

Salp *Thalia democratica-mucronata* have now for the most part broken up, and the detached sexual forms, each with a contained embryo, have been taken in considerable numbers. The floating fauna has also included Cirripede and Copepod Nauplii, Polychæte trochospheres and Molluscan veligers. Among Leptomedusæ *Clytia Johnstoni* and small *Obelia* have been abundant; and among Anthomedusæ *Sarsia eximia* has been observed, together with numbers of an apparently undescribed species of *Dysmorphosa*, resembling *Rathkea octopunctata* in its power of budding from the manubrium. The Mollusc *Galvina cingulata* and the Tunicate *Thalia democratica-mucronata* are now breeding.

THE additions to the Zoological Society's Gardens during the past week include an American Black Bear (*Ursus americanus*) from Canada, presented by Mr. Joseph Politzer; a Hawk-billed Turtle (*Chelone imbricata*) from the West Indies, presented by Mr. C. Melhado; two Common Buzzards (*Buteo vulgaris*) European, deposited; two Australian Crows (*Corvus australis*) from Australia, purchased; a Thar (*Capra jemlaica*, ♀), a Triangular-spotted Pigeon (*Columba guinea*), a Cardinal Grosbeak (*Cardinalis virginianus*), two Hybrid Pied Wagtails (between *Motacilla lugubris*, ♂, and *M. melanope*, ♀) bred in the Gardens.

OUR ASTRONOMICAL COLUMN.

A NEW COMET.—A telegram received from Prof. Krueger announces that a comet with a bright tail was discovered by M. Quénisset at M. Flammarion's observatory, Juvisy, on July 9, its approximate place being R.A. 7h. 50m., N. Decl. 48° 10'. The comet is therefore in the constellation Lynx.

In *Edinburgh Circular* No. 38, Mr. Heath says that a second telegram from the same source states that the comet was again seen on the 10th, at 12h. 59m. M.T. at Kiel, its place being then R.A. 8h. 29m. 45s., N. Decl. 46° 59' 29"; daily motion, + 34m. 48s. and - 1° 24'.

COMET FINLAY (1886 VII.).—A continuation of M. Schulhof's ephemeris for the ensuing week is as follows:—

12h. M.T. Paris.				
1893		R.A. app.		Decl. app.
July 13	...	3 59 23.84	...	+ 18 54 32.8
14	...	4 3 57.65	...	19 10 20.2
15	...	8 30.28	...	19 25 35.4
16	...	13 1.69	...	19 40 18.4
17	...	17 31.83	...	19 54 29.3
18	...	22 0.65	...	20 8 8.3
19	...	26 28.11	...	20 21 15.4
20	...	4 30 54.16	...	20 33 51.0

In the above ephemeris we have corrected the error made in the *Astronomische Nachrichten* (No. 3171), where the 16th is inadvertently printed 14th.

METEOR SHOWERS THIS MONTH.—In the list of the radiants of the principal meteor showers which Mr. Denning gives in the companion to the *Observatory* the following are visible this month, that occurring on the 28th being defined as "most brilliant":—

Date.	Radiant.		Meteors.
	α	δ	
July 19	314	+48	Short, swift.
20	269	+49	Swift.
22	16	+31	Swift, streaks.
25	48	+43	Swift, streaks.
28	339	-12	Slow, long.
30	6	+35	Swift, streaks.

L'ASTRONOMIE FOR JULY.—The current number of this journal commences with an article by M. Tisserand on the inauguration of the statue of Arago, which was referred to in these pages last week. M. Deslandres briefly refers to some of his results as shown by the photographs taken by him at the late total solar eclipse, to which are added the observations of

several other observers, and several illustrations of the instruments employed. M. Denning contributes three drawings of comet Holmes (made on November 9, 16, and 19 last), showing its change of shape from the circular to the pear-shaped form. Other articles of interest refer to meteorological statistics, atmospheric phenomena, earth tremblings, &c. In the notes some recent measures are given of the diameter of Mars, and of the snow caps, the former made by M. W. W. Campbell at the Lick Observatory, and the latter by M. Asaph Hall at the Washington Observatory.

