SCIENCE:

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AN article in the *North American Review*, over the signature of Edison, confirms our editorial remarks, made on the 10th of July last, respecting the true condition of his system of electric illumination.

The course of Edison has been consistent, and from first to last he has emphatically stated that the results arrived at last January practically demonstrated the success of his system for the ends in view, and that nothing remained to be done but to improve his lamp and generator, to bring both to as near a state of perfection as a long series of exhaustive experiments would permit.

Of course, Edison has also had to master the enormous mass of details incident to the practical working of his electric lamp on a large scale for general use, and that he has accomplished both tasks within a year must be a matter of astonishment to all who have any conception of the work done; but Edison seems born to overcome difficulties that appall other men, and the fertility of his mental resources appears unbounded.

In the discussion of scientific questions affecting vested interests, impartial treatment and justice to the innovator are lost sight of. Better things, however, might have been expected from some of those who have misled the public in regard to this matter. Under the belief that Edison's electric lamp was a failure, thousands of dollars have been lost by those who have invested their money in electric light companies which have tried to force systems of lighting, fundamentally wrong in principle, and ridiculously unfit for general illuminating purposes.

There is one fact which places the sincerity of Edison above reproach; he has left the merit of his system of electrical illumination to assert its own supremacy with the public, and has neither paraded his light in great cities, nor gone on a lecturing tour, as other eminent inventors have done; and lastly, he has spent thousands upon thousands of dollars in perfecting his system.

On his system of electric illumination Edison has staked his time, money, and reputation. He now states that he has succeeded. Let those who are wise accept the situation.

—We see by a notice in a recent number of the *Veterinary Gazette* that a French palæontologist has discovered the osseous remains of an extinct species of horse at one of the "palæolithic stations" in his country. The species resembled our recent horse more closely than any other fossil species, but the remarkable feature was noted that the so-called "splint bones" (the lateral metacarpals) are separate and distinct from the great metacarpal or "canon bone," while in the modern horse these are co-ossified for the greater part of the length of the former. It thus constitutes a connecting link between the Hipparion and Equis genera. The number of fossil remnants discovered indicated that over a hundred thousand animals had perished in that locality, and the explanation given for this accumulation is that a large herd of animals, seized with that panic that horse-herds are liable to, rushed over a precipice and were thus killed *en masse*. A fuller account is promised in *Kosmos*, the journal from which the notice is taken, and we will refer to it in due time more fully.

There appears to be an uneasy feeling in certain English scientific circles; the complaint is openly made that the recognition of science (when compared with that received from society by the liberal arts) is inadequate, and calls for an immediate remedy. Contributions, to be levied from the State, and distinctions to be conferred by Government or the Crown, are suggested, and one writer proposes that new life peerages should be conferred on eminent scientific men, the titles being endowed with the salary of a junior lord, which, we believe is about five or ten thousand dollars a year; the selection in some cases to be made from the holders of certain offices, such as the Master of the Mint, the Astronomer Royal, or the Presidents of the Royal Society and British Association.

THE AUGUST PERSEIDS, 1880.

BY EDWIN F. SAWYER.

The annual display of August meteors occurring during the first half of the month, with a strong maximum on the 9th and 10th, has been watched for this year with the usual attention of meteor observers, and a successful series of observations have been obtained.

Although little important information has been added to our present knowledge of this well-known meteor stream, yet its fluctuating intensity from year to year is an important element to record.

The results of the observations so far as heard from indicate that the display as observed this year exceeded but slightly in intensity the shower as recorded last year, when, instead of a maximum display as anticipated being observed, the shower proved to be a very meagre one, in fact, representing a minimum phase of its return. Thus the existence of an eight-year period for this shower, as suspected and pointed out by Dr. Phipson,* appears to lack confirmation.

*See his work entitled "Meteors, Aerolites and Falling Stars," page 159.

The shower was observed by the writer this year on the evenings of the 8th and 9th (the sky being unfortunately overcast on the 10th and 11th), and the display found to be a feeble one.

A three-hours' watch on the 8th, from 9 to 12h., revealed 37 meteors. Of these, 16 were Perseids, giving as an hourly rate of Perseids (allowing for time spent in registering such tracks as were well observed) 6, and for all meteors 14.

