The observations on which this orbit depends differ widely from the estimates of position at Cordoba and Windsor, which Mr. Chandler had used in his previous computations; and the elements now found are in fair agreement with those deduced by Mr. Finlay from the Cape observations of January 22, 25, and 28 alone, which are published in the above-mentioned number of the *Monthly Notices*.

THE COMPANION OF SIRIUS.—Prof. A. Hall gives, as the mean results of his observations during the present year (*Astronomical Journal*, No. 157): Epoch 1887·238; position-angle, 24°·18; and distance, 6″·508.

A SHORT METHOD OF COMPUTING REFRACTIONS FOR ALL ZENITH DISTANCES.—In continuation of his paper in *Astronomische Nachrichten*, No. 2768 (NATURE, vol. xxxv. p. 329), the application of which was limited to zenith distances less than 45°, Mr. Schaeberle, of Ann Arbor, U.S.A., in No. 2788 of the same publication, gives his method for the computation of refractions, with Bessel's constants, for 45° to 77° of zenith distance, and for zenith distances greater than 77°, with an accuracy sufficient for practical purposes. Starting from Bessel's expression $r = \alpha\beta^{\Delta}\gamma^{\lambda}\tan z$, Mr. Schaeberle finds that Δr (the quantity to be added to the mean refraction r_0) can be represented only by $\Delta r = r_0 F + \epsilon\frac{\Delta\gamma}{\gamma}$, between the limits $z = 45°$ and $z = 77°$. In this expression $F = \frac{\Delta\beta}{\beta} + \frac{\Delta\gamma}{\gamma}$ and $\epsilon = r_0(\lambda - 1)$. For zenith distances greater than 77°, the final equation becomes $\Delta r = r_0 F + \epsilon\left(F - \frac{\sigma}{\gamma}\right)$, where $\sigma = 0{\cdot}9\frac{\Delta\beta}{\beta}$.

The requisite quantities can evidently be easily tabulated, and the computer is thus provided with a very convenient method for calculating refractions which will not materially differ from those deduced directly from Bessel's Tables.

ASTRONOMICAL PHENOMENA FOR THE WEEK 1887 JUNE 26—JULY 2.

(FOR the reckoning of time the civil day, commencing at Greenwich mean midnight, counting the hours on to 24, is here employed.)

At Greenwich on June 26.

Sun rises, 3h. 46m.; souths, 12h. 2m. 29·7s.; sets, 20h. 18m.; decl. on meridian, 23° 22′ N.: Sidereal Time at Sunset, 14h. 36m.

Moon (at First Quarter on June 28) rises, 9h. 35m.; souths, 16h. 38m.; sets, 23h. 29m.; decl. on meridian, 8° 53′ N.

Planet.	Rises. h. m.	Souths. h. m.	Sets. h. m.	Decl. on meridian. ° ′
Mercury ...	5 51	13 51	21 51	21 6 N.
Venus	7 39	15 11	22 43	16 40 N.
Mars	2 39	10 55	19 11	23 23 N.
Jupiter... ...	14 1	19 20	0 39*	8 51 S.
Saturn... ...	5 20	13 23	21 26	21 33 N.

* Indicates that the setting is that of the following morning.

Occultations of Stars by the Moon (visible at Greenwich).

June.	Star.	Mag.	Disap. h. m.	Reap. h. m.	Corresponding angles from vertex to right for inverted image. ° °
27 ...	10 Virginis ...	6 ...	23 36	near approach	199 —
July.					
1 ...	ξ^1 Libræ	6 ...	0 52	near approach	201 —
1 ...	η Libræ	6 ...	21 23 ...	22 4 ...	19 320

June. h.
29 ... 17 ... Jupiter in conjunction with and 3° 40′ south of the Moon.

July. h.
1 ... 10 ... Mercury at greatest elongation from the Sun, 26° east.
2 ... 9 ... Sun at greatest distance from the Earth.

Meteor-Showers.

	R.A. °	Decl. °	
Near σ Herculis	253 ...	47 N.	Swift meteors.
δ Cygni..	294 ...	39 N.	Slow meteors.
ϵ Delphini	305 ...	9 N.	
Between β and γ Cephei.	330 ...	77 N.	

Variable Stars.

