AN experimental passenger-train, lighted throughout by electricity, and heated by steam from the engine, is now running between New York and Boston. Each car is illuminated by eighteen 16-candle glow-lamps, the current being derived from storage-batteries beneath the floor-timbers, charged for ten hours by dynamos. Both light and heat are said to be ample, and *Science* believes that danger from fire, in case of accident to the train, is much lessened, if not almost wholly done away with.

MACHINERY for winding silk from cocoons was lately set up at Washington by the Department of Agriculture. Much interest is manifested in the experiments, and the demand for copies of the Bulletin on Silkworm Culture is so great that it has been necessary to issue seven or eight editions. According to officials of the Department of Agriculture, the requests for silkworm eggs have never been so numerous since the Department began their distribution. It is expected, therefore, that large quantities of American-grown silk will be placed upon the market this year.

WHEN crossing the Atlantic, Prof. Dennis, of New York, recently made some observations to test the purity of the ocean-air. He had previously prepared capsules of sterilised gelatine. One which was exposed in a state-room on the main deck of the steamer developed five hundred points of infection in eighteen hours; one exposed in the cabin on the main deck developed only five or six points in ten days; a third, hung over the bow of the ship for ten days, remained uncontaminated.

MR. V. G. EATON, writing to the *Popular Science Monthly*, says that in most of the eastern cities of the Unites States fully 30 per cent. of the men over thirty years of age show unmistakable signs of baldness, while nearly 20 per cent. have spots on their heads that are not only bald, but polished with the gloss that is supposed to belong to extreme old age alone. He has been in most of the churches and theatres in all the large eastern cities, as well as in Chicago, St. Louis, and other places of the West, and has verified his assertion by actual count. He has found that bald-headed men are most plentiful in New York and Boston, and that after these cities come Philadelphia, Washington, and the western towns. The following are a few of his observations taken in Boston:—Trinity Church: 243 men; 71 actually bald, 46 indications of baldness. King's Chapel: 86 men; 38 actually bald, 14 indications of baldness. Hollis Street Theatre, orchestra at performance of the "Mikado": 63 men; 27 actually bald, 10 indications. Boston Theatre, Judic: 126 men; 51 actually bald, 43 indications.

THE additions to the Zoological Society's Gardens during the past week include two Polar Bears (*Ursus maritimus*), from the Polar Regions, presented by Mr. Joseph Monteith; two Brown-throated Conures (*Conurus æruginosus*), from South America, presented by Lieut. General Newton; a Ring Dove (*Columba palumbarius*), a Turtle Dove (*Turtur communis*), British, presented by Mr. C. L. Sutherland, F.Z.S.; a Secretary Vulture (*Serpentarius reptilivorus*), from South Africa, presented by Mr. J. Newbury; a White-tailed Buzzard (*Buteo albicaudatus*), from America, presented by Mr. John Lloyd; two Common Gulls (*Larus canus*), British, presented by Mr. J. A. Cotton; two —— Ducks (——) from the Falkland Isles, presented by Mr. F. E. Cobb, C.M.Z.S.; two Viscachas (*Lagostomus trichodactylus*), born in the Gardens.

OUR ASTRONOMICAL COLUMN

THE U.S. NAVAL OBSERVATORY.—We learn from *Science*, vol. ix. No. 217, that the new Naval Observatory, for which Congress appropriated 400,000 dollars several years ago, is to be built forthwith. Mr. R. M. Hunt, of New York, has been appointed architect of the building, and operations will shortly begin.

