view of rendering a taste for an acquaintance with Zoology and Comparative Anatomy more general amongst the students there.

It is true that at Cambridge the Senate has also endeavoured to provide the means necessary for the study of Zoology and Comparative Anatomy, by obtaining and keeping up good collections of specimens when they have been offered; and the acquisition of Mr. Swainson's birds and other specimens has increased these means. The British Birds of the late Mr. Morgan, and the collection of Fishes of Mr. Jenyns, as well as a good cabinet of Insects in the Cambridge Philosophical Society, also afford considerable assistance. I cannot but believe that where there is such a gathering of young men of good education, and we should hope generally of cultivated taste, were there a stated Professorship of Zoology, and inducements in the form of University rewards for proficiency, there would be no want of a class. That the means and inducements are wanting is little creditable to the University, and little honourable to such a country as ours.

The centre, however, from which, in this unsatisfactory state of official and recognized teaching at Cambridge, a love for Zoology must principally emanate, is probably the Ray Club, which appears to be in a very active working condition, and consists of every class and degree of University men, from Professors and Fellows to Undergraduates.

Such, Gentlemen, is the statement which I have thought it right to lay before you, of the existing condition and future prospects of the sciences which we cultivate, in the two great Universities of the nation. Would that this frank, but, I trust, respectful appeal might have some influence in promoting a more worthy appreciation of their importance, by those in whom is vested the power of carrying out the suggestions which are thus offered! "Le bon temps viendra;" —how soon, must depend upon higher influences than ours.

Although I am not generally disposed to anticipate such marvellous results from the free opening to the public of the great national collections of art, of antiquities and of science, as it is now the fashion to do, I cannot but view with much satisfaction the greatly increased facilities which are everywhere given to the examination and study of such objects by those who are competent to appreciate them. To expect that the mere permission afforded to the uneducated classes to wander through our galleries of art and our museums of natural history, is to result in imbuing them with a rational ap-

preciation of the beauty and interest of what they behold, without the advantage of a previous educational preparation, appears to me merely visionary and utopian; and there are no facts hitherto elicited which are in any degree calculated to remove this conviction. This however is no reason why we should fail duly and reasonably to appreciate the real advantages which may be anticipated from encouraging and gratifying, as far as possible, the public inclination to visit, and admire, and study such objects. I am led to these observations by an important step recently taken by the Trustees of the British Museum, in the publication of full, and in most cases illustrated monographs of the different groups of animals, including not only those species which are to be found within its precincts, but all which are hitherto known. The compilation of these monographs has been confided to naturalists who have respectively studied the various groups which are thus catalogued; and these gentlemen have availed themselves of the opportunities allowed them of examining and comparing various zoological collections, such for instance as the typical collections belonging to this Society, to the Entomological and the Zoological Societies, those of the Honourable East India Company, of Haslar Hospital, and the extensive private cabinets of Mr. W. Wilson Saunders, Mr. Baly, and others.

Dr. Gray has in this manner published a Monograph of the Ungulated, the Cetaceous, and the Phocine MAMMALIA, describing all the known species, illustrated with plates of the crania of all the genera; also similar monographs of the Cartilaginous Fishes, the Lizards, Tortoises, Crocodiles, Amphisbænians, all the Snakes excepting the Colubridæ, which is now in the course of publication, and of the Tailed Batrachia; the latter illustrated with figures of the cranium and teeth of each genus. Among the MOLLUSCA the same distinguished naturalist has published similar monographs of the *Cephalopoda Antepedia*, the *Pteropoda*, the *Brachiopoda*, *Ancylopoda*, and the families *Placunadæ* and *Anomiadæ*. That of the *Brachiopoda* is illustrated with representations of all the genera: in this work Dr. Gray was assisted by Mr. S. P. Woodward, and it contains the fossil as well as the recent species. Amongst the RADIATA he has also published a Monograph of the irregular *Echinidæ*, illustrated with figures of the new genera and species.

In the Entomological department a similar activity has been displayed. Mr. George Robert Gray has published a Catalogue of the *Papilionidæ*, illustrated with coloured figures of all the new species, in thirteen quarto plates.

Mr. Francis Walker has produced monographs of *Diptera*, occu-

pying seven volumes; of the *Homoptera* and *Neuroptera*, in eight volumes; and of the *Lepidoptera Heterocera*, in two volumes.

Mr. W. S. Dallas has published the first and second parts of a Monograph of the Hemipterous Insects, illustrated also with plates of the genera.

From Mr. Frederick Smith we have monographs of the *Andrenidæ*, *Apidæ*, and fossorial *Hymenoptera*, similarly illustrated; also of the British species of Bees, and of the family *Passalidæ* amongst the *Coleoptera*.

Mr. Adam White has contributed, with illustrations, the *Cleridæ*, and the first part of the *Longicornia*.

In the Mollusca, Dr. Louis Pfeiffer has given monographs of the *Phaneropneumata* and the first part of the *Pulmonata*. In this work the shells are described by the author, the systematic arrangement of the species being revised and the animals described by Dr. Gray.

Dr. Baird has produced the Catalogue of the *Entozoa*, with plates of the new species; and to the pen of Mr. Busk we are indebted for an admirable Monograph of the Marine *Polyzoa*, with characters and figures of all the species of this most interesting group.

As these catalogues contain an immense number of new species, the Museum thus becomes a storehouse, so to speak, of type specimens, such as is perhaps scarcely to be found in any other museum in Europe; and I believe the greatest care is taken so to mark the specimens, as to avoid all future ambiguity in their identification.

Whilst I am on the subject of the British Museum, I may state, and I do so with great satisfaction, that Mr. Wollaston has transferred his matchless collection of the Insects of Madeira to the national collection; and his splendid work thus becomes a typical catalogue of that portion of the Museum.

The type specimens of all the Mammalia described by Mr. Gould in his work on the Mammals of Australia, are also there; and a very important addition has been made to the Ichthyology by the recent purchase of the collection of Fishes of the late Dr. Lawrence Theodore Gronov, accompanied by MS. descriptions from his pen, illustrated with figures of the more important species. This work, which the Trustees have also printed, forms a very interesting contribution to this too much neglected department of Zoology.

These results of the energy and zeal of the principal zoologist to the Museum, Dr. Gray, will not fail to be appreciated by every one who desires to avail himself of the facilities afforded for studying zoology at that great emporium; whilst the catalogues, so complete

and extensive, are of the greatest value to the students of natural history generally, even without reference to the Museum itself.

Such are the results of the well-applied liberality of Government as regards the science of zoology; and it is most gratifying to find that a similar liberality has been shown to the sister science, in the patronage which has been manifested towards the Royal Gardens at Kew. Here, under the direction of Sir William Hooker, the Benthamian Herbarium and Library, the munificent donation of which to the nation I had the satisfaction of announcing at the last anniversary, have been arranged in perfect working order; and Her Majesty's Commissioners of Woods and Forests have further provided a liberal sum for their maintenance and increase during the ensuing year.

In the Gardens themselves many important improvements have been effected. The Arboretum, now the finest in the world, and occupying 370 acres of ground, has been completed, and the trees and shrubs accurately named. Large and important additions have been made to that valuable department, the Museum of Œconomic Botany, of which a popular history is in preparation, whilst a more detailed scientific account of its contents is in the course of publication in the 'London Journal of Botany.'

A sum of £1200 has been granted by the Treasury for building a new conservatory 200 feet long; and £3000 for the construction of a handsome building to contain the museum, herbarium and library.

The director of this unrivalled establishment must view with peculiar gratification the results of his zealous and judicious management, in the yearly increasing interest taken in it, and profit derived from it by the public. Whilst in 1841 the number of visitors was but 9000, during the past year 340,000 persons visited the museum and garden; and the Guide Book to the latter has reached a thirteenth edition of 1000 copies each; and it is a most important fact, in connexion with this department in particular, that merchants and manufacturers, in search of information, weekly resort to the museum, whilst artists from the schools of design are seen drawing in the houses and grounds. Several of the most distinguished botanists of Europe have also availed themselves of the scientific riches of the herbarium and library, some of whom have resided at Kew for several months for the purposes of study.

From the naturalists employed under Government, Mr. MacGillivray, in H.M.S. Herald, under the command of Captain Denham, and his assistant Mr. Milne, important collections have been received, especially from Tristan d'Acunha, the Island of St. Paul's, and the

Feejees. The veteran botanist, Mr. Drummond, of Swan River, has been appointed by the Colonial Office to accompany an exploring expedition into North-west Australia; and Dr. Müller, the indefatigable and talented Government Botanist at Victoria, has extended his researches to the loftiest alps of Australia, 7000 to 8000 feet above the level of the sea. From that elevation he has procured, besides some European plants, hitherto unknown in the southern continent, many types of the floras of other distant countries.