Star.	R.A. h. m.	Decl. ° ′		h. m.	
U Cephei	0 52·3 ...	81 16 N. ...	June 27,	23 54	*m*
			July 2,	23 33	*m*
R Piscium	1 24·8 ...	2 18 N. ...	June 26,		*M*
S Ursæ Majoris ...	12 39·0 ...	61 43 N. ...	July 1,		*m*
W Virginis	13 20·2 ...	2 48 S. ...	,, 2,	22 0	*m*
U Ophiuchi	17 10·8 ...	1 20 N. ...	June 30,	23 25	*m*
U Sagittarii... ...	18 25·2 ...	19 12 S. ...	,, 28,	0 0	*M*
β Lyræ...	18 45·9 ...	33 14 N. ...	,, 30,	0 0	*M*
R Lyræ	18 51·9 ...	43 48 N. ...	July 1,		*m*
S Vulpeculæ ...	19 43·8 ...	27 0 N. ...	June 26,		*m*
η Aquilæ	19 46·7 ...	0 43 N. ...	July 2,	0 0	*m*
S Sagittæ	19 50·9 ...	16 20 N. ...	June 27,	23 0	*M*
T Aquarii	20 44·0 ...	5 34 S. ...	,, 26,		*M*
W Cygni	21 31·8 ...	44 52 N. ...	,, 29,		*m*
δ Cephei	22 25·0 ...	57 50 N. ...	,, 28,	23 0	*M*

M signifies maximum; *m* minimum.

THE ZOOLOGICAL SOCIETY OF LONDON.

A GENERAL meeting of the Zoological Society of London took place on the afternoon of Thursday, the 16th inst. In celebration of the fiftieth anniversary of Her Majesty's reign the meeting was held on the lawn of the Society's Gardens, which was reserved for the occasion. A very large number of the members and their friends were present.

After the meeting there was a garden party, the visitors being received by the President, Prof. Flower, F.R.S., and the Secretary, Dr. P. L. Sclater, F.R.S. Among those present during the afternoon were the following:—The Queen of Hawaii and Princess Liliuokalani, His Highness the Thakore Sahib of Limbdi, His Highness the Prince Devawongse, the Maharajah of Bhurtpore, the Earl of Buckinghamshire, the Earl of Cawdor, Lord Wantage, the Earl of Lauderdale, the Earl of Kilmorey, the Earl of Wharncliffe, Lord Coleridge, Lord Walsingham, the Dowager Marchione s of Tweeddale, Lord and Lady Thring, Sir James Paget, Sir Harry Lumsden, Sir Richard Pollock, Sir Joseph Hooker, Prof. Huxley, Capt. Gouglas Dalton, and the following members of the Council of the Zoological Society:—Lord Abinger, Mr. W. T. Blanford, F.R.S., Mr. H. E. Dresser, F.R.S., Mr. C. Drummond, F.R.S., Colonel J. A Grant, F.R.S., Dr. A. C. L. Günther, F.R.S., Dr. E. Hamilton, F.R.S., Mr. E. W. H. Holdsworth, Dr. St. George Mivart, F.R.S., Prof. A. Newton, F.R.S., Mr. Henry Pollock, Mr. H. Saunders, F.L.S., Mr. J. Travers Smith, and Surgeon-General L. C. Stewart.

At the general meeting the President presented the silver medal of the Society to the Maharajah of Kuch-Behar. In doing so he said that His Highness had been good enough to present to the Society a fine specimen of an Indian rhinoceros.

The Maharajah of Kuch-Behar, in reply, said that he would be happy to supply specimens of such animals as the Society might desire to possess, so far as it was in his power to do so.

Prof. Flower then delivered the following address:—

Nowhere has the progress which the world has made during the fifty years of Her Majesty's reign, the completion of which we are now happily celebrating, been more strikingly manifested than in the advance of that so-called "natural know ledge" for the improvement of which our Royal Society was instituted more than two centuries ago. Although there have been, without doubt, immense strides in other directions—in morals, in art, in historical and literary criticism—I venture to say that none of these can be compared with the marvellous progress that has been made in scientific knowledge and scientific methods.

