

The fine weather prevailing this month and during part of September allowed me to maintain long watches for shooting stars as follows:—

September	4	watched during	4½	hours and saw	37	meteors.
"	5	"	3½	"	33	"
"	7	"	4	"	38	"
"	15	"	4½	"	58	"
"	16	"	4½	"	59	"
October	2	"	4½	"	37	"
"	3	"	4½	"	35	"
"	4	"	5	"	55	"
"	5	"	4½	"	31	"
"	8	"	10	"	105	"
"	16	"	5	"	83	"
"	17	"	3½	"	70	"

Giving an aggregate watch of 57 hours and 641 meteors visible for September 4–October 17; but this merely relates to a portion of the work, for I have only included in this list those nights when I watched for long periods together.

From these numerous observations I was enabled to deduce many radiant points, and have selected a few of the most important:—

No.	Date.	R.A. Dec.	No. of l's.	Max. dates.
1.	September	61 + 36	15 meteors	Sept. 7 and 15
2.	Sept. and Oct.	85 + 54	26	Sept. 5 and Oct. 5
3.	Sept. and Oct.	109 + 38	20	October 8
4.	Sept. and Oct.	220 + 78	18	September 15
5.	Sept. and Oct.	60 + 85	15	October 2-8
6.	September	87 + 34	10	September 16
7.	Sept. and Oct.	103 + 12	27	October 8
8.	October	133 + 79	22	October 3-4
9.	October	310 + 77	17	October 3-4
10.	October	225 + 52	10	October 2
11.	October	133 + 21	18	October 15
12.	October 15-20	92 + 15	57	October 18

The last position is that of the well-known October shower, the *Orionids*. Several of the above radiants are probably new, and it is noteworthy that No. 8 agrees very closely with the radiant and date (R.A. 134°, 77° Dec. N., October 7 +) of Comet II., 1825, as calculated by Prof. A. S. Herschel.

Ashleydown, Bristol, October 22 W. F. DENNING

A METEOR of unusual brilliancy was seen by the passengers in the train from Exeter to Bristol, about 6:15 P.M. yesterday. The train was at the time about two or three miles south of Weston Junction. As nearly as I could judge, the meteor made its first appearance at an altitude of about 35°, and 4° or 5° south of west, and moved rapidly towards the horizon almost in a vertical line. The colour was a greenish white, and the train lasted about fifteen seconds.

JOHN L. MCKENZIE

Independent College, Taunton, October 20

LAST Friday evening (October 19) we in Aberystwith saw a very beautiful meteor. It was ten minutes past six in the evening, when as I was walking along the shore and looking seaward (west), I saw the meteor rapidly descending as a pear-shaped body of red, yellow, and purple light, increasing much in brightness till it reached about twenty feet, as it looked, from the sea surface, when it suddenly and completely disappeared. Its track seemed a part of it—a tail to it—being at first a pale golden light continuous with the body of the meteor below, extending vertically up and ending rather abruptly above.

This narrow band of light lived complete for a short time, but after one minute most of the track had become a white or slightly grey fleecy cloud about a foot broad and three yards long, as it appeared, only its central part remaining bright as a golden nucleus to the cloud.

By two minutes atmospheric currents had bent the vertical cloud into an arc, the extremities turned to the north with the bright nucleus still distinct. Gradually the nucleus disappeared, but the cloud was still visible for a quarter of an hour, when the increasing dusk of the evening helped to obscure it.

Its course appeared exceedingly rapid, and the brightness was such that a passer-by who did not see the meteor itself, said that the place was lit up "like lightning."

Weather dull and wet, but Friday evening was fine.

University College of Wales, Aberystwith, October 20 WALTER KEEPING

Curious Phenomenon during the Late Gale

THE following may perhaps be of interest to your readers. At about 6:50 P.M. on the night of Sunday the 14th inst., I was

walking in a south-easterly direction through the village of Lower Tooting, when I suddenly saw fall from the sky what looked like a huge ball of green fire. What struck me especially was its size, its vivid colour, and also the strange noiselessness of its fall. It seemed to come from a part of the sky somewhere near where Jupiter was then visible, and to fall not a hundred yards from me. This, I fear, is the most accurate information I can give. It took me so completely by surprise that I rubbed my eyes and wondered whether I had not been dreaming, a supposition which seemed to be supported by the indifference displayed by the numerous passers-by in the face of so extraordinary a phenomenon. Indeed I should hardly have thought seriously of the matter again had I not heard of a letter in the *Times* last Monday, describing a very similar phenomenon observed at Brixton some twenty minutes later on the same evening. This and other reports of a like nature, which seemed to imply that the atmosphere was in a somewhat unusual condition, before and during last week's storm, led me to think it worth while to lay before you, and if it so pleases you, before the readers of NATURE, what I at any rate have a strong conviction that I saw on the night in question.