The arctic expeditions have brought some gleanings from the inhospitable shores of the Polar American Sea; and Dr. Lyall's collections, made during Captain Sir Edward's Belcher's voyage, are worthy of particular notice, being rich in Cryptogamia, and especially in Algæ, a tribe that had hitherto been much neglected in those regions. These, and the collections made during the expeditions of Rae, M'Clure, M'Clintock, Collinson, &c., are now, I understand, being worked out by Dr. Hooker, who is engaged in drawing up a Flora Polaris, from the combined materials brought home from all the arctic voyages.

Amongst the results of Government patronage, I must mention that Dr. Seemann's 'Botany of the Voyage of the Herald,' the expenses of which are defrayed by the Admiralty, has reached its sixth part, which completes the Flora of Panama, whence 1200 species are enumerated. This work is accompanied by forty-eight plates, drawn by Mr. Fitch. The continuation will, I am informed, be devoted to the Floras of North-west Mexico and of South China.

To the same department of Government we are indebted for the 'Botany of the Antarctic Voyage of H.M.S. Erebus and Terror.' Of this the second part has been completed during the past year, namely Dr. Hooker's 'Flora of New Zealand.' This is, I believe, the only complete flora of any of our numerous colonial possessions, and contains descriptions of 2000 species, and plates of upwards of 300 plants, also executed by Mr. Fitch. This is to be followed by a Flora of Van Diemen's Land, the compilation of which is far advanced.

In Ceylon, our Fellow, Mr. Thwaites, has been indefatigable in the prosecution of his duties as Superintendent of the Royal Botanic Gardens there, and has added much to our knowledge of the botany of the island.

Time will not allow me to enumerate all the additions to botanical science which have emanated from the direct patronage of Government; and I am wholly restricted, by the same cause, from even alluding to the results of private enterprise and talent, or the patron-

age of other great administrative bodies. The labours of Thomson and Hooker, of Harvey, and many others abroad and at home, deserve especial notice; but I am necessitated to proceed towards the conclusion of my Address.

My object has been to show, that both with regard to the Universities and the Government, and I might worthily add, the Honourable East India Company, much has been recently done to promote the advance of natural history, and that we may look forward with confidence to the continued influence of the same sources of improvement.

I forbear even to name the papers which have been read at the Meetings of the Linnean Society; nor have I time to advert particularly to any of the subjects contained in them. I must however state, that in consequence of a resolution of the Council some time past, considerable progress has been made in arranging and naming our own herbaria; and the thanks of the Society are especially due to Dr. Alexander, for his able and indefatigable exertions in this important work.

In this attempt to pass in review the occurrences of the past year which have been calculated to exercise a favourable influence on the spread of a taste for natural history, I cannot avoid noticing the admirable manner in which our respected Fellow, Mr. Ward, has availed himself of his Presidency of the Society of Apothecaries, to bring together a large number of persons, including the most eminent naturalists and physical philosophers, with many who are more or less attached to similar studies, and others who, having as yet no particular participation in the interest belonging to those pursuits, had yet presented to their observation innumerable subjects of the greatest beauty and attraction. Most who now hear me were present at the two *soirées* given by that gentleman in his hall, where nearly one hundred of the finest microscopes in the world, supplied with objects illustrating every department of natural history, and exhibited by many of our first microscopists, were displayed in one room, the walls of which were covered with diagrams and other drawings of the most interesting natural objects. I cannot but believe that the fruits of such a gathering of an average of 500 or 600 persons on each night, must by and by appear in the conversion, if I may so express myself, of many who came only from curiosity, into active cultivators of the science from higher motives.

I must not pass over, also, the graceful termination of this unexampled entertainment, by the admission of about 400 ladies on the morning after the second *soirée*, to see and enjoy the same beautiful

objects. I am confident that every person who was present on those occasions will agree with me, that the thanks of all the cultivators of natural science are due to Mr. Ward for this liberal and successful exposition.

Before I conclude this Address, I wish to make a few observations on a subject of very great moment to the future welfare of the Society, and on which, I believe, you will all expect some information from the Chair.

Although I would not in any degree disparage the importance of our ordinary Meetings, nor undervalue the interest which attaches to a full attendance at, and an earnest and animated spirit pervading them, it must be admitted that the very staple of our prosperity as a Society, that element which will contribute most to our usefulness and to our reputation at home and abroad, is our published Transactions. The marked improvement in the regularity of their appearance during the last few years was received as an earnest of further progress; and the Part, which, I trust, will appear upon your table at the commencement of the next session, will, both by its extent and the value of its contents, show that there was no permanent falling off in either of these respects. Still it has been felt by many, and those amongst the most eminent and valued of our Members, that some modification had become necessary in the form of our publications, and in the rapidity and regularity of their issue. This subject was so important in all its bearings, and presented so many difficulties in its execution, that the most serious consideration was necessary in order, on the one hand, to avoid any infringement, either in letter or spirit, of the constitution of the Society, or any compromise of the prestige of its character; and, on the other, to provide for all the requirements which the spread of its influence and the anticipated increase of its communications should demand. It was felt, and I assure you by no one more strongly than myself, that a new impetus would be given to the Society, and through its means to natural science in general, if facilities were afforded for the rapid and regular transmission to its Members, and to naturalists throughout the world, of such papers as required early publication, and in respect to which the quarto form of our Transactions was either unnecessary or undesirable. It was also considered that our country Members, to whom the Society affords no other tangible advantages than the acquisition of its publications, would be greatly benefited, and their interest in, and, so to speak, their communion with the Society increased, by the regular reception of such a publication, without trouble on their part, and without any increase to the ex-

penses of their fellowship. The fact that exactly at this juncture the legislature introduced an Act, by which the greatest facilities would be afforded for the transmission of such publications by the post at a merely nominal expense, concurred strongly in rendering the scheme practicable, and appeared to afford an unmistakeable sanction to its being at once attempted. I need not say that your Council gravely and earnestly considered the proposed plan in all its bearings; and I have the greatest satisfaction in now announcing that they adopted, by a unanimous vote, the following Resolutions:—

"That the quarto 'Transactions' be published regularly on the first Meeting of the Session in November of each year, and contain all such papers, read during the previous Session, as the Council shall direct.

"That the 'Proceedings' contain, as at present, abstracts of all the papers read before the Society (and not inserted in the 'Proceedings' themselves), and notices of all communications made to the ordinary Meetings, of sufficient importance to be recorded.

"That papers communicated expressly for insertion in the 'Proceedings' be, if so directed by the Council, printed entire.

"That the 'Proceedings' be published periodically (say four times in the year, on the 1st of February, the 1st of April, the 1st of June, and the 1st of August), each number being made up to as late a period as possible.

"That the numbers be issued in printed covers, and the work be registered as a periodical publication, to entitle it to the privilege of transmission by post under a penny stamp applied to the cover.

"That a copy of each number be transmitted gratuitously to each Fellow, resident in the United Kingdom, not in arrear, whose address shall be known, and delivered to the written order of every such Fellow residing abroad.

"That a copy of each number be presented to such societies at home and abroad as the Council shall direct; and that copies shall be sold to the public at an annual subscription, to be hereafter determined, including transmission by post to any part of the United Kingdom.

"That the 'Proceedings' be separately paged for Zoology and Botany, and each division be issued separately to purchasers who may so desire them, at a smaller annual subscription."

Such is the plan to which the Council has determined to give a full and fair trial. It will require much energy as well as judgment to carry it into effect; but I cannot doubt the hearty cooperation of the Fellows, to assist, by their individual exertions, in obtaining all

the advantages which are hoped for from its adoption. The scheme may possibly appear, in the opinion of some, to be not sufficiently comprehensive; whilst others may deem that the change is even more considerable than was called for or expedient. I must however state my own conviction, that the Council has secured, what it is often so difficult to obtain, the "*aurea mediocritas*;" and I cannot, I think, better close this subject, together with my Address, than with the dictum of a great constitutional writer, that "if a resolution must at last be taken, there is none so likely to be supported with firmness as that which has been adopted with moderation."

OBITUARY NOTICES.