The tangible results that have followed the practical applications of mechanics, physics, and chemistry have so deeply affected the material interests of mankind, that the progress of these branches of knowledge may seem to put into the shade the wonderful changes that have taken place in the kindred sciences. Nevertheless, I think we may safely say that zoology, in a certain sense one of the oldest of human studies, has in the e latter times undergone a new birth, which has not only changed the standpoint from which we view the special objects of our studies, but has also spread its influence far and wide, and profoundly modified our conceptions on many questions at first

sight entirely remote from its sphere. The universal abandonment of the doctrine of fixity of species, which was an article of faith with almost every zoologist in 1837, has introduced new interests, as well, it must be confessed, as new difficulties, the extent of which we are only beginning to appreciate. The definite systems of classification and methods of nomenclature on which our fathers relied utterly fail before the wider field of vision which it is the privilege, as well as the embarrassment, of the present generation of zoologists to realize.

But it is no part of my intention, in the brief space of time for which I shall ask your patience, to attempt to give a history of the recent advances of zoological science in general, but only, as requested by your Council, to say a few words on the progress of the particular institution established for its cultivation in which we are personally interested, and the duration of which is so nearly cotemporaneous with that of Her Majesty's reign.

Before this Society was founded there was no distinct organization in the country devoted solely to collecting, recording, and discussing the facts upon which zoological science rests. The dignified parent of all our scientific Societies, the Royal, certainly undertook, as it does still, the discussion of many zoological subjects; but it could not be expected to treat them in any detail. The Linnean was a Society of great respectability, devoted solely to biological research, both zoological and botanical, already nearly forty years of age, and possessed of all the usual appurtenances of a scientific organization—meetings, library, and collections for reference. I cannot help thinking that if its leading Fellows had, at that time, displayed more energy, it might have kept in its hands the principal direction of the biological studies of the country, instead of allowing what has since proved so formidable a rival to spring up, and to absorb so large a portion of its useful functions. However, for reasons which it is perhaps not worth while to inquire into now, it did not supply all the needs of the lovers of zoology; and in the year 1826 an active and zealous band united together, and, as the Charter tells us, "subscribed and expended considerable sums of money for the purpose" of founding the Zoological Society of London.

The leading spirit of this band was Sir Stamford Raffles, then just returned from the administration of those Eastern islands of which the history, both natural and political, will ever be intimately associated with his name. He was chosen for the office of President, but his death, on July 4, 1826, deprived the Society, while yet in its infancy, of his valuable services even some years before it acquired its Charter of Incorporation. In this deed, dated March 27, 1829, Henry, Marquis of Lansdowne, is named as the first President of the chartered Society, Joseph Sabine as the first Treasurer, and Nicholas Aylward Vigors the first Secretary.

The Society appears to have acquired great popularity in a surprisingly short time. The first printed list of Members that I can discover (dated January 1, 1829) contains the names of 1294 ordinary Fellows and 40 honorary and corresponding Members. The list is an interesting one from the number of names it includes of persons eminent either in science, art, literature, politics, or social life: indeed, there were not many people of distinction in the country at that time who are not to be found in it.

A piece of ground in the Regent's Park having been obtained from the Government at little more than a nominal rent, the Gardens were laid out, and opened in 1828, during which year 98,605 visitors are recorded as having entered. In the following (the first complete) year there were as many as 189,913 visitors, and this number was increased in 1831 to 262,193.

While the menagerie of living animals was being formed in the Regent's Park, the Officers and Fellows of the Society were also engaged in establishing a Museum of preserved specimens, which soon assumed very considerable dimensions. A Catalogue printed as early as the year 1828 contains a classified list of 450 specimens of Mammalia alone; and it continued for many years to attract donations from travellers and collectors in all parts of the world, and became of great scientific importance, inasmuch as it contained very many types of species described for the first time in the publications of the Society. It was at first lodged in rooms in the Society's house in Bruton Street; but these becoming so crowded as to present the "confused air of a store rather than the appearance of an arranged museum," premises were taken in 1836 in Leicester Square; the same which were formerly occupied by the museum of John Hunter before its removal to the College of Surgeons. At this time the Museum is reported to have contained as many as 6720 specimens of vertebrated animals, and numerous additions were still being made both by donations and by purchase. The rooms in Leicester Square being found inconvenient for the purpose, it was finally resolved, after considerable discussion of various sites, to transfer the collection to the Gardens in the Regent's Park; and in 1843 the building which is now occupied as a lecture-room on the upper floor and a store-room below was constructed and fitted up for its reception.