HIMMEL UND ERDE FOR JULY.—In this number Dr. W. Luzzi concludes his interesting article on the diamond, having covered the ground between the first observations made at Florence in 1694, and M. Moissan's recent researches. Dr. Wilhelm Meyer continues his chapters on the physical condition of the planet Mars after the evidence of eminent observers, while Herr Gengel gives us his fourth chapter on the mechanics of the heavens, dealing with the new researches by G. H. Darwin on the influence of tides on the movements and form-proportions of the heavenly bodies, embracing particularly the earth-moon system. Among the notes that on variable stars calls for attention.

MUSEUMS ASSOCIATION.¹

II.

THESE are the principles of what may be called the New Museum idea as applied to national museums of natural history. It is a remarkable coincidence that since they were first enunciated, and during the time of their discussion, but before they had met with anything like universal acceptance, the four first nations of Europe almost simultaneously erected in their respective capitals—London, Paris, Vienna, and Berlin—entirely new buildings on a costly, even palatial scale, to receive the natural history collections, which in each case had quite outgrown their previous insufficient accommodation. In the construction of neither of these four edifices can the guardians of the public purse be accused of want of liberality. Each building is a monument in itself of the appreciation of the government of the country of the value and interest of the natural history sciences. So far this is most satisfactory. Now that each is more or less completed, at all events for the present, and its contents in a fair way towards a permanent arrangement, it may not be without interest on the present occasion to give some comparative account of their salient features, especially with a view to ascertain whether and to what extent their construction and arrangement have complied with the requirements of the modern idea of such institutions.

It may seem ungrateful to those who have so liberally responded to the urgent representations of men of science by providing the means of erecting these splendid buildings, to suggest that if they had all been delayed for a few years the result might have been more satisfactory. The effects of having been erected in what may be called a transitional period of museum ideas is more or less evident in all, and all show traces of compromise, or rather adaptation to new ideas of structures avowedly designed for old ones. In none, perhaps, is this more strikingly shown than in our own, built, unfortunately, before any of the others, and so without the advantages of the experience that might have been gained from their successes or their shortcomings. Though a building of acknowledged architectural beauty, and with some excellent features, it cannot be taken structurally as a model museum, when the test of adaptation to the purpose to which it is devoted is rigidly applied. But to speak of its defects is an ungracious and uncongenial task for me. If it were not taking me too far away from my present subject I would rather speak of the admirable manner in which the staff are endeavouring to carry out the new idea under somewhat disadvantageous circumstances.

The new zoological museum in the Jardin des Plantes at Paris is a glorification of the old idea pure and simple. It consists of one huge hall, with galleries and some annexes, in which every specimen is intended to be exhibited, more or less imperfectly, on alternate periods to students and to the general public. The building and cases are very handsome in style, and there are endless rows of specimens of all kinds neatly mounted in a uniform manner. There are no storerooms, no laboratories, no workrooms connected with the building. These are all in

¹ Continued from p. 236.

other more or less distant parts of the establishment, separated from it in most cases by the whole breadth of the garden. Of course this can only be looked upon as a temporary condition of affairs. Fortunately there is still room on the site of the old museum behind the new building, and if this is utilised by erecting upon it a commodious set of workrooms, laboratories, rooms for reserve collections and administrative offices directly in connection with each other and with the main building, which might then be emptied of a considerable portion of its contents, an extremely good working museum may be evolved. But if this space, as I believe was the original design, is used for the further extension of the already over large public galleries, the opportunity will be lost.