The Secretary then proceeded to read the following Obituary Notices of deceased Fellows:—

Golding Bird, Esq., M.D., was born in 1815, at Downham in Norfolk. His early education was conducted in the family of a clergyman at Wallingford, with whom he remained till his twelfth year. He was then removed to a private school in London. In spite of discouragement from his instructor, he here manifested a very decided taste for chemistry and botany. In 1829 he left school, and was apprenticed to Mr. Pretty, a respectable medical practitioner in London. In 1832 he entered at Guy's Hospital. His talents and industry soon attracted notice; one striking proof of this is afforded in his having been requested by Sir A. Cooper to aid him in the chemical portion of his great work on 'Diseases of the Breast.' During his medical studies, he continued to work hard at chemistry and botany, and gained the prize for the latter given by the Apothecaries' Company. When he passed his Examination at the Hall of Apothecaries, the Examiners took the unusual course of specially recommending him to the authorities of the Hospital. In 1836 Dr. Bird was appointed Lecturer in Natural Philosophy to the Guy's Hospital School of Medicine; and before he was twenty-three he laid the foundation of his 'Elements of Natural Philosophy,' one of our best manuals, which has subsequently passed through four editions, in preparing the last of which he had the valuable assistance of Mr. Charles Brooke. He afterwards lectured on Medical Botany and Chemical Pathology. Out of the latter lectures grew his work on the 'Urinary Deposits,' the book on which his reputation as a medical writer will rest, which has passed rapidly through three editions. In 1838 Dr. Bird graduated (at St. Andrews) A.M. and M.D., and was immediately elected Physician to the Finsbury Dispensary. In 1840 he was admitted Licentiate, and in 1844 Fellow, of the College

of Physicians in London, having been appointed in 1843, when only twenty-eight years of age, Assistant Physician to Guy's Hospital. From this time his practice increased rapidly, soon becoming one of the most extensive in London; and probably few men ever more completely acquired the love and respect of their patients. In 1848 he published a paper on the Diseases of Children in the Guy's Hospital 'Reports;' and from 1847 to 1849 delivered lectures before the College of Physicians on Materia Medica and Organic Chemistry. About the same time he lectured on the physiological relations of Electricity and Galvanism. Amid a very absorbing practice, he never lost sight of science, nor of opportunities of adding to his stock of scientific knowledge. He became a Fellow of our Society in 1836; and subsequently of the Geological and Royal Societies. In the welfare of the Linnean he took a special interest; and in 1846 communicated a paper "On the Siliceous Armour of *Equisetum hyemale*, L., and on its Stomatic Apparatus," an abstract of which is given in the 'Proceedings,' vol. i. p. 290–292. In 1848–49 symptoms of disease of the heart manifested themselves; and in 1852 and 1853 he took lengthened holidays at Tenby, where he ardently indulged in the pursuits of natural history, in spite of an amount of disease that would in most men have been the plea for total inactivity. Some of the fruits of these investigations appeared in a paper in the Microscopical Society's Transactions, "On the Zoophytes of Tenby, and the best mode of mounting them." In June 1854 the state of his health compelled him to relinquish London practice, and he settled at Tunbridge Wells. Up to September he improved considerably; but symptoms then supervened which showed that life was near its close, and terminated his existence on the 27th of October, 1854. Had Dr. Bird's profession been a less engrossing one, there can be no doubt that natural history would have owed him much more. He was a keen, accurate and enthusiastic observer; but the duties of a London physician left but little time for studies not strictly connected with his profession. Still his knowledge of natural history was varied and extensive, if not profound; and he was ever ready to assist those less informed than himself, by placing his own stores of knowledge, in the most unreserved manner, at their command.

Sir Edward Thomas Ffrench Bromhead, Bart., M.A., F.R.S. L. & E., F.S.A. &c., High Steward of Lincoln, the second baronet of his family, was born in Dublin on the 26th of March 1789, and succeeded to the title on the death of his father in 1822. He was a Member of Gonville and Caius College; and was called to the bar by the Hon. Society of the Inner Temple in 1813. Prior to an

attack of blindness, with which he had been for some years afflicted, he attached himself to the study of Ecclesiastical Architecture, and also published various sketches of natural classifications, both zoological and botanical. The first of his botanical arrangements appeared in the 'Edinburgh Journal' for April 1836; it was afterwards frequently revised by him, with a view to adapt it to recent discoveries; and only a few weeks before his death, under date of February 8th, 1855, he distributed a printed sheet containing his latest corrections. In the 'Magazine of Natural History' for August and September 1838 will be found, under the title of "Remarks on Zoological Classification," an outline of the principles on which he proceeded in forming his tables. In 1817 he became a Fellow of the Royal Society, to which he had the year before contributed a paper "On the Fluents of Irrational Fractions;" and in 1844 he was elected into the Linnean Society. He died at his residence, Thurlby Hall, Newark, in the county of Lincoln, on the 14th of March in the present year, at the age of 66.

Richard Cartwright, Esq., formerly of Bloomsbury Square, and for many years one of the Surgeons of the Middlesex Hospital, died at Winwick, in Lancashire, on the 22nd of June 1854, at the age of 86. He was elected into the Linnean Society in 1799, and had consequently been a Fellow for the long period of fifty-five years.

Sir Henry Thomas De la Beche, Knt., C.B., F.R.S., F.G.S., Correspondent of the Academy of Sciences of the Institute of France, Director-General of the Geological Survey of the United Kingdom, Director of the Museum of Practical Geology and of the Government School of Mines, and a Member of the Health of Towns' Commission, was born in London in the year 1796. His father was Thomas De la Beche, Esq., of Halse Hall, Clarendon, Jamaica, a colonel in the army; and he claimed descent from the Barons De la Beche, of Aldworth, Berks, in the time of Edward the Third. He received his early education at the school of Ottery St. Mary, and in 1810 was admitted into the Royal Military College of Great Marlow, subsequently removed to Sandhurst. He served for a short time in the army, but soon retired; and settling with his family in Dorsetshire, a district rich in geological indications and in fossil remains, he imbibed that taste for geology which directed the current of his after life. Into the study of that science he entered at once with uncommon ardour. At the age of twenty-one he became a Fellow of the Geological Society; and his investigations were for the next few years divided between the Continent and the counties of Dorset, Devon and Pembroke. In 1818 he married Letitia, daughter of Captain Charles White,

of Loughbrickland, Co. Down, who died in 1844, leaving one daughter. One of his earliest papers, "On the Temperature and Depth of the Lake of Geneva," appeared in the 'Edinburgh Philosophical Journal' for 1820, and was reprinted at Geneva in 1827. This, and other papers, soon after published, such as a "Catalogue of Birds, and of Terrestrial and Fluviatile Mollusca found in the vicinity of Geneva," and "Notes on the Habits of a *Caryophyllia* from Torbay," both in the 'Zoological Journal,' show that he did not at this period limit his investigations to purely geological subjects. His first paper in the 'Transactions of the Geological Society,' written in conjunction with Mr. Conybeare, is entitled "On the Discovery of a new Fossil Animal [*Plesiosaurus*], forming a link between the *Ichthyosaurus* and Crocodile, together with general remarks on the Osteology of the *Ichthyosaurus*;" and this was followed by a long series of important communications, among which papers on the Geology "Of the South Coast of England, from Bridport Harbour, Dorset, to Babbicombe Bay, Devon;" "Of the Coast of France from Fécamp to St. Vaast;" "Of Southern Pembrokeshire;" "Of Jamaica;" "Of the Environs of Nice;" "On the Lias of the Coast in the vicinity of Lyme Regis;" and "On the Chalk and Greensand" of the same vicinity, are the most remarkable. Between 1826 and 1830 he also communicated several papers to the 'Annals of Philosophy' and to the 'Philosophical Magazine.' His first separate publication was a "Selection of Geological Memoirs from the 'Annales des Mines,' with a Table of Equivalent Formations," &c., 8vo. London, 1824; and this was succeeded in 1830 by 'Geological Notes,' and in the following year by a 'Geological Manual,' which speedily ran through three editions, and was immediately translated both into French and German. Two other works, published in 1834 and 1835, 'Researches in Theoretical Geology,' and 'How to observe in Geology,' were also translated into both languages; and the latter grew, fifteen years later, into a ponderous volume of 850 pages, under the title of 'The Geological Observer,' of which a second edition was published in 1853, and which is universally regarded as one of the most valuable elementary works on the science. Having inherited a family estate in the island of Jamaica, which he visited in the year 1824, Mr. De la Beche was enabled to attach himself entirely to his favourite pursuit. He associated himself with the officers of the Trigonometrical Survey, then engaged in surveying the three western counties, and for several years, almost entirely at his own expense, devoted himself to the task of laying down the geological features of those counties on the

Ordnance Maps. In 1832 he first brought under the notice of the Government the important advantages that would accrue to the public from connecting a Geological Survey with the Geographical; and in 1835 he suggested the formation of an illustrative Collection. Both suggestions were adopted, and he became the Director of the Geological Survey, and also of the small Collection temporarily placed in Craig's Court, which subsequently expanded into the extensive establishment, the Museum of Practical Geology, now located in Jermyn Street. In 1819 Mr. De la Beche became a Fellow of the Royal Society, and in 1821 of the Linnean. In 1831 he filled the office of Secretary to the Geological Society, and from 1835 to 1846 he was its Foreign Secretary. In 1847 and 1848 he became its President, and his Addresses to the Society in 1848 and 1849 are published in the 4th and 5th volumes of its 'Journal.' At the Anniversary of the Society in 1854, he received the Wollaston Palladium Medal. He was knighted in 1848, and in 1851 he took a prominent part in the management of the Geological Department of the Great Exhibition. His services to Geology were highly appreciated in foreign countries; he was elected in 1853 a Correspondent of the Academy of Sciences of Paris, and about the same time he received the Order of Leopold of Belgium, and was created a Knight of the Danish Order of Dannebrog. Paralysis had for some time been making slow but certain advances over his frame; but the labours of the Geological Survey and the business of the Museum occupied his attention almost to the last hour of his life. He died on the 13th of April in the present year, at the age of 59; and was buried on the 19th of the same month in the Cemetery of Kensal Green. Of his scientific merits, and of the energy and success with which his plans for the advancement of Geology were carried out, the records of his life bear ample witness; he possessed besides a large amount of general knowledge, he excelled in accurate observation, he wrote with facility and clearness, and had, moreover, great skill in rapid delineation, whether of scientific subjects, of landscape scenery, or of characteristic sketches. His cheerful disposition, pleasing manners, and fund of humour rendered him an agreeable companion; and his tact in availing himself of circumstances contributed greatly to the influence which he exercised in the cause of science, both with individuals and with members of the Government.

