OUR ASTRONOMICAL COLUMN.

COMET FINLAY (1886 VII.).—M. Schulhof, in the current number of the *Astr. Nach.* (3171) gives the new elements and ephemeris of Comet Finlay. They are as follows :—

M	=	6° 58′ 5″·33	
π	=	7 41 34·1	1893·0
Ω	=	52 27 42·7	
i	=	3 2 2·1	
ϕ	=	46 0 49·4	
μ	=	535·8046	
log. α	=	0·5473335	

12*h. M.T. Paris.*

1893		R.A. app.		Decl. app.
		h m s		° ′ ″
July 6	...	3 26 58·9	...	+16 49 2·9
7	...	31 39·4	...	17 8 33·7
8	...	36 19·1	...	17 27 33·1
9	...	40 57·9	...	17 46 1·0
10	...	45 35·9	...	18 3 57·1
11	...	50 12·9	...	18 21 21·3
12	...	54 48·9	...	18 38 13·1
13	...	3 59 23·8	...	18 54 32·8

A BRIGHT COMET?—In a note under this heading which appeared in these columns on June 22, we gave an interpretation of a telegram from Kiel to one of the German Observatories. The message ran: "From Boston probably bright comet photograph, Lewis, 5 June, 09571 ; Boston 26423, 07558, 43552 ; 12 June, 10043 ; Boston 27119, 06904, 44066. Verbatim ventilate unpliable."

Unfortunately, after having translated the code on a separate sheet of paper, we set down the Boston times as the right ascensions, an error often liable to occur when one is used to reading right ascensions in hours, minutes, and seconds, and not in degrees of arc.

This telegram was distributed only to a few observatories in order to substantiate the discovery, or otherwise, before the announcement was openly made, and it was in the endeavour to present our readers with this piece of news as early as possible that this clerical error was made.

STARS WITH REMARKABLE SPECTRA.—In *Astronomische Nachrichten*, No. 3171, Mr. T. E. Espin continues his list of stars with remarkable spectra (*Astr. Nach.* 3090), the number amounting now to 736. The places are all brought up approximately to 1900.

THE PERIOD OF ROTATION OF VENUS.—It was hoped that the pure telescopic observations of the surface of Venus would settle the question of the period of rotation, but the results show that we are not yet in possession of the absolute value as can be gathered from a comparison of Schiaparelli's work with Trouvelot's, and Löschardt's and Wislicenus determinations. A method, apparently not yet tried, is that suggested by Egon von Oppolzer (*Astr. Nach.* 3170), which involves the use of the spectroscope for the determination of the motion in the line of sight. By comparing the spectra of opposite points on the equator, he says it might probably be possible to determine the time of rotation. Cassini de Vico's assumption involves a velocity for an equatorial point of somewhere about 473 metres per second, so that we should expect to get a motion, indicated in the spectrum by the displacement of the lines, of about 946 metres, or roughly, one kilometre. This motion, he thinks, can with our present means of measuring be made apparent, and we should thus decide between Cassini de Vico's assumption and Schiaparelli's 225-day period.

THE NEWALL TELESCOPE.—The report of the work done with the Newall refractor (*Camb. Univ. Reporter*, June 20) shows that during the past year the work was severely handicapped by the fact that the driving clock was undergoing repair. Last summer the objective prisms were adjusted, and about eighty stellar spectra were obtained, sixteen of which are of use for measurement ; but later the driving worm had to be dismounted and sent to Dublin. Using a single prism, the spectrum beween F and H is 2 inches long. In a photograph of Vega with an exposure of nine minutes the hydrogen lines up to ζ (Huggins's notation) were obtained, the spectrum between F and ζ being 3 inches in length. With both prisms the dispersion is very great, the spectrum more than covering the length of the photographic plate used (length between Hγ and H is 1·75 inches). The necessity of having to send the driving worm of the new clock away to be re-cut, in addition to making several instrumental tests, seems to have taken up much of the time that might have been used in observing. The fifth satellite of Jupiter is within the reach of this instrument, and has been seen on two occasions, January 24 and February 4, Mr. Newall remarking that "it has been most justly described as a very difficult object."

JOHNSTON'S NOTES ON ASTRONOMY.—Under this title we have before us a small book, by Swift P. Johnston, edited by James Lowe, consisting of about eighty pages, dealing with the more purely elementary mathematical portion of astronomy. The book is a compromise between a popular work and a textbook for students, and links the one to the other. Coming out originally in the form of notes, the present edition has been widely expanded, and may now be said to form an excellent course of astronomy for beginners. It is simple-worded and concise, and presents the reader with a general sketch of the more important problems which is the part of the science of astronomy to solve. The diagrammatical figures supplement and render more clear various parts of the text, and the 150 excellent questions, if fully answered by the reader, would prove a very serviceable addition to his astronomical education.