The new museums at Vienna, the one for natural history, the other for art, placed one on each side of a handsome public garden in one of the most important quarters of the city, exactly alike in size and architectural features, are elegant buildings, and present many excellent features of construction. The natural history museum, which was alone finished when I visited Vienna three years ago, is a quadrilateral structure with a central court, and consists of three stories and a basement. Each story is divided into a number of moderately-sized rooms, opening one into another, so that by passing along in the same direction, the visitor can make an inspection in systematic order of all the collections arranged in each story, returning to the point from whence he started; or, if need be, breaking off at the middle where a passage of communication runs across the central court. An admirable feature in the design of this museum, is that the public galleries of each story, lighted by windows from the outside of the building, have on their inner side other rooms communicating with them, and lighted from the court within, which are devoted to the private studies of the curators and to the reserve collections belonging to the same series as the exhibited collections in the public galleries with which they are in connection. Thus the public collections, the reserve collections, and the officers in charge are in each section of the museum brought into close relation—a most advantageous arrangement—and one greatly facilitating the new museum idea. The only drawback is that these rooms, occupying the inner side of the quadrangular range of galleries, are necessarily small and as the collections grow, will be found insufficient for the purpose. This has, in fact, already proved to be the case in several departments, and a remedy has been found by devoting the whole upper story of the building to the reserve collections of insects, shells, and plants, and the working library of the institution, an arrangement which gives excellent accommodation for these important departments, at all events for the present. Another great future difficulty will arise, owing to the building being externally architecturally complete and visible on all four sides from the public grounds in which it stands; it therefore admits of no extension, and the public galleries already contain as many specimens as can possibly be placed in them with any advantage. These are in most sections, especially the invertebrata, displayed in an extremely tasteful and instructive manner, but the series is by no means over large for a national museum. The limitation of space is partly due to the somewhat singular division which has been made between the art and the natural history collections. Instead of taking the dividing line adopted at the British Museum between specimens in a state of nature, and those fashioned by man's hand, the pictures, the splendid collection of European mediæval armour, the classical and Egyptian antiquities are treated as works of art; but the so-called ethnological collection, containing the specimens of Mexican, Peruvian, Japanese, Chinese, Polynesian, African, and prehistoric European art, are placed in the Natural History Museum, taking up a large portion of the space, which the curators of the zoological, mineralogical, and geological departments hoped to have had at their disposal for the display of their specimens. Whether room could be found for them in the Art Museum or not I cannot say; but certainly their actual position is incongruous, and it is difficult to understand why a Peruvian mummy should find its place in a building professedly devoted to natural history, while the preserved remains of an ancient Egyptian are treated as works of art.

Before leaving Vienna I should like to refer to the splendid specimens of taxidermy by the artist Hodek, the choicest examples of whose work are contained in a special collection, occupying a small separate room, consisting of sporting trophies of the late Crown Prince Rudolph. Otherwise the general level of the specimens in the galleries is in no wise remarkable.

The birds have the advantage of being mounted, not upon turned wooden stands of uniform pattern as in Paris, but upon pieces of natural tree branches, fixed in square or oblong oak stands. The exhibited specimens of vertebrate zoology include skeletons, but no other anatomical preparations, of which there is a distinct collection in the University Museum. The exhibited fishes and reptiles are exceedingly well preserved and mounted in spirit. In the Mollusca, Articulata, Echinoderms and Corals great care has been taken in setting the specimens off to advantage by selecting appropriate colours for backgrounds. Specimens in spirit are interspersed in their proper places. All have printed labels. The cases in which they are displayed are of oak, and of very handsome and even ornamental construction.

The arrangement of all these collections displays a most intelligent appreciation of the needs of the ordinary visitor. Thus in the room appropriated for the exhibition of insects there are three distinct series, a general systematic series, a morphological series, and a very fine special collection of the insects of the neighbourhood of Vienna. The other rooms are arranged more or less on similar principles. The main collection of insects, is, as I have mentioned before, entirely apart in rooms very well adapted to the purpose in the upper floor of the building, and kept as usual in drawers in cabinets.