Edward Forbes, Esq., F.R.S., F.G.S. &c., Regius Professor of Natural History in the University of Edinburgh, was the son of a banker in the Isle of Man, and born at Douglas on the 12th of

February 1815. His propensity to Natural History dated from his earliest childhood. At seven years old he had formed a small collection of natural objects; at twelve he had studied Buckland's 'Reliquiæ Diluvianæ,' Parkinson's 'Organic Remains,' and Conybeare's 'Geology of England,' and had compiled for himself a Manual of British Natural History in all its branches. His talent for drawing was also early developed; and at the close of his school education, and at the age of seventeen, when the choice of a profession lay before him, he decided in favour of Art, and became in the spring of 1832 a pupil of the late Mr. Sasse. By the persuasion of his friends, however, after six months' training, he gave up the idea of becoming an artist by profession; and in the autumn of the same year he entered the University of Edinburgh as a medical student. For three years he attended the usual routine of classes, but never succeeded in conquering his dislike to medicine as a profession, and greatly preferred the lectures and excursions of the Natural-History Professors, Graham and Jameson, with both of whom he soon became a favourite pupil. His dislike to the medical profession increasing, he declined the examination for a degree, and quitted Edinburgh for a time to make a tour in the South of France, which he extended to Algiers, passing the winter of 1836–37 in Paris, where he attended the lectures of the Professors of the Jardin des Plantes and of the Sorbonne. He had previously, in 1833, visited Norway, and published "Notes" of his Tour in the 'Magazine of Natural History.' The winter of 1837–38 was spent in Edinburgh, and the summers of 1838 and 1839 were chiefly devoted to the extension of his knowledge of Marine Zoology by dredging excursions in company with his friend Mr. Goodsir, not confined to the eastern coast of Scotland, but extended to the Orkney and Shetland Islands, and to the Hebrides. In 1838 he also published his first separate work, 'Malacologia Monensis, or Catalogue of the Mollusca inhabiting the Isle of Man and the neighbouring Sea;' which was followed, in 1840–41, by his 'History of British Starfishes,' forming part of Mr. Van Voorst's series of works on British Natural History. In the spring of 1841, at the invitation of Captain Graves, he joined, as Naturalist, H.M.S. Beacon, which was then engaged in a Survey of the Islands of the Greek Archipelago, and was afterwards commissioned to bring home the remains of Lycian Antiquities discovered by Sir Charles Fellowes. During an absence of nearly two years in the Levant, he made excellent use of the opportunities afforded him for carrying out his dredging operations, and adding to the large stock of information which he already possessed in relation to the theory of distribution in depth of marine

life, on which some of his most remarkable speculations were afterwards founded. He also made two excursions into Lycia, the first in company with Mr. Hoskyn, and the second with Mr. Daniel and Lieut. Spratt, both fruitful in antiquarian discovery, an account of which was subsequently published by him in conjunction with Lieut. Spratt, under the title of 'Travels in Lycia,' 8vo, 1847. In the course of this latter tour Mr. Daniel died of a malignant fever, and Forbes himself had nearly fallen a victim to the same disease, from the consequences of which he seems never to have perfectly recovered. The result of his dredging operations was communicated to the Meeting of the British Association at Cork, in a "Report on the Mollusca and Radiata of the Ægean Sea, and on their Distribution, considered as bearing on Geology." Before his return to England, he had been appointed to succeed Mr. Don as Professor of Botany in King's College, London; and about the same time he also became Curator of the Museum of the Geological Society. Both these appointments he regarded as of high importance in reference to the career which he proposed to himself,—the first, as affording him an excellent opportunity of cultivating his talent for oral instruction; and the second, as furnishing the means of study in the department of Palæontology, to which he attached himself with so much ardour and success, that in 1845 he had well qualified himself to exchange his Curatorship for the office of Palæontologist to the Geological Survey, and Lecturer on Natural History in the Government School of Mines, posts which he worthily filled for nearly the whole remainder of his life. He became a Fellow of the Linnean Society in 1843, and of the Royal Society in 1845; and communicated to our 'Transactions' a memoir "On the *Radiata* of the Eastern Mediterranean," published in the 19th volume, as well as several short notices to our 'Proceedings,' the last of which, read in 1848, is "On some Peloria varieties of *Viola canina*." The principal separate works on which he was engaged during this period are his 'Monograph on the British Naked-eyed Medusæ,' fol. 1848, published by the Ray Society; and his 'Natural History of the British Mollusca,' 4 vols. 8vo, written in conjunction with Mr. Sylvanus Hanley. But by far the greater part of his labours, and those which contributed most to extend his scientific reputation, are contained in the 'Reports of the British Association,' the 'Memoirs of the Geological Survey,' the 'Journal of the Geological Society,' the 'Annals of Natural History,' the 'Edinburgh New Philosophical Journal,' and other periodical publications. Of his works, including these separate papers, no fewer than seventy-nine

are enumerated in the 'Bibliographia Zoologiæ et Geologiæ' of the Ray Society, and the list might have been considerably extended. From the period of his appointment as Palæontologist to the Geological Survey, he devoted much of his time to the arrangement of the fossil collection now so advantageously displayed in the Museum in Jermyn Street. He also took an active part in the Great Exhibition of 1851, and contributed greatly to the interest of the Natural-History department of the new Crystal Palace at Sydenham. In 1848 he married the youngest daughter of the late General Sir C. Ashworth, and in 1853 he was elected President of the Geological Society. But although his residence in London might have been considered as most advantageous in reference both to his position and his pursuits, his aspirations were constantly directed to the Chair of Natural History in the University of Edinburgh, and a vacancy occurring by the death of Prof. Jameson, he unhesitatingly abandoned the metropolis, with all its allurements, official and otherwise, and felt that he had arrived at the summit of his wishes when he was eagerly welcomed as the successor to the vacant Chair. He had formed magnificent schemes for the future, with reference both to lectures and museum, and his inaugural discourse, delivered on the 15th of May 1854, filled to overflowing the largest class-room of the University, with an auditory almost as enthusiastic as himself. At the subsequent meeting of the British Association in Liverpool, he was elected President of the Geological Section, but unfortunately on his way thither he had contracted a severe attack of cold, the consequence of walking and driving for four hours, after being thoroughly wetted through by a heavy shower of rain. This brought on a renewed attack of the remittent fever which he had formerly caught in Greece. He commenced, however, his winter course of lectures, which he continued up to the 9th of November, when he was compelled to suspend them; and notwithstanding the unintermitting attention of his warmly attached medical friends, he died on the 18th of that month, in the 40th year of his age. The cause of death was afterwards ascertained to be a chronic abscess of the left kidney, occasioning extensive abdominal disease, and baffling all the resources of medical art. He bequeathed his scientific papers to R. Godwin-Austen, Esq., Secretary of the Geological Society, and his collections of natural history to the University of Edinburgh. His unwearied activity is evidenced not only by the amount of his actual publications, but by the accumulated mass of unpublished materials which he has left behind him. His rapid facility in drawing gave him great advantages in the illustration both of his facts and of

his views regarding them. His speculative turn of mind is evinced by numerous theoretical views, many of which, such as his comparison of the morphology of Sertularian zoophytes with that of flowering plants, his observations on the distribution of marine animals as bearing on geology, his theory of bathymetrical distribution, and his ideas on the connexion between the distribution of the existing fauna and flora of the British Isles, and the geological changes which have affected their area, have been worked out with great ingenuity. His genial disposition made him the centre of a large body of attached friends, and enabled him to pass through life almost without an enemy.