Although the Museum was at one time looked upon as a very important part of the Society's operations, being spoken of as "the centre of the Society's scientific usefulness" (Report of Council, 1837), and one upon which considerable sums of money were spent, it was afterwards a cause of embarrassment from the difficulty and expense of keeping it up in a state of efficiency; and when the Zoological Department of the British Museum acquired such a development as to fulfil all the objects proposed by the Society's collection, the uselessness of endeavouring to maintain a second and inferior zoological museum in the same city became apparent, and in 1856 it was, as I think very wisely, determined to part with the collection, the whole of the types being transferred to the National Museum, and the remaining specimens to other institutions where it was thought their value would be most appreciated.

Another enterprise in which the Fellows of the Society were much interested in its early days was the Farm at Kingston, the special object of which was thus defined:—"It will be useful in receiving animals which may require a greater range and more quiet than the Gardens at the Regent's Park can afford. It is absolutely necessary for the purpose of breeding and rearing young animals, and giving facilities for observations on matters of physiological interest and research, and, above all, in making attempts to naturalize such species as are hitherto rare or unknown in this country." The Farm, however, apparently not fulfilling the objects expected of it, and being a source of expense which the Society could not then well afford, was gradually allowed to fall into neglect, and finally abandoned in 1834.

The mention of this establishment, however, causes me to allude to one of the objects on which the Society laid considerable stress at its foundation, and which is defined in the Charter as "the introduction of new and curious subjects of the animal kingdom," but which, as may be gathered from the Annual Reports of the Council and from other documents, meant not only the temporary introduction of individuals for the purpose of satisfying curiosity about their external characters and structure, but also the permanent domestication of foreign animals which might become of value to man, either for their utility in adding to our food-supplies or for the pleasure they afforded by their beauty.

Abundant illustrations of the vanity of human expectations are afforded by the details of the hopes and disappointments recorded in the Reports of the Society relating to this subject. It is mentioned in the Report of the year 1832 that "the armadillo has three times produced young, and hopes are entertained of this animal, so valuable as an article of food, being naturalized in this country." More than fifty years have passed, and British-grown armadillo has not yet appeared upon the menu-cards of our dinner-tables. At one time the South-American curassows and guans were confidently looked upon as future rivals to our barn-door fowls and turkeys. Various species of pheasants and other game-birds from Northern India, collected and imported at great expense, were to add zest and variety to the battue of the English sportsman. The great success which for many years attended the breeding of giraffes in the Gardens not unnaturally led to the expectation that these beautiful creatures might become denizens of our parks, or at all events a source of continued profit to the Society; and it is possible that some who are here now may have been present at the feast for which an eland was sacrificed, amid loudly-uttered prognostications that the ready acclimatization of these animals would result, if not in superseding, at least in providing a change from, our monotonous round of mutton, beef, and pork. Unfortunately for these anticipations, no giraffe has been born in the Gardens during the last twenty years, and elands are still far too scarce to be killed for food of man in England.

It is well that these experiments should have been tried; it

may be well, perhaps, that some of them should be tried again when favourable opportunities occur; but it is also well that we should recognize the almost insuperable difficulties that must attend the attempt to introduce a new animal able to compete in useful qualities with those which, as is the case with all our limited number of domestic animals, have gradually acquired the peculiarities making them valuable to man, by the accumulation of slight improvements through countless generations of ancestors. While all our pressing wants are so well supplied by the animals we already possess, it can no longer pay to begin again at the beginning with a new species. This appears to be the solution of the singular fact, scarcely sufficiently appreciated, that no addition of any practical importance has been made to our stock of truly domestic animals since the commencement of the historic period of man's life upon the earth.

I now turn to the history of one of the most important features of the Society, the scientific meetings. In the early days of the Society there was only one class of general meetings for business of all kinds; and the exhibition of specimens and the communication of notices on subjects of zoological interest formed part of the ordinary proceedings at those meetings. The great extent, however, of the general business was soon found to interfere with such an arrangement. The number of the elections and of the recommendations of candidates, the reports on the progress of the Society in its several establishments during each month, and other business, were found to require so much time as to leave little for scientific communications, and the Council saw with regret that these were frequently and necessarily postponed to matters of more pressing but less permanent interest. To obviate this inconvenience and to afford opportunities for the reception and discussion of communications upon zoological subjects, the Council had recourse to the institution of a "Committee of Science and Correspondence," composed of such Members of the Society as had principally applied themselves to science; at the meetings of which communications upon zoological subjects might be received and discussed, and occasional selections made for the purpose of publication.