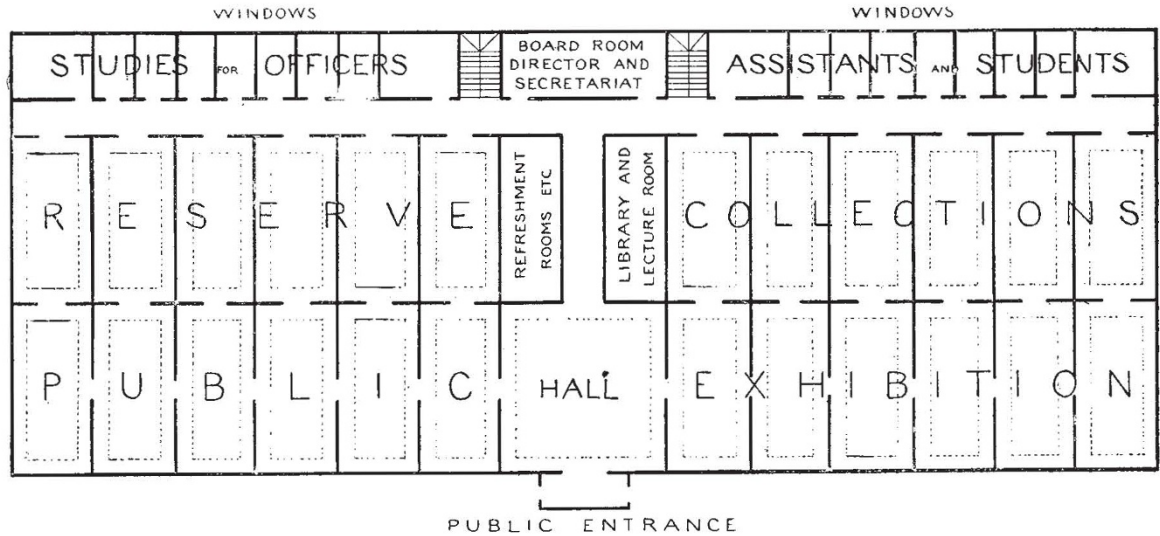
The zoological portion of the new museum for "Naturkunde," in Berlin, situated in the Invaliden Strasse, is a remarkable illustration of the complete revolution of ideas on museum arrangement, which took place between its commencement and its completion. The building, entirely designed upon the old system, came empty into the hands of the present director, who has arranged the contents absolutely upon the new method. It consists of a fine glass covered hall, and three stories of galleries, all originally intended for a uniform exhibition of all the various groups of specimens which had accumulated in the crowded rooms of the old museum in the University. When Dr. Möbius succeeded to the directorate he conceived the bold plan of limiting the public exhibition to the ground floor, and devoting the two upper stories entirely to the reserve or working collections. This was a step which required some courage to take, especially as the two great staircases, which are the principal ornamental architectural features of the building, have by it become practically useless. Except, of course, for certain inconveniences always resulting from adaptation of a building to purposes not originally contemplated, especially local disjunction of different series of the same groups, the result has been eminently satisfactory, and if the arrangement is completed upon the lines laid down by the Director, as explained to me on my last visit, this will be the most practical and conveniently arranged museum of natural history at present existing. As much attention appears to be bestowed upon making the exhibited portion attractive and instructive, as on making the reserve collections complete and accessible to workers. In the former, the characteristics of the native fauna were being specially developed. For instance, the fish collection (of which the individual specimens are beautifully displayed, fastened on to glass plates in flat-sided bottles) consists of a general representative systematic series, and three special faunistic collections, one of the German fresh-water fishes, one of the north and east sea fishes, and one of the Mediterranean fishes. One room is devoted to German mammals and birds, and the recently added specimens show indications of an improvement in taxidermy which would have been impossible in the old days of wholesale bird-stuffing. Excellently prepared anatomical specimens, diagrams, explanatory labels, and maps showing geographical distribution, are abundantly introduced among the dried specimens of which such collections are usually composed, and a commencement has been made of illustrations of habits and natural surroundings. On the other hand, in marked contrast to Vienna, everything in the way of architecture and furniture and fittings is severely plain and practical, and a uniform drab colour is the pervading background of all kinds of specimens. All danger from fire seems to have been most carefully guarded against. The floors are of artificial stone, the cases, and even the shelving, are constructed of glass and iron. Wood is almost entirely excluded, both in the structure and fittings. The ground floor, as I have said, is entirely devoted to the public exhibition, the first story to the reserve collection of vertebrates, and the upper story to the invertebrates; and the basement contains commodious rooms for unpacking, mounting, preparing skeletons, &c. The construction of the building allows of considerable extension back-