George Bellas Greenough, Esq., F.R.S. &c., one of the founders and first President of the Geological Society, was educated first at Peter House, Cambridge, and subsequently at the University of Göttingen. In his youth he was ambitious of political distinction, and deriving from his father an ample fortune, he purchased a seat in parliament for the borough of Gatton, for which he sat from 1807 to 1812. But he soon abandoned politics and attached himself wholly to science, devoting the remainder of his life to geological and geographical studies, which he cultivated in close combination with each other. In the year 1807, in conjunction with Mr. Charles Greville, Sir John St. Aubyn and Sir Abraham Hume, each of whom possessed a splendid mineralogical collection (for the arrangement and enlargement of which they were all mainly indebted to the mineralogical knowledge of Count Bournon), and with Dr. Wollaston, Dr. Babington, Mr. Arthur Aikin, Mr. William Phillips, Mr. Leonard Horner, Dr. Roget and others, he took a leading part in forming an association for the cultivation of mineralogical and geological science, which subsequently took the name of the Geological Society, and of which he was named the first President. This office he subsequently again filled on several occasions, and although he has written (or rather published) little, yet his time, his money and his talents continued to be actively employed in the promotion of geological knowledge. His first substantive work, 'A critical Examination of the First Principles of Geology,' appeared in 1819, and was two years afterwards translated into German. The principles of this work have been described as having now become "antiquated;" but this result was fully anticipated by the author himself, "being satisfied," as he states at the end of his preface, "that if geological science continues to advance at the rate it has done lately, the essays now submitted to the public will, before many years have elapsed, be found to contain as many errors as they presume to

correct." In the same year he gave to the world his 'Geological Map of England and Wales, in six sheets, with an accompanying Memoir,' compiled from an extensive collection of maps and surveys, and enriched with much original matter, contributed both by himself and his numerous geological friends. A second edition, greatly improved by the materials collected during the interval of twenty years, was published in 1839. He occupied himself continually in increasing his collection of maps, and in noting upon them all the geological data which he could obtain either from books or from the communications of scientific travellers, and was thus enabled to lay before the Asiatic Society, in illustration of a memoir read by him in 1852, a series of maps of Hindostan, defining all the important elements of the ten water-basins of that Peninsula. And at the last meeting of the British Association in Liverpool, he exhibited a physical and geographical map of all India, on a large scale, which has since been published under the title of 'General Sketch of the Physical Features of British India.' Mr. Greenough became a Fellow of the Royal Society in 1807, and of the Linnean Society in 1811. He was for two years (1840–41) President of the Geographical Society, and his extensive collection of maps is, by his will, directed to be shared between that Society and the Geological, each receiving those more especially connected with its object, and in addition a bequest of £500 for their arrangement and preservation. Besides the publications mentioned above, his Presidential addresses from the Chairs of these two Societies are the only printed memorials of his scientific acquirements, which were accompanied by extreme caution in the adoption of novel theories, and by a singularly methodical habit of minute arrangement. For some years past his health had been much broken: he passed the last winter at Naples, for the benefit of a milder climate; but dropsy having supervened on a debilitated state of body, he died in that city on the 2nd of April in the present year, at the age of 77.

John Harwood, Esq., M.D., F.R.S. &c., was elected a Fellow of the Linnean Society in 1820. In 1826 he became Professor of Natural History in the Royal Institution, and in the spring of that year delivered a course of lectures "On the Natural History of the Animal Kingdom, comprehending a survey of the Classes Mammalia and Birds, and of their most remarkable extinct Fossil Genera." In the same year he read before the Institution an "Essay on the Natural History of the Elephant genus;" and in the following year delivered a discourse "On the Structure and Habits of the Seal," outlines of which are given in the 21st and 23rd volumes of the

'Journal of the Royal Institution.' In 1827 he communicated to the Linnean Society "An account of a pair of hinder hands of an Orang-Otang, deposited in the collection of the Trinity House, Hull," which is published in the 15th volume of our 'Transactions;' and to the Royal Society a memoir "On a newly discovered Genus of Serpentiform Fishes (*Ophiognathus*)," published in the 'Philosophical Transactions' for that year, in the course of which he also became a Fellow of the Royal Society. Soon after this period he settled as a practising Physician at St. Leonard's-on-Sea, in the neighbourhood of Hastings, where our excellent Treasurer, Mr. Yarrell, had frequent occasions of seeing him while collecting materials for his work on 'British Fishes' in the years 1834, 1835 and 1836, and where he was much esteemed as a man of gentlemanly and amiable manners and extensive information. He died at St. Leonard's on the 7th of September 1854.

Sir Robert Heron, Bart., was born at Newark-upon-Trent on the 27th of November 1765, and succeeded to the baronetcy on the death of his uncle, the Rt. Hon. Sir Richard Heron, formerly Chief Secretary for Ireland, on whom the title had been conferred. He was a warm politician of the Whig school, and first entered Parliament in 1812 as member for East Grimsby, for which place, and afterwards for Peterborough, he continued to sit until the dissolution in 1852, when he was reluctantly persuaded to retire from political life at the age of 86. He married in 1792, but had no issue, and the title has consequently become extinct. His death took place suddenly on the 26th of May last year, in the 89th year of his age, at his residence, Stubton, in the county of Lincoln; and so quietly did he pass away, while sitting in his library, that his death became known only when he was asked if he wished to retire to bed. He was fond of zoology, and had a large fund of anecdote connected with animals and their habits. His menagerie at Stubton contained at one time many rare species, and he was particularly successful in breeding them. His election into the Linnean Society took place in 1821; and he was from the date of its foundation an active Fellow of the Zoological Society, to which he contributed not only specimens for the menagerie, but also occasional notices for its 'Proceedings.'

Duncan MacArthur, Esq., M.D., a naval surgeon of considerable repute, became a Fellow of the Linnean Society in 1810, and died at Walmer, in Kent, where he had long resided, on the 16th of January in the present year, at the age of 82. He was a Companion of the Bath, Physician to the Fleet, and for many years Physician to the Royal Naval Hospital at Deal.

William Rashleigh, Esq., F.R.S. &c., the head of an ancient family, long seated at Menabilly House, near Fowey, in the county of Cornwall, many of whose members have represented the county in Parliament from the reign of Elizabeth down to the present time, was elected into the Linnean Society in 1813, and into the Royal Society in 1814. He was a Vice-President of the Royal Cornwall Polytechnic Society, and the possessor of a fine collection of minerals. He died at Menabilly on the 14th of the present month, in the 79th year of his age.

John Ridout, Esq., was a successful general practitioner in medicine. He was admitted a Member of the Society of Apothecaries in 1805, and was afterwards elected into the Board of Examiners, and became in due course Master of the Company. He was elected into the Linnean Society in 1832, and in 1843 was nominated one of the Fellows of the Royal College of Surgeons. He was likewise a Fellow and Member of the Senate of the University of London, and one of its Board of Examiners. He died on the 26th of April in the present year, at his residence in Montagu Street, Russell Square.

George Brettingham Sowerby, Esq., was the second son of James Sowerby, a well-informed naturalist, a distinguished botanical artist, the possessor of a considerable natural-history museum, and an early member of the Linnean Society. His son George was born at his residence, Mead Place, Lambeth, on the 12th of August 1788, was educated at home under private masters, and assisted in the collection and arrangement of the museum, acting also as his father's amanuensis. Until his marriage, which took place in 1811, entomology was his favourite study, as is shown by "An Account of a new *Scarabæus*, and Observations on two other rare Insects," published in 1812 in the 'Transactions of the Entomological Society of London;' but afterwards, from a persuasion that its pursuit was attended with cruelty, he abandoned it for mineralogy and conchology, a knowledge of both of which branches of science, but especially of conchology, he assiduously cultivated with a view to turning it to pecuniary profit. For that purpose he made several journeys on the Continent, going once to Vienna and frequently to Paris, in which city he studied the nomenclature of Lamarck, and made himself many friends. The knowledge thus acquired enabled him to conduct his business with much profit both to himself and to his customers. It induced him also to speculate largely: in one year he purchased both the celebrated Tankerville collection of shells, and the immense stock of minerals and shells left by Mr. George

Humphreys, at the cost together of about £6000. This speculation, however, proved to be ill-timed; for immediately after the conclusion of his bargain, the import duty on subjects of natural history was repealed, and the market price, of shells especially, fell very considerably in consequence of the large numbers imported. He became a Fellow of the Linnean Society in 1811, and in 1818 communicated a paper, entitled "Remarks on the genera *Orbicula* and *Crania* of Lamarck, with descriptions of two species of each genus, and some observations proving the *Patella distorta* of Montagu to be a species of *Crania*," which is printed in the 13th volume of our 'Transactions.' His principal work was 'The Genera of Recent and Fossil Shells,' with illustrations by his elder brother, James De Carle Sowerby, commenced in 1820, of which upwards of forty numbers appeared, but which was never completed. This work contributed most essentially to the introduction into England of the views of Lamarck and his followers in regard to the classification of shells. In 1824, he established, with the assistance of several leading naturalists, a quarterly periodical entitled 'The Zoological Journal,' which was continued for four years, and contains many important memoirs by himself and others. 'A Catalogue of the Tankerville Collection of Shells, with descriptions of many new species,' appeared in 1825. In 1830 he published the first part of what was intended to be a general 'Species Conchyliorum,' but although a second part was prepared, the publication was dropped for want of encouragement. He also described a great number of new shells, chiefly from the collection of Mr. Cuming, in the 'Proceedings of the Zoological Society;' and communicated several papers to the 'Magazine of Natural History' and to the 'Reports of the British Association.' He traded largely in shells and minerals, and with good reputation both for fair dealing and for knowledge of his business. On this account he was frequently consulted on questions of value, and his opinions justly carried great weight. But for many years his health had been greatly enfeebled, the lingering illness which eventually terminated his existence having commenced before his marriage in an inflammation of the lungs, the effect of lying down to rest upon cold grass when heated with violent exercise. He died on the 26th of July 1854, having nearly completed his 66th year, at his residence in the Hornsey Road, leaving behind him a large family all more or less engaged in natural-history pursuits.