G. A. M.

Wine-Coloured Ivy

THE question has been discussed of late whether the ancient Greeks had an acute and true sense of colour. I remember once to have seen the remark that Sophocles shows his want of colour-sense by speaking of wine-coloured ivy. Now this really shows how true his perception of colour was. I inclose two ivy leaves which I have gathered to-day off a wall; I could have gathered plenty of the same colour, which, as you will see, is claret colour.

JOSEPH JOHN MURPHY

Old Forge, Dunmurry, co. Antrim, October 21

OUR ASTRONOMICAL COLUMN

THE SATELLITES OF MARS.—In No. 2,161 of the *Astron. Nach.*, Prof. Asaph Hall has published his measures of both satellites from the dates of their discovery to September 16, though the observations are not completely reduced, differential refraction and the small corrections to refer the measures to the true centre of the planet or the corrections for the gibbous phase having yet to be applied. Prof. Hall intends to make a thorough discussion of the observations taken during the present opposition, and requests other astronomers to forward to him, at Washington, copies of any they may succeed in making.

Subjoined are a few positions of the inner satellite calculated from elements which represent roughly Prof. Hall's observations from August 17 to September 16, as the following selected dates will show:—

	Error in Pos.	Error in Dist.	Observed Pos.
Aug. 17	... - 1'1"	... + 2'1"	... 73
" 26	... + 3'5"	... - 2'7"	... 253
Sept. 1	... - 2'0"	... - 2'5"	... 250
" 4	... - 1'1"	... + 1'7"	... 69
" 14	... - 1'5"	... + 1'2"	... 67

There is perhaps a sensible ellipticity of orbit. The period adopted is 7h. 39m. 13s.

For the outer satellite the elements used for the last ephemeris in this column have been again employed; they agree closely with measures taken by Mr. Common at Ealing on October 16. It appears probable that Mr. Common saw the inner satellite about 9 P.M. on October 17, the calculated and estimated positions sufficiently according.

Inner Satellite.				Outer Satellite.			
8h. G.M.T.	Pos.	Dist.	"	Pos.	Dist.	"	"
Oct. 26	152	9	17	91	44	17	44
" 27	91	17	17	213	31	17	31
" 28	69	22	22	256	55	22	55
" 29	37	12	12	324	22	12	22
" 30	306	10	10	64	51	10	51
" 31	263	19	19	103	33	19	33
Nov. 1	242	20	20	224	34	20	34
" 2	194	9	9	262	47	9	47

THE SATURNIAN SATELLITE HYPERION.—The following positions are from Prof. Hall's elements in *Astron. Nach.*, No. 2.137. Mr. Common observed this very difficult object with his 18-inch silver-on-glass reflector on October 14, at 10h. 15m. G.M.T., when its position was  $92^{\circ}0'$  and distance  $208''$ ; the elements give  $93^{\circ}2'$  and  $208''$ . This satellite appears to be truly an *experimentum crucis* even for our larger telescopes.

At 8h. G.M.T.

Oct. 26	Pos.	276°6'	Dist.	222°6'	Nov. 3	Pos.	90°6'	Dist.	154°5'
" 27	"	277 9	"	202°6'	" 4	"	92°5'	"	192°2'
" 28	"	279°6'	"	167°5'	" 5	"	93°9'	"	215°8'
" 29	"	282°4'	"	121°3'	" 6	"	95°1'	"	222°4'
" 30	"	289°4'	"	68°1'	" 7	"	95°6'	"	209°8'
" 31	"	340°4'	"	30°8'	" 8	"	97°8'	"	176°3'
Nov. 1	"	77°1'	"	53°3'	" 9	"	100°4'	"	124°2'
" 2	"	87°2'	"	106°9'	" 10	"	108°1'	"	58°1'

THE SATELLITE OF NEPTUNE.—The ephemeris subjoined is deduced from Prof. Newcomb's tables in the appendix to the Washington Observations for 1874:—

At 11h. G.M.T.

Oct. 26	Pos.	221°5'	Dist.	16°9'	Nov. 3	Pos.	64°8'	Dist.	10°7'
" 27	"	194°0'	"	10°5'	" 4	"	37°8'	"	16°9'
" 28	"	72°0'	"	9°2'	" 5	"	1°9'	"	8°3'
" 29	"	40°2'	"	17°0'	" 6	"	241°9'	"	11°4'
" 30	"	10°6'	"	9°8'	" 7	"	216°5'	"	16°8'
" 31	"	248°1'	"	10°0'	" 8	"	176°2'	"	7°6'
Nov. 1	"	219°1'	"	17°0'	" 9	"	59°2'	"	12°2'
" 2	"	186°6'	"	9°0'	" 10	"	35°3'	"	16°5'