wards, whenever more space will be needed, at small cost and with little interference with existing arrangements. I should also mention that the zoological department of the University, with its admirably appointed laboratories and lecture-rooms, and excellent working collection for teaching purposes, is in immediate contact with the museum, and the two institutions, though under different direction, are thus brought into harmonious cooperation.

Any one who wishes to compare and contrast the two systems upon which a national zoological museum may be arranged cannot do better than visit Paris and Berlin at the present time. He will see excellent illustrations of the best of both.

Of the museums of the United States of America much may be expected. They are starting up in all directions untrammelled by the restrictions and traditions which envelope so many of our old institutions at home, and many admirable essays on museum work have reached us from the other side of the Atlantic, from which it appears that the new idea has taken firm root there. In Mr. Brown Goode's lecture on "The Museums of the Future" (Report of the National Museum, 1885-89) it is said "In the National Museum in Washington the collections are divided into two great classes. The exhibition series, which constitutes the educational portion of the museum and is exposed to public view with all possible accessions for public entertainment and instruction, and the study series, which is kept in scientific laboratories and is scarcely examined except

In the first place, I have endeavoured to work out in detail, in its application to natural history, that most original and theoretically perfect plan for a museum of exhibited objects in which there are two main lines of interest running in different directions and intersecting each other, which we owe to the ingenuity of General Pitt-Rivers. This was explained in his address as President of the Anthropological Section of the British Association at Bath in 1888, and again in a lecture given about two years ago before the Society of Arts. Upon this plan the museum building would consist of a series of galleries in the form of circles, one within the other, and communicating at frequent intervals. Each circle would represent an epoch in the world's history, commencing in the centre and finishing at the outermost, which would be that in which we are now living. The history of each natural group would be traced in radiating lines, and so by passing from the centre to the circumference, its condition of development in each period of the world's history could be studied. If, on the other hand, the subject for investigation should be the general fauna or flora of any particular epoch, it would be found in natural association by confining the attention to the circle representing that period. By such an arrangement that most desirable object, the union of palæontology with the zoology and botany of existing forms in one natural scheme, could be perfectly carried out, as both the structural and the geological relations of each would be preserved, as indicated by its position in the museum. Such a



by professional investigators. In every properly constructed museum the collections must from the very beginning divide themselves into these two classes, and in planning for its administration, provision should be made not only for the exhibition of objects in glass cases, but for the preservation of large collections not available for exhibition to be used for the studies of a very limited number of specialists."

The museum of comparative zoology at Harvard, founded by the late Louis Agassiz and now ably administered and extended by his son, Alexander Agassiz, is a conspicuous example of the same method of construction and arrangement. But as I can say nothing of these from personal knowledge, I am obliged to leave out any further reference to them on the present occasion.

From what has just been said it will be gathered that in Europe at least an ideal natural history museum, perfect in original design, as well as in execution, does not exist at present. We have indeed hardly yet come to an agreement as to the principles upon which such a building should be constructed. But as there are countries which have still their national museums in the future, and as those already built are susceptible of modifications, when the right direction has been determined on I should be glad to take this opportunity of putting on record what appears to me, after long reflection on the subject, the main considerations which should not be lost sight of in such an undertaking.

building would undoubtedly offer difficulties in practical construction, but even if these could be got over, our extremely imperfect knowledge of the past history of animal and plant life would make its arrangement with all the gaps and irregularities that would become evident, so unsatisfactory, that I can scarcely hope to see it adopted in the near future.

I have therefore brought before you a humbler plan, but one which, I think, will be found to embody the practical principles necessary in a working museum of almost any description, large or small.

