BIELA'S COMET

MR. J. R. HIND has addressed the following letter to the *Bulletin of the Association Scientifique de France* :—

You will probably think me rather sanguine in supposing for a moment that there is a chance of re-discovering either nucleus of Biela's comet this year, when in the ordinary course of things a perihelion passage would be due. I look at the matter in this light. We know that in February 1846 a very remarkable alternation of brilliancy took place : that the second nucleus, barely discernible at first, so greatly increased its light as to surpass what I will term the parent-nucleus, and continued thus several days, when it gradually faded. Again in September 1852, M. Otto Struve's drawings show the same remarkable interchange of light between the 20th and 25th. Whatever the cause may be, each nucleus appears to have a re-vivifying power, so to term it, and I think it is just possible this may be exercised at one time or other to such an extent as to bring the comet again within our grasp, though its condition in 1865-1866 may have been such as to render it quite invisible from the earth. In this idea of the subject, I have prepared sweeping ephemerides for September and October, part of which (that applying to next absence of moonlight and longer) I now do myself the honour to send you. The mean motion in Dr. Michex's orbit from 1866 would bring the comet into perihelion 1872, October 6.4, and I have calculated places on this supposition, also with variations of $\pm 8^d$ in perihelion passage. Clausen carried forward the perturbations of both nuclei in 1866, and his elements for that year would indicate (of course, neglecting perturbation 1866-1872) the following times of perihelion passage.

Nucleus I . . . 1872 Oct. 4.776 Greenwich
Nucleus II . . . „ Oct. 7.256 „

and hence these differences of R. A. and N. P. D. between the two nuclei, which, if one is only found, might be useful in bringing to light the other.

	R. A. (I-II).	N. P. D. (I-II).
Sept. 12	+ 0.59	+ 0.55
„ 20	+ 1.50	+ 0.57
„ 28	+ 1.42	+ 0.55
Oct. 6	+ 1.34	+ 0.50
„ 14	+ 1.26	+ 0.44
„ 22	+ 1.18	+ 0.37

Perhaps there may yet be time to interest some of your many correspondents in a search for Biela during the first ten days of October. Here the weather has been exceedingly unfavourable, and, though I have watched assiduously, there has not been a single opportunity of examining the eastern heavens in the morning during the last period of absence of moonlight.

I remain, etc.

J. R. HIND

Observatory, Twickenham, near London, Sept. 17

SWEEPING EPHEMERIDES FOR BIELA'S COMET

1872 9 ^h 36 ^m	Perihelion. September 28.4			Perihelion. October 6.4. ¹				Perihelion. October 14.4.				
Greenwich.	R.A.	δ		R.A.	δ	Δ		R.A.	δ			
	h m	s		h m	s			h m	s			
Sept. 28	10	40	+6 27	9	43	0	+9 15	1	345	9 20	+12 22	
30	10	13	0 51	9	52	4	8 6	9	30	2	11 0	
Oct. 2	10	21	9 45	10	1	7	6 56	1	365	9	40	9 50
4	10	30	7 3	10	10	9	5 46			9	49	7 8
6	10	39	3 2	10	19	9	4 37	1	388	9	59	2 7
8	10	47	+1 0	10	28	8	3 28			10	8	6 1
10	10	56	-0 3	10	37	6	2 20	1	414	10	17	8 5
12	11	4	5 1	10	46	2	1 13			10	26	9 3
14	11	12	6 2	10	54	8	+0 7	1	442	10	35	8 2
16	11	20	6 3	11	3	2	-0 58			10	44	6 1
18	11	28	5 4	11	11	4	2 2	1	472	10	53	+0 1
20	11	36	3 4	11	19	6	3 4			11	1	0 5
22	11	44	0 5	11	27	6	4 5	1	503	11	10	-0 5
24	11	51	5 6	11	35	5	5 5			11	18	3 3
26	11	59	-7 42	11	43	3	-6 3	1	535	11	26	-4 4

Mr. Hind, in a letter with which he has favoured us, states that M. Stephan, the Director of the Observatory

of Marseilles, will employ the large Foucault mirror of that establishment in a search for the comet.

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

THE session of this Association opened at Dubuque, Iowa, on August 21. At the end of last year's meeting it was expected that the Association would meet this year at San Francisco, which place it was hoped Prof. Agassiz would have reached in the *Hassler* by the time of the opening, and added an unusual brilliancy to the proceedings by an account of some of his discoveries in the Southern seas. The great naturalist, however, as we know, has not yet reached the Californian coast; and partly on this account, but mainly, we believe, on account of the great expense to most of the members of a journey to San Francisco, that city has not this year been honoured with the presence of the associated *savans* of the United States. Indeed, if we may judge by the somewhat diminished attendance, and the unusually small number of papers read, even Dubuque seems to be too far away from the homes of many of the members. Some of the prominent members of the American Association were absent this year, the many, however, who did attend, met with a very liberal reception from the citizens of Dubuque.

The retiring president of the last year, Prof. Asa Gray, of Cambridge, Mass., made, as is the custom, a valedictory address. He took the opportunity to sketch his recent experience at the West as a botanist, for, strange to say, until the present summer he had not seen the Mississippi nor set foot upon a prairie. Prof. Gray touched lightly upon the history of the Sequoias; that their age must be counted by hundreds of years we cannot doubt; but also we cannot doubt that they did not antedate the glaciers whose icy expanses have left their indisputable evidences everywhere around. The main portion of Prof. Gray's address was devoted to showing the probability that certain trees of the present day, the *Sequoias* of California, the *Taxodium*, or Bald Cypress of the Atlantic, and the *Glyptostrobus*, a Chinese tree, the only ones of their tribe at present existing, were not only closely allied in structure and general characteristics, but were the lineal successors by gradual modification of the fossil trees of geological ages; and that all our existing vegetation was a continuation of that of the Tertiary period. Three hypotheses are open to account for their present existence: either they were created in the detached regions where they are now found; or they are the first members of a new and increasing race; or they are nearly the last representatives of a once powerful and widely-spread tribe. After discussing the first two alternatives, Prof. Gray gives his reasons, which are supported by paleontological evidence, for believing that the "big trees" of California are the last of their race, and that a little further drying up of the climate, which is now in progress, will speedily precipitate their doom. The oldest of the trees now standing he considers to possess an antiquity of about 2,000 years.

A paper was read by Prof. E. S. Morse "On the Oviducts of the Brachiopods." He brought forward for the first time a few facts regarding the development of a species of Brachiopod from the coast of Maine. The various stages in their development, he believed, fully supported the position he maintained, that the Brachiopods were true worms and not molluscs.

Prof. Benjamin Peirce, Superintendent of the United States Coast Survey, gave an exceedingly interesting account of the measures taken by that Bureau with reference to stations for astronomical observations at great heights, such as Sherman, on the Rocky Mountains. Prof. Young, of Dartmouth College, has been appointed to examine and give an opinion as to the effect of taking observations from the Rocky Mountains and Sierra Nevada. Prof. Peirce's opinion was that observatories should be placed on the summits of both, if not permanently at least temporarily, the Rocky Mountains being favourable to some, the Sierra Nevada more favourable for other observations. In a higher position you get rid of absorption of light by getting rid of half the