The first meeting of the Committee took place on the evening of Tuesday, November 9, 1830, at the Society's house in Bruton Street, when a communication was received upon the anatomy of the urang utan by a young, and then unknown, naturalist, Richard Owen by name, the first of that long series of memoirs, extending over a period of more than fifty years, the publication of which in our Transactions has done so much to advance the knowledge of comparative anatomy and to give an illustrious place to their author in the annals of science.

Among the names of others who are mentioned as having taken part in the business of the Committee during the first year of its existence, either by their actual presence or by forwarding communications, are N. A. Vigors, W. Yarrell, J. E. Gray, J. Gould, E. T. Bennett, Andrew Smith, T. Bell, W. Martin, Joshua Brookes, W. Kirby, W. H. Sykes, Marshall Hall, W. Ogilby, John Richardson, and B. H. Hodgson, who, I am happy to say, is with us at the meeting to day.

The Committee continued in existence for two years, having met for the last time on December 11, 1832. The success of its meetings was so great that it was thought desirable to make an alteration in the by-laws, by which the meetings of the Committee were replaced by the "General Meetings of the Society for Scientific Business." The first of these meetings took place on Tuesday, January 8, 1833, and they have continued to be held on two Tuesdays in each month during the season to the present time. As long as the Society retained its house in Bruton Street, the meetings were held there. In 1843 the Society took another house, which it occupied for forty-one years, No. 11 Hanover Square; but its needs having outgrown the accommodation afforded there, it removed in 1844 to the far more spacious and commodious premises, in No. 3 of the same square, which we at present occupy. These meetings of the Society, which are open to all the Fellows and to friends introduced by them, have exercised a considerable influence upon the progress of zoological knowledge, not only by the reading and discussing of communications formally brought before them, but also by the interchange of ideas at the informal social gatherings over the coffee-table in the library afterwards, which have great value as affording a common meeting-ground and bond of union for all the working zoologists of the country, as well as of many visitors from foreign lands.

The more important scientific communications to these meetings have from the commencement been published in the form of quarto Transactions and octavo Proceedings, which constitute a series of inestimable importance both for the value of the material contained in them and for the excellence of the illustrations of new or rare forms of animal life with which they are embellished. In later times they have also formed a vehicle for communicating to the world the important results obtained from the dissection of animals which have died at the Gardens, and which, since the establishment of the office of Prosector in 1865, have been systematically used for this purpose.

In connexion with the scientific meetings must be mentioned the Library, the first formation of which is described in the Report of the Council for the year 1837, and which has been steadily growing ever since by donations of books, by exchange of publications with other learned Societies, and by judicious annual expenditure of money, to be one of the best-selected, well-arranged, and most accessible collections of works of reference that it is possible for the zoological student to enjoy. Its value has been greatly increased by the publication within the past month of an excellent Catalogue, which contains the titles of about 6560 publications.

The most recent addition to the functions that the Society has undertaken with a view to carry out the purposes of its foundation is the publication of an Annual Record of Zoological Literature, containing a summary of the work done by British and foreign naturalists in the various branches of zoology in each year, a publication of the utmost value to the working zoologist. Such a Record has been carried on for some years past by a voluntary association of naturalists, but, owing to the difficulties met with in obtaining sufficient support, it was in danger of being abandoned, until the Council, after the full consideration which the importance of the subject deserved, resolved to take it in hand as part of the operations of the Society.

The Society has, however, not only been mindful of advancing scientific knowledge—it has also endeavoured to spread some of this knowledge in a popular manner by means of lectures. In former years these were only given in an occasional manner; but the liberal bequest of Mr. Alfred Davis to the Society in 1870 has enabled the Council to undertake a more regular and systematic method of instruction; and the Fellows and others have had every summer for several years past the opportunity of hearing many of our most eminent naturalists and able expositors upon subjects which they have made especially their own. I must, however, confess that the interest taken by the Society generally in these lectures has not quite equalled the expectations that were raised when the question of establishing them was first brought before the notice of the Council.