John Ellerton Stocks, M.D., was born in the neighbourhood of Hull, and acquired his medical education at University College, London, where he distinguished himself by his love of botany, which

afterwards became his favourite pursuit. He obtained an appointment in the Bombay Medical Service, and in the course of his duties, first as Vaccinator, and afterwards as Inspector of Forests in Scinde, he made frequent and extensive excursions through the provinces of Scinde and Beloochistan, by means of which he was enabled to accumulate a large and well-prepared collection of plants, together with an extensive series of drawings executed by native artists, under his own immediate inspection. On Dr. Gibson's quitting India some four years ago on a visit to England, Dr. Stocks was appointed during his absence Conservator of Forests and Superintendent of Botanic Gardens in Bombay, and thus obtained further opportunity of extending his botanical researches, both personally and by means of collectors. In the beginning of 1854 he returned to England on furlough, bringing with him his collections, and took up his residence at Kew, where he occupied himself for some months in the arrangement of his materials, and in comparing them with those amassed by Sir William Hooker and by Drs. Hooker and Thomson, to whose 'Indian Flora' he would in all probability have largely contributed. But unfortunately, although to all appearance a strong and healthy man, his constitution had been undermined by his labours in the unhealthy climate of Scinde: he was subject to intense neuralgic pains in the head and neck; and a change of air being deemed advisable, he spent first a few weeks with some relations in the Isle of Man, and then proceeded on a visit to another relative, Samuel Watson, Esq., of Cottingham, near Hull. On his way to this place he caught a cold, succeeded by fits of apoplexy, which in a very few days put a period to his existence, on the 30th of August last, at the early age of 34. He became a Fellow of the Linnean Society in 1848. Had he lived, much might have been expected from his contributions to botanical science. Those already published are chiefly (if not wholly) contained in Sir W. J. Hooker's 'London Journal of Botany' and 'Kew Garden Miscellany,' and consist of the following papers:—Notes on the "Botany (chiefly economic) of Scinde," descriptive of specimens presented to the Kew Garden Museum; "Notes written during a short Botanical Excursion to Shah Bilawul;" "On two Balsam-trees (*Balsamodendron*) of Scinde, *B. mukul* and *B. pubescens*;" 'Sketch of the Botany of Beloochistan;" "Descriptions and Figures of two new Plants of Scinde;" "Notes on Beloochistan Plants;" and "Notes on the Botany and on the Government Gardens of Bombay." He had also brought with him to England materials, in a forward state of preparation, for a general work on the Natural History, Manners, Customs, Arts, Manufac-

tures and Commerce, Agriculture, &c. &c. of Scinde, which it is hoped may yet be published. It is described as written in a lively and agreeable style, and rendered doubly valuable from the amount of scientific knowledge which has been brought to bear upon it.

William Edward Wing, Esq., an entomologist of considerable promise, and a zoological artist of distinguished merit, was early employed by Dr. Gray in illustrating several of the Catalogues of the Zoological Department of the British Museum. He thus became generally known as a skilful draughtsman, and his pencil was employed in the illustration of numerous important works. The beautiful plates which he contributed to our own 'Transactions,' and to those of the Royal Society in connexion with the papers of his friend Mr. Newport, must be familiar to most of our Members; and not less deserving of notice are those given in Mr. Stainton's 'Insecta Britannica,' accompanying various papers in the 'Transactions of the Entomological Society,' and illustrating the *Crustacea* of the 'Zoology of the Voyage of H.M.S. Samarang.' One of the principal ingredients of his success as an artist was undoubtedly the interest which he took in the objects delineated by him, and which led him to attach himself especially to the study of entomology. In 1847 he became a Member of the Entomological Society, and for several years previous to his death filled the office of one of its Secretaries. To its 'Transactions' he contributed "Descriptions of some Hermaphrodite British Lepidoptera, with figures of the Insects," printed in the fifth volume; and he was also author of "Characters of three new genera and species of Lepidoptera," in the 'Proceedings of the Zoological Society' for 1854. He was elected into the Linnean Society in 1852, with every promise of a long and useful life; but a latent tendency to consumption, called into action by one of those wasting diseases so frequently attendant on that disposition, was soon afterwards developed, and he died on the 9th of January in the present year, at the early age of 27.

James Edward Winterbottom, Esq., was the son of the late Dr. Winterbottom of Reading, and was born on the 7th of April 1803. After acquiring the rudiments of education at several private schools, he was induced by his parents to abandon his own choice of the military profession, and to enter the University of Oxford, with a view to the study of medicine. He became a Commoner of St. John's College, Oxford, in 1821, and took successively his degrees of B.A., M.A., and B.M., which last was obtained in 1833. In the intervals of University attendance he became a student of St. Bartholomew's Hospital, the practice of which, as well as the Lectures connected

with it, he diligently attended for two years, commencing in 1827. He never, however, practised the profession; but from the period of taking his degree, occupied his leisure with frequent tours, which enabled him to gratify his taste, not only for natural history, but also for architecture, sculpture, painting and engraving. Thus, in 1834–35 he travelled through Northern Italy, extending his tour to Rome and Naples, and returning by Switzerland and the Rhine. The ten following years were spent in visiting different parts of the United Kingdom, including two visits to Ireland and two or three to Scotland. In the early part of 1846 he quitted England with the view of making a tour through some of the Northern Provinces of India, but finding himself on his arrival at Bombay too late in the season for crossing the plains to the Himalaya, he spent the remainder of the year in visiting Java and the coast of China, returning by Singapore and Calcutta to Lahore. From this city he made excursions to Cashmere, Little Thibet and Nepaul; and having joined Capt Richard Strachey, then engaged in a survey of the portions of the Himalaya bordering on Kumaon and Thibet, travelled in his company to the Lakes which form the sources of the Indus and the Sutlej. During this and other journeys the two companions made extensive botanical collections, which they brought with them to England in 1849; and for nearly two years they occupied the same house, engaged in arranging, naming and distributing their joint collections, to which a peculiar value is attached from the great attention paid to noting the heights at which the several species were found. On his return to his residence at Woodhay in Hampshire, Mr. Winterbottom began the formation there of an Arboretum, principally of *Coniferæ*. But his active disposition did not allow him long to remain stationary at home. In 1852 he again visited Ireland; and at the commencement of 1854 he started for a second visit to Egypt (where he had previously spent some time on his return from India), and ascended the Nile as far as Aboo-Simbul. He subsequently visited nearly every place of interest in Syria, and was on his way in an Austrian steamer from Beyrout to Smyrna, with the intention of proceeding to Constantinople, when it was found necessary to put him on shore at Rhodes, on account of a severe attack of diarrhœa, to which he fell a victim on the 4th of July 1854, in the 52nd year of his age. Mr. Winterbottom became a Fellow of the Linnean Society in March 1830, and of the Geological Society in the same year: he was also a Member of the Geographical Sooiety, and when in London a frequent attendant at all their Meetings; he thus became known to many among us as an

amiable man, of a retiring disposition, possessed of a large store of general information, as well as strongly attached to natural science, and in particular imbued with a devoted love of botany and an ardent desire of extending his knowledge by both home and foreign travel.

Three of our *Foreign Members* have died during the year.