The fundamental idea of this plan is that the whole of the building should be divided by lines intersecting at right angles, like the warp and the woof of a piece of canvas.

The lines running in one direction divide the different natural sections of which the collection is composed, and which it is convenient to keep apart; the lines crossing these separate the portions of the collection according to the method of treatment or conservation. Thus, the exhibited part of the whole collection will come together in a series of rooms, occupying naturally the front of the building. The reserve collections will occupy another, or the middle, section, and beyond these will be the working rooms, studies, and administrative offices, all in relation to each other, as well as to the particular part of the collection to which they belong. A glance at the plan will show at once the great convenience of such a system, both for the public, and still more for those who work in the museum.

This plan, of course, contemplates a one-storied, top-lighted building as far as the main rooms are concerned, although the workrooms and studies will be in two or more stories. The main rooms should all have a good substantial gallery running round them, by means of which their wall space is doubled. There is no question whatever that an evenly-diffused top light is far the best for exhibition rooms. Windows not only occupy the valuable wall-space, but give all kinds of uncomfortable cross lights, interspersed with dark intervals. On the other hand, for doing any kind of delicate work, a good north light from a window, as provided in the plan, is the most suitable. The convenience of having all the studies in relation with each other, and with the central administrative offices, while each one is also in close contiguity with the section of the collection to which it belongs, will, I am sure, be appreciated by all who are acquainted with the capriciously scattered position of such rooms in most large museums, notably in our own. Among other advantages would be the very great one that when the daily hour of closing the main building arrives, the officers need no longer, as at present, be interrupted in whatever piece of work they may have at hand, and turned out of the building, but as arrangements could easily be made for a separate exit, they could continue their labours as long and as late as they find it convenient to do so, without any fear for the safety of the general collections.

It will be observed that provision is made for a central hall, which is always a good architectural feature at the entrance of a building, and which in a museum is certainly useful in providing for the exhibition of objects of general interest not strictly coming under any of the divisions of the subject in the galleries, or possibly for specimens too large to be conveniently exhibited elsewhere. There is also provision in the central part of the building for the refreshment-rooms, and also for the library and a lecture room; the first being an essential, and the latter a very useful adjunct to any collection intended for popular instruction, even if no strictly systematic teaching should be part of its programme.

I may point out, lastly, as a great advantage of this plan, that it can be, if space is reserved or obtainable, indefinitely extended on both sides or exactly the same system without in any way interfering with the existing arrangements, a new section, containing exhibition and reserve galleries and studies can be added as required at either end, either for the reception of new departments, or for the expansion of the old ones. With a view to the latter it is most important that the fittings should be as little as possible of the nature of fixtures, but should all be so constructed as to be readily removable and interchangeable. This is a point I would strongly impress upon all who are concerned in fitting up museums either large or small.

The modifications of this plan to adapt it to the requirements of a municipal, school, or even village museum will consist mainly in altering the relative proportion of the two sections of the collection. The majority of museums in country localities require little, if anything, beyond the exhibition series. In this the primary arrangement to be aimed at is first, absolutely to separate the archaeological, historic, and art portions of the collection from the natural history, if, as will generally be the case, both are to be represented in the museum. If possible they should be in distinct rooms. The second point is to divide each branch into two sections: 1, a strictly limited general or type collection, arranged upon a purely educational plan; 2, a local collection, consisting only of objects found within a certain well-defined radius around the museum, which should be as exhaustive as possible. Nothing else should be attempted, and therefore reserve collections are unnecessary. Even the insects and dried plants can be exhibited on some such plans as those adopted for the Walsingham collection of Lepidoptera in the Zoological Department, or the collection of British plants in the Botanical Department in our Natural History Museum.

I have elsewhere indicated my views as to the objects most suitable for, and the best arrangement of them in, school museums,¹ so I need say nothing further on the subject now. Indeed I fear I have exhausted your patience, so I will conclude by expressing an earnest hope that this meeting may prove a stimulus to all of us to continue heartily and thoroughly at our work, which I need not say is the only way to ensure that general recognition of it which we all so much desire.