Although, as will be seen by a consideration of the various subjects which I have already referred to, the Society has a wide sphere of operations and many methods by which the objects of its founders are carried out, it is undoubtedly the maintenance of the menagerie of living animals in the Gardens where we are now assembled, by which it is most known both to the public as well as to a large number of our Fellows. It will be well, therefore, before concluding, to add a few words upon some points of interest connected with the past history and present condition of this branch of the Society's operations, the one which is at the same time the largest source of its revenue and cause of its expenditure.

The collection and exhibition of rare and little-known living animals has long been a subject of interest and instruction in civilized communities, and in many countries either the State or the Sovereign has considered it as part of their duty or privilege to maintain a more or less perfect establishment of the kind.

Before the Zoological Society was formed, the "lions" at the Tower had been for centuries a national institution; and it may be interesting to those who derive pleasure in tracing the links between the present and the past, to be reminded that our collection is in some measure a lineal continuation of that time-honoured institution, as it appears from the Reports of the Council that in the year 1831 His Majesty King William the Fourth "was graciously pleased to present to the Society all the animals belonging to the Crown lately maintained at the Tower." It is also recorded that in the previous year His Majesty had made a munificent donation of the whole of the animals belonging to the Royal Menagerie kept in Windsor Park. This may perhaps be the place to mention that, in the Report read April 1837, the Council "had the gratification to call the special attention of the members to a donation from Her

Royal Highness the Princess Victoria," consisting of a pair of those pretty and interesting little animals the Stanley Musk-deer. During the fifty years that have elapsed since this first-recorded mark of interest in the Society on the part of her present Majesty, the Queen and her family have never failed to show their regard for its welfare whenever any opportunity has arisen, of which the acceptance of the Presidency by the late Prince Consort, on the death of the Earl of Derby in 1851, was one of the most signal instances. The advantages which the Society has received from the numerous donations to the Menagerie, and the constant kindly interest shown in its general progress by H.R.H. the Prince of Wales, are so continually before the observation of the Fellows, that I need scarcely do more than allude to them here, beyond stating that in no year of the Society's existence has the number of visitors to the Gardens, or the Society's income, been so great as in 1876, when the large collection of animals brought from India by His Royal Highness formed the special object of attraction.

Except for the collection, necessarily of limited extent, exhibited in the Tower, and a few others having their origin in commercial enterprise (as Mr. Crosse's menagerie at Exeter Change, and the various itinerant wild-beast shows), there were, before the foundation of the Society's Gardens, little means in the country of gaining knowledge of the strange forms of exotic animal life with which the world abounds. An extensive, well-arranged, and well-kept collection, where the circumstances of exhibition were more favourable than in the institutions just referred to, seemed then to fulfil a national need, as the rapidly acquired popularity of the Society already alluded to testifies. Indeed, when we consider the amount of enjoyment and instruction which has been afforded to the 24,572,405 visitors who are registered as having entered our Gardens from their first opening in 1828 to the end of last year, it is easy to realize what a loss the country would have sustained if they had not existed. There was a period, it is true, in which they fell rather low in popular favour, the record of 1847 showing both the smallest number of visitors and the lowest income of any year in the Society's existence. A new era of activity in the management of the Society's affairs was then happily inaugurated, which resulted in a prosperity which has continued ever since, with only slight fluctuations, arising from causes easy to be understood—a prosperity to which the scientific knowledge, zeal, and devotion to the affairs of the Society of our present Secretary, ably seconded in all matters of detail by the Resident Superintendent, have greatly contributed.