THE VARIABLE NEBULA IN TAURUS (G.C. No. 839).—Dr. Tempel gives some particulars of his examination of the neighbourhood of this object with the large Amici-telescope of the observatory at Arcetri, near Florence. Around the variable star which is close at hand (T Tauri of Prof. Schönfeld's Catalogue) a nebulous appearance was easily recognisable, but Dr. Tempel says he has remarked the same nebulous glimmer about other variable stars, amongst them in one of Goldschmidt's, which wholly disappears; in this case the glimmer is discernible before the star itself becomes visible. Near the variable star there are two small star-clusters, about which, however, there is no trace of nebulosity in a telescope that is capable of resolving them. We believe changes in the disposition of nebulosity near the variable star (which was only one minute of arc from the centre of the nebula at its discovery in October, 1852) were remarked some years since by Otto Struve with the Pulkowa refractor, but there has been no appearance of late, like that presented by the object in 1852, when it was conspicuous enough with a seven-inch aperture, which in 1863 and on several later occasions did not afford the least trace of it. The vicinity may be recommended for observation during the coming winter by those who are provided with instruments of sufficient grasp of light. Dr. Tempel has carefully delineated all the features that he has noticed with his large telescope for comparison with any other drawings that may be made by competent observers.

#### F. L. ALPHONS OPPENHEIM

PROF. OPPENHEIM, whose tragic fate was briefly alluded to a few weeks since, was born at Hamburg, February 14, 1833. In 1852 he graduated from the gymnasium there, and entered the University of Bonn. Here, and at Göttingen, he pursued a widely-extended course of scientific studies until 1857, when he passed the examination for Ph.D. at the last-named place. In the same year, after a short residence at the University of Heidelberg, he proceeded to London, where he carried out a number of researches in Prof. Williamson's laboratory. From here he went to Paris, where his chemical investigations were prosecuted in the laboratory of Prof. Wurtz

until 1867, when he returned to his native country and entered the University of Berlin as a privat-docent. This position was soon exchanged for that of an extraordinary professor, and early in the present year he accepted a call to the chair of chemistry in the Royal Academy of Münster. Just at the entrance of a career of widely-extended usefulness, while superintending the equipment of his new laboratory, a gloom was cast upon his path by the sudden decline of his wife, an English lady, to whom he was passionately attached. Months of watching and anxiety caused a condition of the most utter mental prostration. On September 16, within two hours of his wife's death, one of the deadliest drugs known to the chemist did its swift, painless work, and he was no more.

This sudden death has caused a feeling of sadness in an unusually large circle. Prof. Oppenheim was not only held in high esteem by the scientific men of his own country, but was warmly regarded by many leading chemists in France and England, while in the columns of this journal and in the meetings of the British Association his name became familiar to a more extended class. Prof. Oppenheim's chemical investigations are characterised chiefly by their variety, thoroughness, and theoretical value. We can only allude to his researches on tellurium and its compounds, the exhaustive monograph with F. Versmann on the application of saline solutions to render textile fabrics non-inflammable, the numerous papers on allylen and propylen derivatives, the extensive studies in the turpentine group, which yielded, among other results, the theoretical composition of cymene and the ethers of pyroracemic acid. During the past few years he carried out a number of interesting researches on the derivatives of aceto-acetic ether and its homologues, the most valuable of which were the discovery of oxyvutic acid with F. Pfaff and of propionyl-propionic ether with R. Hellon. As one of the founders of the German Chemical Society, and for many years its secretary, Prof. Oppenheim did much to contribute to the efficiency of this organisation and bring it to its present prosperity and widespread sphere of activity. Besides numerous contributions to contemporary scientific literature, he translated into German Odling's "Manual of Chemistry" and Wurtz' "History of Chemical Theories," the English edition of which, by Watts, is so well known.

Prof. Oppenheim's charming social qualities attracted to him friends in all ranks of society, and the literary and scientific celebrities of Berlin were often to be met at his table. The many foreign scientific students at Berlin who recall their hospitable welcome in his home will join with his friends in the feeling of grief over this abrupt termination to a career of such promising scientific usefulness.

T. H. N.

#### ELECTRIC LIGHTS FOR LIGHTHOUSES

REPORTS to the Trinity House have just been issued giving the results of some experiments made at the end of last year and the beginning of the present, by Prof. Tyndall and Mr. J. Douglass, Chief Engineer of the Trinity House, on the comparative value of various magneto-electric machines for lighthouse purposes.

The machines experimented on by Prof. Tyndall were the following:—(1) Holmes' machines, which have been already established for some years at the South Foreland; (2) Gramme's machines; (3) Two Gramme's machines coupled together; (4) Siemens' large machine; (5) Siemens' small machine.

Prof. Tyndall's observations were made on November 21 and 22 last year, from the Corporation's steamer *Galatea*, the position first chosen being not far from the Varne Light, and at a distance of  $11\frac{1}{2}$  miles from the lighthouses on the Foreland. Observations were subsequently made at various other distances.