¹ NATURE, vol. xli. p. 177, December 26, 1889.

At the close of the address a vote of thanks was moved by Sir James Paget and seconded by Sir Henry H. Howorth. The meeting was largely attended by delegates from various provincial museums, as well as by representatives of a number of museums and scientific societies in the metropolis. Among those present were Sir Joseph Fayrer, Dr. Jonathan Hutchinson, General Festing, Lady Flower, Dr. Günther, Dr. Sclater, Dr. Henry Woodward, Mr. L. Fletcher, Mr. and Mrs. Cuthbert Peek, Mr. W. Topley, Mr. E. F. Newton, Prof. Jeffrey Bell, Mr. Osbert Salvin, Mr. F. W. Rudler, and others. The following museums were represented:—

Bootle, Bolton, Brighton, Cardiff, Chester, Dublin, Glasgow, Maidstone, Manchester, Nottingham, Parkes Museum, Saffron Walden, Sheffield, Southampton, Stockport, Sunderland, Warrington, and York.

At the conclusion of the proceedings Sir William and Lady Flower held a reception in the library of the Zoological Society.

July 4, 5, and 7 were occupied by the business of the Association. As on previous occasions, papers were read and discussed and general business transacted during the mornings; while the afternoons were devoted to the inspection of museums. The Association owes a debt of gratitude to several societies and individuals for courtesy and hospitality. The convenient rooms of the Zoological Society, at 3 Hanover Square, were kindly placed at the disposal of the Association by the Council of the Society, and the Anthropological Society kindly gave the use of its library. The Council of the Royal College of Surgeons invited the members of the Association to the conversazione held at the Museum on July 5. The Royal Society and the Geological Society allowed members of the Association the privilege of inspecting their collections, and the officers of the British Museum (both at Bloomsbury and at Cromwell Road), and of the Museum of Practical Geology, conducted the members over the departments under their charge. Dr. and Mrs. Woodward held a reception at 129, Beaufort Street on July 6, and Mr. Jonathan Hutchinson entertained a party at Haslemere on July 8, and exhibited his educational museum to his guests.

THE DISTRIBUTION OF MARINE FLORAS.

IN *Phycological Memoirs*, Part II., May 1893, Mr. George Murray gives a comparative table, showing the marine floras of the warm Atlantic, Indian Ocean, and the Cape of Good Hope.

Preceding the comparison, he says:—"In delimiting the above regions I have been guided by what may fairly be taken to be their natural boundaries. The warm Atlantic is the tropical Atlantic, with a slight northward extension, to include Florida, the Bahamas, and Bermuda in the track of the Gulf Stream, and also Madeira and the Canary Islands, washed by that branch of the same stream which trends off backward to the south, the north equatorial current. I have not included the Azores, since they are not sufficiently under this influence, and their marine flora, so far as we know it, appears to be more akin to that of the north temperate Atlantic. On its southern boundary on the African coast the Cape region is permitted to come slightly within the tropics, so far as Wallfisch Bay, on account of this coast being swept by a cold current from the south, bringing with it up to this point at all events such temperate forms as *Laminaria*, recently recorded from that place. The Indian Ocean similarly is the tropical Indian Ocean, but including the whole of the Red Sea, and extending to the south slightly outside the tropics down the coast of Africa, and including the whole of Madagascar. I am justified in this by the course of the warm Mozambique current. I do not include on the east Sumatra, which appears to belong to another region, though I have included a few forms from the Andaman Islands and Mergui. The Cape of Good Hope region has already been indirectly described, and, as has been said, extends for the reasons given, slightly into the tropics on the west coast, and recedes slightly from that boundary on the east coast."

The table shows that the warm Atlantic has the largest recorded flora, viz. 859 species in 162 genera. I may explain that, out of this total, no less than 788 species in 150 genera occur in the West India region, and that the rest of the warm Atlantic furnishes only 71 species in 12 genera not occurring in the West Indies out of a much smaller total flora. Allowing for the undoubted fact that a large number of West Indian species are