THE HODGKINS FUND PRIZES.—The following prizes are announced by the Smithsonian Institution with the intention of furthering the wishes of Mr. Thomas Hodgkins, who we have previously referred to as having presented a large donation to the institution for the "increase and diffusion of more exact knowledge in regard to the nature and properties of atmospheric air in connection with the welfare of man" :—

(1) $10,000 for a treatise embodying some new and important discovery in regard to the nature and properties of atmospheric air. These properties may be considered as bearing upon all or any of the sciences, *e.g.* not only in regard to meteorology, but in connection with hygiene, or with any department whatever of biological or physical science.

(2) $2000 for a satisfactory essay on : (*a*) The known properties of atmospheric air considered in their relationship to research in every department of natural science, and the importance of a study of the atmosphere considered in view of these relationships. (*b*) The proper direction of future research in connection with the imperfections of our knowledge of atmospheric air, and of the connections of that knowledge with other sciences. The essay as a whole should tend to indicate the path best calculated to lead to worthy results in connection with the future administration of the Hodgkins foundation.

(3) $1000 for the best popular treatise upon atmospheric air, its properties and relationships (including those to hygiene, physical and mental). This essay need not exceed 20,000 words in length.

All these treatises may be written in English, French, German, or Italian, and sent to the secretary of the Smithsonian Institute, Washington, before July 1, 1894, with the exception of those in competition for the first prize, which will be delayed until December 31, 1894. Further information on the above and other points, such as the giving of medals, &c., may be obtained from the secretary's report, and also from *Astronomy and Astrophysics*, No. 116, p. 560.

GEOGRAPHICAL NOTES.

AT the meeting of the Royal Geographical Society, held on June 26, Captain F. R. Maunsell gave an account of his journeys in Kurdistan during the summer of 1892. Kurdistan is not an accurately-defined province, but may be described as the extensive district inhabited by the Kurds, embracing the region of Lake Van and the Upper Euphrates, as well as the country between the Tigris and the Persian frontier south of Lake Van. Captain Maunsell entered Kurdistan from the north, passing Erzingan and Erzerum, and skirted the eastern shore of Lake Van. The watershed between the lake and the Tigris Valley is very low, but it is not easy to discover any place at which there might at some former time have been an outlet. It seems not unlikely that a lava overflow from the volcano Mount Nimrud, on the western shore of the lake, cut off the plain of Van from the Tigris, and thus formed the lake. Captain

Maunsell descended to the Tigris, and followed that river to its mouth, making excursions into the mountainous country to the east. Only in southern Kurdistan is the population exclusively Kurdish. North of Mosul there is a considerable Christian element. Not many years ago Kurdistan was a separate province, ruled over by Kurdish beys, whose strongholds were Amadia, Rawanduz, Sulaimanie, and other places. But all this is changed, and the country is now under the direct control of Turkish officials. The original Kurdish organisation was tribal, and the prevailing habits of the tribes are still nomadic and pastoral, but have been modified by local conditions. Thus, the Kurds of the mountainous district north of Lake Van remain in villages all through the severe winter, the great distance being a bar to migration into a warmer plain country. In the summer, however, they leave their village dwellings for their tents, which they often pitch close to their winter home. In the rugged Dersim country the Kurds are perforce sedentary. In central and southern Kurdistan the tribes have easy access to the Mesopotamian plain, and a large number of them live in tents all the year round.

AT a special meeting of the Royal Geographical Society held on Monday at London University, Burlington House, it was decided, by 172 to 158 votes, that it was inexpedient to admit ladies as ordinary Fellows of the Society.

A DALZIEL'S telegram says that Lieutenant Peary, with Mrs. Peary and twelve companions, left New York on July 2 in the whaling barque *Falcon*, on his second expedition to the Arctic regions.

MUSEUMS ASSOCIATION.[1]

I.

THE Museums Association is one of the youngest of the numerous social organisations which it is thought expedient at the present day to constitute in order to give facilities for the interchange of ideas on subjects interesting to a special group of men. It is, indeed, only in the fourth year of its existence, and this is the first time that a meeting has been held in London, the centre in which are gathered the great national collections, and in which reside so considerable a number of persons engaged in their custody. The association claims York as its birthplace, and Liverpool, Cambridge, and Manchester have in succession afforded it hospitality and enjoyed the advantage of its presence.

We all meet with one object in view. We are all impressed with the value—with the necessity, I should say—of the Museum (using the word in its widest sense, as a collection of works of art and of nature) in the intellectual advance of mankind.