One of the greatest improvements which have been gradually effected in the Gardens in recent years is the erection of larger, more commodious, and more substantial buildings for the accommodation of the animals than those that existed before. A few examples will suffice to illustrate the successive steps that have been taken in this direction. The primary habitation of the lions and other large feline animals was the building on the north side of the canal, which many of us may remember as a Reptile-house, and which has been lately restored as a dwelling-place for the smaller Carnivora. The Council Reports of the period frequently speak of the bad accommodation it afforded to the inmates, the consequent injury to their health, and the disagreeable effects on visitors from the closeness of the atmosphere. In September 1843, the terrace, with its double row of cages beneath, was completed; and the Report of the following spring, speaking of this as "one of the most important works ever undertaken at the Gardens," congratulates the Society upon the fact that the anticipations of the increased health of this interesting portion of the collection, resulting from a free exposure to the external air, and total absence of artificial heat, have been fully realized. The effects of more air and greater exercise were indeed said to have become visible almost immediately. Animals which were emaciated and sickly before their removal became plump and sleek in a fortnight after, and the appetites of all were so materially increased that they began to kill and eat each other. This, however, led to an immediate increase in their allowance of food, since which time, it is stated, no further accidents of the kind have occurred. As this structure, looked upon at that period as so great an improvement upon its predecessors, still remains, though adapted for other inmates, we all have an opportunity of contrasting the size of its dens and the provision it affords generally for the health and comfort of the animals and the convenience of visitors, with those of the magnificent building which superseded it in 1876.

In the Report of the year 1840 it is stated that the only work of considerable magnitude undertaken since the last anniversary was the erection of the "New Monkey-house," and the Council speak with great satisfaction of the substantial nature of the structure and the superior accommodation which its internal arrangements are calculated to afford to its inmates.

Many of us may remember this building, which stood on the space now cleared in the centre of the Gardens. Twenty-four years after its erection, in their Report dated April 1864, we find the Council speaking of it as "what is at present perhaps the most defective portion of the Society's Garden establishment," and the erection of a second "New Monkey-house" was determined upon. This is the present light and comparatively airy and spacious building, the superiority of which over the old one in every respect is incontestable.

Up to the year 1848 the only attempt which had been made to familiarize the visitors with the structure and habits of animals of the class Reptilia was by the occasional display of a pair of pythons, which were kept closely covered in a box of limited dimensions in one of the smaller Carnivora-houses. In 1849 the building which had been rendered vacant by the removal of the lions to the new terrace was fitted up with cases with plate-glass fronts on a plan entirely novel in this country, and which for many years afforded an instructive exhibition of the forms, colours, and movements of many species of serpents, lizards, and crocodiles. This house was a vast improvement upon anything of the kind ever seen before; but the contrast between it and the present handsome and spacious building so recently erected in the south-eastern corner of the grounds affords another illustration of the great progress we are making.

If time allowed I might also refer to the Elephant-house, completed in 1870, to the Insect-house, opened in 1881, and to various others of less importance.

The erection of these houses has necessarily been a very costly undertaking; in fact, since what may be called the reconstruction of the permanent buildings of the Gardens, which commenced in the year 1860, more than £50,000 has been expended upon them. It is only in years of great prosperity, when the Society's income has considerably exceeded its necessarily large permanent expenditure, that works such as these can be undertaken.

Much as has been done in this direction, we must all admit that there is still more required. The buildings of to-day will, we may even hope, some day seem to our successors what the former ones appear to us. The old idea of keeping animals in small cramped cages and dens, inherited from the Tower and the travelling wild-beast shows, still lingers in many places. We have a responsibility to our captive animals, brought from their native wilds, to minister to our pleasure and instruction, beyond that of merely supplying them with food and shelter. The more their comfort can be studied, the roomier their place of captivity, the more they are surrounded by conditions reproducing those of their native haunts, the happier they will be, and the more enjoyment and instruction we shall obtain when looking at them. Many of our newest improvements are markedly in this direction. I may especially mention the new inclosure for wild sheep near the Lion-house in the South Garden, with its picturesque rock-work and fall of water, and the large aviary for herons and similar birds just completed on what used to be called the Water-Fowls' Lawn.

All such improvements can, however, only be carried out by the continued aid of the public, either by becoming permanently attached to the Society as Fellows or by visiting the Gardens. I trust that this brief record of the principal events of the Society's history will show that such support is not undeserved by those who have had the management of its affairs.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

CAMBRIDGE.—In the Natural Sciences Tripos, Part I., the following women students were placed in the first class: E. E. Field, A. J. Flavell, and M. M. Smith, all of Newnham College.

In Part II. the following men were placed in the first class in alphabetical order, the subject for which they were so placed being named:—Adie, Trinity, and Couldridge, Emmanuel (Chemistry); Durham, Christ's, and Edgeworth, Caius (Physiology);