Friedrich Ernst Ludwig von Fischer was born on the 20th of February 1782, at Halberstadt in the Hartz, where his father was Rector of the Martini School and Preacher in the Church of the Holy Ghost. Under the eyes of his father, a distinguished writer, well known for his learning, he received a careful education, until he was of an age to enter the University of Halle; shortly before which, however, he had the misfortune to lose both his parents within fourteen days of each other. The love of natural history, with which he was early imbued, determined him to apply himself at Halle to the study of medicine, and in the year 1804 he obtained his doctor's degree, his dissertation on which occasion was entitled: "Specimen de Vegetabilium imprimis Filicum propagatione." But as he had no great inclination to the practice of physic, he joyfully accepted an offer made to him in the same year to superintend the botanic garden of Count Razumoffsky, then Minister of Public Instruction in Russia, situated at Gorenki, in the neighbourhood of Moscow. Several papers from his pen soon after appeared in the 'Mémoires de la Société Impériale des Naturalistes de Moscou;' such as "Description d'une nouvelle espèce d'*Elymus*;" "Revision du Genre *Geum*;" "Notice sur une Plante de la Famille des Succulentes;" "Descriptiones Plantarum rariorum Sibiriæ;" and "Genera Plantarum duo [*Adenophora* and *Guldenstædtia*]." In 1808 he published a 'Catalogue du Jardin des Plantes du Comte Alexis de Razumoffsky à Gorenki près de Moscou;' in 1812, a second edition of the same; and in the same year at Zurich, 'Beitrag zur botanischen Systematik, die Existenz der Monokotyledonen und der Polykotyledonen betreffend.' In the year 1821 he travelled in France, England and Germany, making the acquaintance of many scientific men, and establishing a correspondence with them, by means of which the botanical treasures of his patron were largely increased. But Count Razumoffsky dying shortly afterwards, the Emperor Alexander, through the then Minister of the Interior, Count Kotschubei, appointed him in 1823 Director of the Imperial Botanic Garden at St. Petersburg. This garden, which had formerly belonged to the Medical College, was then in a state of the utmost

disorder, possessed only some few miserable houses, and required an entire reorganization, insomuch that Fischer has been justly regarded as its founder. Under his directions a large portion of the valuable plants from Gorenki were transferred to it, a library was founded, and an herbarium established, new and important buildings were erected, and rich collections of plants and seeds were obtained from England, France, Germany, and other more distant regions, to fill the space thus created for their reception. At his proposal also various scientific journeys were undertaken both within the Russian dominions and in other parts, partly at the expense of the crown, and partly by means of shares; such for example as the journey in Mexico of Baron Karwinsky. An "Index Plantarum anno 1824 in horto Imperiali Botanico Petropolitano vigentium," exhibits the state of the garden soon after his appointment. In 1831 he published a 'Monographia Zygophyllearum;' and from 1835 to 1845, he issued annually, in conjunction with C. A. Meyer, Von Trautvetter, and subsequently with Avé-Lallemant, an "Index Seminum, quæ hortus botanicus Imperialis Petropolitanus pro mutuâ commutatione offert," containing in addition to the lists of seeds, characters and descriptions of a multitude of new plants, and more particularly those of Siberia. In conjunction with C. A. Meyer he also published a 'Bericht über die Getraide-Arten, welche im Jahre 1836 und 1837 in Kaiserlichen Botanischen Garten zu St. Petersburg gebaut worden;' a "Lettre sur les genres *Xeranthemum* et *Chardinia*" in the 'Nouveaux Mémoires' of the Moscow Society; and an "Enumeratio (prima et altera) Plantarum novarum a Cl. Schrenck lectarum," Petropoli, 1841, 1842. In the year 1845, a reconstruction of the great Palm-house of the garden became necessary, and this was effected under the directions of the architect M. Fischer-Ouralsky; the new house (of which a full account is given in a work by Fischer and Meyer, entitled 'Sertum Petropolitanum,' issued in the following year), measuring 266 feet in length, 80 feet in breadth, and 67 feet in height, and forming one magnificent saloon. In consequence, however, of discussions to which this building gave rise, Dr. Fischer was compelled in the spring of 1850 to relinquish the post of Director which he had held for seven-and-twenty years, and to quit the garden, the library, the herbarium, and the other collections, which had been almost wholly formed by himself and which he cherished with a parent's love. Towards the end of the same year, however, he was appointed a Medical Councillor in the department of the Minister of the Interior, and again attached himself to his favourite science by the publication in the 'Bulletin' of the Moscow Society of a "Notice

sur les *Anoplanthus* de l'Ancien Monde;" and a "Synopsis Astragalorum Tragacantharum," illustrated by twelve plates drawn by himself. Dr. Fischer was elected a Foreign Member of the Linnean Society in 1820, and was also a member of numerous other scientific societies. The Leopoldino-Caroline Academy of Naturalists elected him in 1837, under the name of "Aiton." He died at St. Petersburg on the 5th (17th) of June 1854, in the 73rd year of his age, after a short but painful illness. In 1830 he married the daughter of M. von Struve, the Russian Minister at Hamburg, who, with one son, survives him.

Carl Anton Meyer, the intimate friend and *collaborateur* of Dr. Fischer in many of his works, and his successor as Director of the Imperial Botanic Garden at St. Petersburg, was born, of German parentage, in the capital city of Witepsk. He was educated at the University of Dorpat, and accompanied Professor Ledebour, whose pupil he was, in a journey in Southern Russia, and afterwards in 1826 in his celebrated journey, undertaken at the expense of the University, to the Altai Mountains and the neighbouring Steppes, to the examination of which Dr. Meyer's attention was more especially directed. The Journal of his separate tour through the Kirghis-Steppe from Barnaul to Noor-Saisan and Altyn-Tubé, occupies the greater part of the second volume of the Narrative of Prof. Ledebour's Journey, published at Berlin in 1830. The plants collected by the three companions, during the summer of 1826, consisting of about 1600 Phanerogamæ, formed the materials of the "Flora Altaica," published by their joint labours in 4 vols. 8vo, Berlin, 1829–1833. In 1829 Dr. Meyer was named by the Academy of Sciences of St. Petersburg to accompany M. Kupfer as botanist in an Expedition to the Environs of Mount Elbruz and the Caucasus, undertaken by order of the Emperor, and on which a Report, made to the Academy, was published by M. Kupfer in 1830. Dr. Meyer's own Report, entitled "Verzeichniss der Pflanzen, welche wahrend der, in den Jahren 1829 und 1830, unternommenen Reise im Caucasus und in den Provinzen am Westlichen Ufer des Caspischen Meeres gefunden und eingesammelt worden sind," was published at St. Petersburg in 1831. It gives a complete enumeration of the Phænogamous plants collected, in number nearly 2000, with the characters of many new genera and species, together with an itinerary of the journey, and some account of the localities in which the collections were chiefly made. These two important publications at once placed Dr. Meyer in a high rank among Russian botanists, and procured his admission into the Academy of St. Petersburg. From

the year 1835 he was associated with Dr. Fischer in several works above enumerated in the notice of that botanist; and he contributed numerous papers to the 'Mémoires' of the Imperial Academy. The titles of these are as follows: "Bemerkungen über einige Hymenobrychisarten," 1837; "Das *Alyssum minutum* und die zunächst verwandten Arten monographisch bearbeitet," 1840; "Bemerkungen über die naturliche Familie der *Polygonaceæ*," 1840; "Florula Provinciæ Tambow," 1844; "Über einige Cornus-Arten aus der Abtheilung *Thelycrania*," 1845; "Monographie der Gattung *Ephedra*," 1846; "Über die Zimmtrosen," 1847. He succeeded Dr. Fischer in the Directorship of the Imperial Botanic Garden at St. Petersburg in 1850, and continued to hold that office during the brief remainder of his life. It was only in May last year that he was elected a Foreign Member of the Linnean Society, and we have already to record his name in our annual obituary. His death took place at St. Petersburg in the night between the 24th and the 25th of February of the present year.

Charles François Brisseau de Mirbel, Member of the Academy of Sciences of the Institute of France, was born at Paris in the year 1776. He applied himself early to the study of Botany under the distinguished Professors of the Museum, and in the year 1797, we find him accompanying Ramond, the celebrated investigator of the Pyrenees, as one of his pupils, in his two Journeys to Mont Perdu, one of the most remarkable summits of the Pyrenean Chain. Shortly after he became Director of the Garden at Malmaison, in which the Empress Josephine cultivated a magnificent collection of exotic plants. This connection with the Imperial Family introduced him to the notice of Louis Bonaparte, whom he accompanied to Holland, in the capacity of his private Secretary, and by whom he was nominated Director of the Dutch School of Painting at Paris and at Rome. In 1808, the Class of Sciences of the Institute (of which he was previously a correspondent) elected him a Member in the place of Ventenat; and about the same time he was named Professeur-Adjoint of Vegetable Physiology and Botany at the Faculté des Sciences. Soon after the restoration he began to take part in public affairs, and in 1817 he was called to the Council of State in the capacity of Maître des Requêtes. In the same year he succeeded Bertin de Vaux as Secretary General of the Department of Police, of which M. de Decazes was then Minister. Soon after his nomination to this office he became the subject of some bitter attacks in the Chambers, but was well defended by his chief, whom he accompanied also as Secretary General on his removal to the Department of the