How could art make any progress, how could it even exist, if its productions were destroyed as soon as they were created; if there were no museums, private or public, in which they could be preserved and made available to mankind then and thereafter? How could science be studied without ready access to the materials upon which knowledge is built up? In many branches of science the progress is mainly commensurate with the abundance and accessibility of such materials.

Though the first duty of museums is, without question, to preserve the materials upon which the history of mankind and the knowledge of science is based, any one acquainted with the numerous succession of essays, addresses, lectures, and papers which constitute the museum literature of the last thirty years must recognise the gradual development of the conception that the museum of the future is to have for its complete ideal, not only the simple preservation of the objects contained in it, but also their arrangement in such a manner as to provide for the instruction of those who visit it. The value of a museum will be tested not only by its contents, but by the treatment of those contents as a means of the advancement of knowledge. Though this is the general consensus of opinion, as expressed in the literature just referred to, there is naturally still much divergence as to the best methods by which this ideal may be carried out, and there are still many practical difficulties to be overcome before the views so ably advocated on paper can be reduced to the test of actual performance. It is with a hope of assisting in the solution of these difficulties that this Association has been founded.

If in the few words with which I am expected to preface the real work of the Association I shall be found to dwell too exclusively upon the subject of natural history museums, I must apologise to many friends and members of the Association who are present. It must be distinctly understood that under the word museum we include collections of all kinds formed for the advancement of any branch of knowledge, except those specially devoted to books, which already are cared for by the "Libraries Association"—on the model of which ours was formed. I hope that in our papers at this meeting and in future presidential addresses we shall have all branches of museum work fairly represented.

It is my fate to have been born what is commonly called a "naturalist." I hardly remember the time when I was not a possessor of a museum, but it always took a distinctly biological direction. Hence, although by no means unappreciative of other branches of museum work, I shall confine myself chiefly to that part of the subject upon which I can speak from personal experience. Even in this branch time will compel me to limit myself to observations upon some of the larger questions connected with our subject, leaving details for discussion in our subsequent meetings.

One great difference between the work of the curator of an art museum and that of one devoted to what are called natural history subjects, is that in the case of the former the specimens he has to preserve and exhibit come into his hands very nearly in the condition in which they will have to remain. A picture, a vase, a piece of old armour, or a statue, beyond a certain amount of tender care in cleaning and repairing, which is more or less mechanical in its nature, is ready for its place upon the museum shelves. But this is far from being the case with the greater number of natural objects. Not only do they require special methods of preservation, but very often their value as museum specimens depends entirely upon the skill, labour, patience, and knowledge expended upon them. In specimens illustrating biological subjects the highest powers of the museum curator are called forth. A properly mounted animal or a carefully-displayed anatomical preparation is in itself a work of art, based upon a natural substratum. In few branches of museum work has there been greater progress in late years than in this, and few offer still further scope for development.

Partly from this cause, and partly from the fact that art has for a longer period and to a greater degree engaged the attention of civilised man than nature, the method of preservation, arrangement, and exhibition of works of art are on the whole further advanced than are those of natural objects. But no one can deny that there is still in many galleries devoted to the exhibition of works of art of various kinds great room for improvement. There is generally far too great crowding; too many objects so placed that the tallest man cannot see them properly, even when standing on tiptoe; too many others placed so low that they can only be examined by lying down on the floor; too many completely spoiled by the juxtaposition of other incongruous objects, or by unsuitable settings. It is only in a very few public museums (I may instance as a conspicuous example the splendid museum of antiquities at Naples) that the immense advantage to be gained by ample space and appropriate surroundings in aiding the formation of a just idea of the beauty and interest of each specimen contained in it can be properly appreciated. Correct classification, good labelling, isolation of each object from its neighbours, the provision of a suitable background, and above all of a position in which it can be readily and distinctly seen, are absolute requisites in art museums as well as in those of natural history. Nothing detracts so much from the enjoyment and advantage derived from a visit to a museum as the overcrowding of the specimens exhibited. The development of the new museum idea to be spoken of later on will be one way by which this can be remedied in the public galleries; but if museums are what they ought to be, and what I venture to believe they will be in the future, the question of space on a considerably larger scale than has hitherto been thought of will have to be faced. This is of course mainly a matter of expense, and after all but a small matter compared with expenditure now considered necessary in other directions. There are persons who think the country made a tremendous effort in building so much as is yet finished of the new Natural History Museum in the Cromwell Road, and shake their heads at the expenditure

[1] Address of the President, Sir William H. Flower, K.C.B., F.R.S., &c. London Meeting, July 3, 1893.