The following table shows the number of meteors recorded each hour on the 8th during the watch, and also the calculated horary number for one observer looking towards the East:

Duration of Watch. From	To	Length of Watch.	No. of Meteors seen.	Perseids.	Calculated Horary No. All Meteors.	Calculated Horary No. Perseids.	State of Sky.
h. m.	h. m.	h.					
9 0	10 0	1	9	6	10	7	Very Clear.
10 0	11 0	1	11	3	13	4	
11 0	12 0	1	17	7	20	8	
9	12h.	3h.	37	16	14	6	

The magnitude of those recorded were as follows:

	=♃	>1Mag.*	=1Mag.	=2Mag.	=3Mag.	=4 and fainter.	Total.
Perseids...	1	1	3	6	2	3	= 16
Others....	0	0	2	4	6	9	= 21
Total....	1	1	5	10	8	12	= 37

The radiant point of the Perseids was deduced as at R. A. 38°+56°. Two showers in Cepheus furnished the majority of the uncorformable meteors recorded, their deduced positions being at R. A. 5°+75° and R. A, 332°+60°. The evening of the 9th was generally clear (a few clouds at times but slightly interfering with the observations), and a watch of four hours, from 9 to 13h., was sustained, 91 meteors being recorded. Of these, 54 or 59.4 per cent. were Perseids, 12 or 13 per cent. Cassiopeids, and 25 or 27.3 per cent. belonged to feebler showers in Andromeda, etc.

The number recorded each half hour, and the calculated horary number, were as follows:

Duration of Watch. From	To	Length of Watch.	No. of Meteors seen.	Perseids.	Cassiopeids.	Calculated Horary No. All Meteors.	Calculated Horary No. Perseids.	State of Sky.
h. m.	h. m.	m.						
9 0	9 30	30	9	5	2	22	12	Clear.
9 30	10 0	"	10	8	0	24	19	"
10 0	10 30	"	10	6	3	25	14	FewCl'ds.
10 30	11 0	"	11	7	2	26	16	Clear.
11 0	11 30	"	14	10	2	35	23	FewCl'ds.
11 30	12 0	"	15	7	2	37	16	"
12 0	12 30	"	11	5	1	26	12	Clear.
12 30	13 0	"	11	6	0	26	14	"
9	13h.	4h.	91	54	12	28	16	

Meteors thus appeared thickest between 11 and 12h., when the hourly rate for all meteors was about 36, and of Perseids 20. The shower in Cassiopeia appears of considerable intensity, and probably the confounding of these meteors (Cassiopeids) with the true Perseids (the two radiants lying approximately near one another) may account for the large hourly rate of meteors being recorded as belonging to the Perseids by ordinary and occasional observers not discriminating enough, or who are not aware that two distinct showers exist in this region of the sky. The magnitude of those recorded on the 9th were as follows:

	=♃ or ♀	>1Mag.*	=1Mag.	=2Mag.	=3Mag.	=4 and fainter.	Total.
Perseids...	4	5	8	13	9	15	= 54
Others....	1	0	4	2	7	23	= 37
Total...	5	5	12	15	16	38	= 91

The radiant point of the main Perseid stream was very accurately deduced from several very short tracks near the focus, and from one perfectly stationary meteor of the 1st mag., visible two seconds and very exactly noted, as at R. A. 44¾°+56¼°. A secondary Perseid radiant was reduced from a few short tracks, and one very nearly stationary meteor, as at R. A. 55°+57°. Among the bright meteors recorded was one at 12h. 55m., which equalled ♀ (Venus) in brightness, and was of a blue color, with path from R. A. 260°+67½° to 212°+66°. This meteor came from the direction of Cygnus. A letter received from Mr. W. F. Denning, F. R. A. S., of Bristol, England, informs the writer that the shower was well observed in England. Mr. Denning at Bristol recorded from August 6 to 13, inclusive, 419 ☄ during a period of 16½h. watching, and of these 240 were Perseids. He found the hourly rate of all meteors on the 9th to be 44, and of Perseids 28. On the 10th (when it was foggy) 34 and 28, respectively. The radiant point appeared to shift in R. A. (increasing) every night, for while on August 6 it was at R. A. 38°+56° and August 7–8 at R. A. 41°+55°, it was at R. A. 48°+57° on August 11–12, and at R. A. 49½°+57½° on August 13th. The meteors were also successfully observed at the Royal Observatory, Greenwich, where the greatest hourly number on the 10th was determined to be about 25, and also by Major Tupman, Mr. Corder, and other prominent observers.

CAMBRIDGEPORT, Sept. 12, 1880.

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE, 1880.

(Continuation of papers read.)

NOTES ON JAPANESE PULMONIFERA.

BY PROF. EDW. S. MORSE.

In this communicetion Mr. Morse called attention to the occurrence of a number of species of land snails in Yeso, identical with forms occurring in New England.

He also showed the occurrence of two species of slugs in Japan, which are also common in New England.

While he had met with most of the fresh water genera of Pulmonifera in Japan, he had never yet found an example of *Physa*.

PROBLEMS IN WATSON'S CO-ORDINATES.

By THOMAS HILL, D.D., LL.D.

IN this paper Dr. Hill investigates the equation $p=A(a-b\sin. m\nu)^n$; giving his principal attention to the case in which $b=m=1$, and $n=-1$, which represents a curve like a figure 8 with its top concave, somewhat like the sign for Taurus. When $a=0$, this becomes a parabola; and when $a>2$, an