Interior. On the fall of M. de Decazes, he resigned both his offices, and never afterwards discharged any function connected with public affairs. He succeeded Bosc as Professor of Culture at the Muséum d'Histoire Naturelle in 1829; and in the same year he was elected a Foreign Member of the Linnean Society. In 1837 he became a Foreign Member of the Royal Society. His death took place at Neuilly on the 12th of September 1854, at the age of 78. Few men have laboured more assiduously for the promotion of botanical science, and especially of Vegetable Physiology. During more than half a century he contributed largely to our knowledge on some of the most obscure and important points of vegetable anatomy; and although many of his theoretical views have been justly controverted, his precepts and his example have given a powerful impulse to the prosecution of microscopical researches into vegetable structure. His first publication was an Introductory Lecture to a Botanical course delivered by him in 1801, entitled "Influence de l'Histoire Naturelle sur la Civilisation." He next furnished the preliminary volumes to the Botanical division of Sonnini's Edition of Buffon, which were separately published under the title of "Traité d'Anatomie et de Physiologie Végétale," 2 vols. 8vo, Paris, 1802. This essay immediately created a great sensation in the botanical world, and led to the proposal by the Royal Society of Göttingen, in 1805, of the celebrated question on the Vessels of Plants, which brought into the field as competitors for the prize, Link, Rudolphi and Treviranus. In 1808, Mirbel published at the Hague "Exposition et Défense de ma Théorie de l'Organisation Végétale," with a German translation revised by Dr. Bilderdyk, with the view of still further explaining his theory, which he believed to have been misunderstood both by the propounders of the question and by the competitors for the prize; and in 1815, after his return to Paris, he gave a still more full and comprehensive exposition in his 'Elémens de Physiologie Végétale et de Botanique,' 3 vols. 8vo. It would extend this notice far beyond its necessary limits to attempt to give even a list of the numerous papers contributed by him to the 'Annales' and 'Mémoires du Muséum,' to the 'Annales des Sciences Naturelles,' and to other scientific publications. A brief notice of some of the more important will be sufficient to show how extensive was the field of his research. The series commences with a "Précis d'un Mémoire sur l'Organisation Végétale," in the 5th volume of the 'Annales du Muséum,' which is followed by a memoir "Sur les fluides contenus dans les Végétaux," in the 7th, and another entitled "Nouveaux Recherches sur les caractères anatomiques qui distinguent les Plantes

Monocotylédonés des Plantes Dicotylédonés," in the 13th. After these come a series of observations on the germination of various plants and families of plants, in the same volume. Next we have, in the 15th volume, " Considérations sur la manière d'étudier l'Histoire Naturelle des Végétaux, servant d'Introduction à un travail Anatomique, Physiologique et Botanique sur la famille des Labiées," the anatomical and physiological portions of which follow. In the 'Mémoires du Muséum' are contained his Essays on the Geographical distribution of *Coniferæ*, of *Chenopodeæ*, and of the Phanerogamous Plants of the Old World from the Equator to the North Pole; in the 'Nouvelles Annales,' his " Recherches Anatomiques et Physiologiques sur le *Marchantia polymorpha*, pour servir à l'Histoire du Tissu Cellulaire de l'Epiderme et des Stomates;" in the 'Archives du Muséum,' his " Nouvelles Notes sur le Cambium, extraites d'un travail sur l'Anatomie de la Racine du Dattier," which work appeared in the 18th volume of the 'Mémoires de l'Académie des Sciences;' in the 'Annales des Sciences Naturelles,' among other important papers, his " Nouvelles Recherches sur la Structure et les Développements de l'Ovule Végétal;" his " Remarques sur la Nature et l'Origine des Couches Corticales et du Liber des Arbres Dicotylédonés;" his " Notes pour servir à l'Histoire de l'Embryogénie Végétale" (written in conjunction with M. Spach); his "Recherches Anatomiques et Physiologiques sur quelques Végétaux Monocotylés;" and his " Extrait de deux Mémoires sur la Composition et la Structure de plusieurs Organismes des Plantes" (in conjunction with M. Payen). Several of these later papers formed part of a controversy in which he was for some years engaged with M. Gaudichaud, in defence of his peculiar views of Vegetable Physiology.

Among our *Associates* we have also to record three losses during the past year.

Abel Ingpen, a zealous and active entomologist, and one of the most constant attendants at our Evening Meetings during a period of nearly thirty years, was born on the 20th of May 1796. At the age of seventeen he became clerk to Mr. P. B. Brodie, a distinguished conveyancer, in whose office, and greatly respected by him, he passed the entire remainder of his life (more than forty years), surviving that gentleman only seven days. He was elected an Associate of the Linnean Society in 1826, and published, in 1827, 'Instructions for Collecting, Rearing and Preserving British Insects; also for Collecting and Preserving British Crustacea and Shells,' Lond. 12mo, of which a second enlarged and corrected edition was published in 1839. This

little work is regarded as one of the most carefully executed and practically useful works that have been written on the subject of which it treats. He was also author of a paper in the 1st volume of the 'Transactions of the Entomological Society,' entitled "Remarks on the Destruction of *Cocci*," and of numerous articles, chiefly anonymous, in the 'Gardener's Magazine' and the 'Horticultural Magazine,' on subjects connected with Horticulture, to which in common with Entomology his leisure was entirely devoted. He died of cholera at his residence at Chelsea, on the 14th of September 1854, in the 59th year of his age. His collection of natural objects, his books, and the plants of his garden, were all carefully and skilfully collected, and arranged with a neatness and precision, which were his most striking characteristics.

The Rev. David Landsborough, D.D., Minister of the Free Church at Saltcoats, Ayrshire, first became known as a naturalist by occasional sketches of the natural history of his former Parish of Stevenston, and the shores of Ardrossan, the study of which occupied the brief intervals of leisure left by his ministerial duties. These embraced the plants both flowering and cryptogamic, and especially the Sea-weeds; the shells, land and marine; and the fossil botany of the neighbouring coal-fields. His separate publications in natural history, besides those of a more purely literary character, consist of 'Excursions in Arran, Ailsa Craig, and the two Cumbraes,' Edinb. 1847, 16mo, and a second series, Edinb. 1852, 12mo; 'A Popular History of British Sea-weeds,' Lond. 1849, 16mo; and 'A Popular History of British Zoophytes,' Lond. 1852, 8vo. His smaller contributions were chiefly communicated to the 'Annals and Magazine of Natural History,' and are as follows: "On the Phosphorescence of Zoophytes," vol. viii. p. 257; "Description of a new Pliocene Deposit at Stevenston, and of Post-Tertiary Deposits at Stevenston and Largs in the County of Ayr," vol. viii. p. 514; "On *Rissoa Harveyi*," vol. ix. p. 261; "On the History and Habits of the Rook," vol. xi. p. 275; "Account of a Dredging Excursion," vol. xv. p. 291; and "Notice of some Rarities found on the West Coast of Scotland," vol. xv. p. 327. In the 'Zoologist' he also published notices "On Mollusks, &c., observed at Whiting Bay, in the Isle of Arran, in August 1842;" and "On the Discovery of Bones near Saltcoats, Ayrshire." He carried on an extensive interchange of specimens, chiefly of *Algæ*, with naturalists in all parts of the United Kingdom, and the children of the manse were trained to great neat-handedness in their preservation. Many hundred sets of elegant volumes thus prepared at Stevenston, Rockvale and Saltcoats were sold, and

the proceeds contributed not a little to the support both of Church and Schools. Dr. Landsborough was elected an Associate of the Linnean Society in 1849, and died at Saltcoats, of cholera, on the 12th of September 1854.

George Luxford was born on the 7th of April 1807, at Sutton in Surrey, from whence he was early removed to the neighbouring town of Reigate. At the age of eleven, he was placed under the charge of Mr. Allingham, a printer and stationer, with whom he remained for sixteen years, acquiring not only a knowledge of the printing business, but also an acquaintance with the Greek, Latin and French languages, and much general and scientific information. Botany was his favourite study, and the picturesque neighbourhood in which he resided supplied him with the means of improving his knowledge of our native plants. In 1834 he removed to Birmingham, but returned to Reigate in 1837, and in the same year commenced business as a printer, in London. In the course of that and the following year he wrote and printed 'A Flora of the Neighbourhood of Reigate,' in a small 12mo volume, consisting chiefly of an enumeration of the species, but containing also new localities for some of the rarer among them, and occasional observations on their distinguishing characters. In 1841 he undertook to edit for Mr. Newman a botanical periodical, which, under the title of the 'Phytologist,' was continued monthly, for some years under his sole editorship, but always more or less under his superintendence, until the month of June last year. He was also at one time connected with the 'Globe' newspaper, and for some years sub-editor of the 'Westminster Review.' In 1846 he was appointed Lecturer on Botany at St. Thomas's Hospital; but in 1851 he relinquished this and his other engagements, and became compositor and reader in Mr. Newman's printing establishment, in which he continued up to the time of his death, which took place at his residence in Hill Street, Walworth, on the 12th of June 1854, in the 48th year of his age. He was elected an Associate of the Linnean Society in 1836.