

I have assumed the intensity of light on June 13 = 1.

The orbit of the comet makes a very close approach to that of the planet Venus. My last elements indicate for least distance of orbits . . . 0'011.

For calculation of places after July 15 the following expressions for the comet's heliocentric co-ordinates referred to the equator, will be useful, in conjunction with X, Y, Z, of the *Nautical Almanac*.

$$\begin{aligned}x &= r [9'77492] \sin(v + 26^\circ 8'5) \\y &= r [9'98665] \sin(v + 276^\circ 17'1) \\z &= r [9'92408] \sin(v + 176^\circ 54'5)\end{aligned}$$

J. R. HIND

Mr. Bishop's Observatory, Twickenham, June 23

The following additional information is taken from a letter by Mr. Hind in yesterday's *Times* :—

"The comet will be nearest to the earth on the night of July 22, its distance being then less than 0.3.

"Last night at 11.30, the moon being yet above the horizon, the comet appeared to be in the least degree fainter than the star Upsilon, Ursæ Majoris, which Argelander estimates rather higher than the fourth magnitude. In the strongly illuminated sky of these mid-summer nights it was very sensibly brighter than the neighbouring stars 42 and 43 Camelopardi. By measures of the nucleus taken with the filar-micrometer, it appeared to be rather more than 4,000 miles in diameter, and the tail, assuming it to be projected from the nucleus in the line of the radius-vector, would be 4,000,000 miles in length.

"During the first fortnight in July the comet will undoubtedly be a pretty conspicuous object in the constellation Lynx, where there are few bright stars.

"At the end of September its brightness, by theory, should be the same as on the night of discovery (April 17), and it will then be well observed in the southern hemisphere, in the neighbourhood of the star Alpha Chamæleontis."

MR. HIND, in a letter with which he has favoured me, lays great stress upon the star-like appearance of the nucleus of the comet now visible, as seen in a telescope; and M. Rayet has already, in a communication to the Paris Academy, shown that its spectrum is continuous, that of the coma giving the three ordinary cometary bands. On Monday evening last the comet was bright enough, in spite of the moonlight, to enable me to observe this continuous spectrum with my 6½ inch Cooke and a pocket spectroscope. It struck me that the spectrum was short, *i.e.* that it was deficient in blue rays; and as one saw in the telescope a fan-like structure above the nucleus (as seen in an inverting telescope), so also in the spectroscope, the continuous spectrum sparkled as if many short bright lines or bands were superposed upon it. I shall be glad to learn that other observers with more powerful instruments have had their attention directed to these two points.

J. NORMAN LOCKYER

NOTES

ON the 3rd inst. the corner stone of the American Museum of Natural History in New York was laid by the President of the United States. The ground belonging to the Museum measures about eighteen acres, and the building when completed according to plan will be larger than the British Museum. The object of the Museum is twofold :—First to interest and instruct the masses; and secondly, and specially, to render all possible assistance to specialists. The library presented to the Museum by Miss Wolfe, with a large collection of shells, also donated by Miss Wolfe to the Museum in memory of her father, who was its first President, was purchased by her at a cost of 35,000 dols. The other collections at present in the temporary Museum are valued at 250,000 dols. A rare and newly complete series of

American birds, and many fine birds of Paradise and pheasants, now in the collection formerly belonging to Mr. D. G. Elliott, will be added. The Trustees have purchased the collection of Prince Maximilian, of Neuwied, on the Rhine, and a large number of specimens belonging to the late Edward Verreaux, of Paris. Large donations of shells, corals, and minerals, have been received, as also a collection of 20,000 insects. The collections will be bought and cared for by moneys contributed by the Trustees individually and the public, but the building now in progress will be erected at the expense of the city, which has already appropriated 500,000 dols. for this purpose.

Prof. Joseph Henry of the Smithsonian Institution gave an address on the above occasion, in which he spoke as follows on the necessity of endowing scientific research :—“The development of the institution would not be completed were it furnished with all the appliances I have mentioned. There is another duty which this city owes to itself and to the civilisation of the world. I allude to an endowment for the support of a college of discoverers and a number of men capable not only of expounding established and known truths, but of interrogating nature and discovering new facts, new phenomena, and new principles. The blindness of the public to the value of the abstract sciences and the matter of endowments of colleges for their support is remarkable. It is not everyone, however well educated he may be, that is capable of becoming a first-class scientist. Like poets, discoverers are born, not made, and when one of this class has been found he should be cherished, liberally provided with the means of subsistence, fully supplied with all the implements of information, and his life consecrated to the high and holy office of penetrating the mysteries of nature. What has been achieved in the knowledge of the forces in operation in nature, and the uses to which it is applied in controlling and directing these forces to useful purposes, constitutes the highest claim to the glory of our race.”

THE Duke of Devonshire, speaking at the banquet at Trinity College, Cambridge, on the 17th inst., said it had fallen to his lot during the last three or four years, while acting on a Royal Commission for inquiring into Scientific Education and the Advancement of Science, to become acquainted with the development and extension of scientific teaching in the several Universities of the kingdom, and of learning the views of those best qualified to express an opinion as to the requirements remaining to be supplied. The result of the inquiry had been satisfactory, inasmuch as it showed that a great deal had been done in the direction indicated, and that University authorities had manifested a strong desire that the Universities should be provided with all appliances necessary not only for centres of scientific education, but as centres also of general intellectual activity and of original research. This latter point was strongly insisted on in the evidence before the commissioners, and received their concurrence. A University which recognised the advancement and extension of knowledge as one of the main purposes of its existence was surely to be regarded as of a higher and nobler type than one which was satisfied with the position of a mere educational body. There was nothing antagonistic in these two objects; on the contrary, great advantage might be derived from their combination.

THE Emperor of Austria has been pleased to confer upon Mr. Robert H. Scott, F.R.S., the Director of the Meteorological Office, the Order of the Iron Crown, Third Class.

DR. TOLOZAN, physician to the Shah of Persia, has been elected a corresponding member of the French Academy in the section of Medicine and Surgery, and M. Studer of Berne in that of Geology. The latter is a veteran of 79 years.

THE organisation of the French National Observatory will