RESEARCHES ON THE SUN'S DIAMETER.—Prof. Di Legge, of the Campidoglio Observatory, Rome, has published in *Atti della R. Accademia dei Lincei*, ser. 4, vol. i., a discussion of the meridian transit observations of the sun's diameter taken at the Observatory during the years 1874–83. From May 1876 the observations were made by projecting the sun's image on a screen, so that two or more persons could observe simultaneously, and thus determine their "personal equations" from observations made under precisely similar circumstances. Altogether, 5796 transits were observed on 2213 days, giving an average of 221 days per annum. The mean resulting horizontal semi-diameters of the sun, collected in biennial groups, show a progressive diminution, which, taking into consideration Auwers' researches on the subject (NATURE, vol. xxxv. p. 496), are most probably due to change in the habits of the observers, as the table of mean annual personal equations given by Prof. Di Legge would also lead us to infer. The mean values of the horizontal semi-diameter at mean distance found from each observer's transits are respectively as follows:—Di Legge, 961″·329 ± 0″·011; Respighi, 960″·760 ± 0″·013; Giacomelli, 961″·307 ± 0″·012; and Prosperi, 961″·356 ± 0″·014; the combined mean value being 961″·188.

ASTRONOMICAL PHENOMENA FOR THE WEEK 1887 *APRIL* 24–30

(FOR the reckoning of time the civil day, commencing at Greenwich mean midnight, counting the hours on to 24, is here employed.)

At Greenwich on April 24

Sun rises, 4h. 48m.; souths, 11h. 58m. 5·6s.; sets, 19h. 8m.; decl. on meridian, 12° 51′ N.: Sidereal Time at Sunset, 9h. 18m.

Moon (at First Quarter on April 30) rises, 5h. 48m.; souths, 12h. 55m.; sets, 20h. 14m.; decl. on meridian, 12° 11′ N.

Planet	Rises h. m.	Souths h. m.	Sets h. m.	Decl. on meridian ° ′
Mercury ...	4 17 ...	10 23 ...	16 29 ...	0 20 N.
Venus ...	6 1 ...	14 13 ...	22 25 ...	22 50 N.
Mars ...	4 50 ...	11 59 ...	19 8 ...	12 37 N.
Jupiter...	18 34 ...	23 45 ...	4 56* ...	10 17 S.
Saturn...	8 54 ...	17 3 ...	1 12* ...	22 24 N.

* Indicates that the setting is that of the following morning.

Occultations of Stars by the Moon (visible at Greenwich)

April	Star	Mag.	Disap. h. m.	Reap. h. m.	Corresponding angles from vertex to right for inverted image ° °
25 ...	48 Tauri ...	... 6 ...	21 0 ...	21 36 ...	85 359
30 ...	3 Cancri ...	... 6 ...	0 13 ...	1 4 ...	119 293
30 ...	54 Cancri...	... 6½ ...	21 36 ...	22 27 ...	74 330

April	h.	
24 ...	23 ...	Mars in conjunction with the Sun.
26 ...	6 ...	Venus in conjunction with and 6° 19′ north of the Moon.
29 ...	7 ...	Saturn in conjunction with and 3° 6′ north of the Moon.

Variable Stars

Star	R.A. h. m.	Decl. ° ′		h. m.	
U Cephei	0 52·3	81 16 N.	Apr. 29,	4 0	*m*
S Canis Minoris ...	7 26·6	8 34 N.	,, 29,		*m*
S Cancri	8 37·5	19 26 N.	,, 28, 21	13	*m*
T Ursæ Majoris ...	12 31·3	60 7 N.	,, 27,		*m*
δ Libræ	14 54·9	8 4 S.	,, 27, 20	37	*m*
U Coronæ	15 13·6	32 4 N.	,, 24,	2 42	*m*
R Draconis	16 32·4	67 0 N.	,, 28,		*M*
U Ophiuchi... ...	17 10·8	1 20 N.	,, 24, 21	11	*m*
		and at intervals of		20 8	
S Delphini	20 37·9	16 41 N.	Apr. 24,		*M*
δ Cephei	22 25·0	57 50 N.	,, 30, 22	0	*M*
R Lacertæ	22 38·3	41 47 N.	,, 27,		*m*

M signifies maximum; *m* minimum.

Meteor-Showers

	R.A.	Decl.	
Near ζ Ursæ Majoris...	206° ...	57° N.	Bright, slow meteors.
,, β Libræ	228 ...	5 S.	
,, α Serpentis ...	235 ...	9 N.	Swift meteors.