The work of the wedge has thus been made homogeneous with that of the meridian photometer. The extensive use thus made of the wedge photometer seems to show that the instrument used at Harvard College is not capable of the great degree of precision which is claimed for that employed by Prof. Pritchard. To determine whether this difference is due to the form of the instrument, Prof. Pritchard has kindly undertaken to superintend the construction of a wedge photometer made upon his plan. The number of series of observations made during the year with the meridian photometer is 202; the number of separate settings somewhat exceeding 50,000. The accordance of the results continues satisfactory; the average deviation of the separate measures of the standard circumpolar stars being 0·12 of a magnitude. The entire series of stars to be observed with this instrument includes zones at intervals of 5° from the equator to the pole; the system adopted insuring a regular distribution of stars down to the ninth magnitude. An important investigation has also been undertaken in stellar photography. A Voigtlander portrait lens of 8 inches aperture and 44 inches focus has been mounted equatorially, and with this many photographs have been taken of the trails left by a star when the telescope is not driven by clockwork, polar stars as faint as the fourteenth magnitude and equatorial stars of the sixth magnitude having been thus photographed. Some most striking results have been obtained with stellar spectra. By placing a large prism in front of the lens, photographs have been obtained of stars as faint as the eighth magnitude, in which lines are shown with sufficient distinctness to be clearly seen in a paper positive. As all the stars in a large region are thus photographed, more than a hundred spectra have been obtained on a single plate.

ASTRONOMICAL PHENOMENA FOR THE WEEK 1886 *FEBRUARY* 21-27

(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 February 21

Sun rises, 7h. 4m.; souths, 12h. 13m. 48·0s.; sets, 17h. 24m.; decl. on meridian, 10° 28′ S.: Sidereal Time at Sunset, 3h. 30m.

Moon (at Last Quarter on Feb. 25) rises, 20h. 2m.*; souths, 2h. 17m.; sets, 8h. 19m.; decl. on meridian, 0° 22′ S.

Planet	Rises h. m.	Souths h. m.	Sets h. m.	Decl. on meridian ° ′
Mercury ...	7 13 ...	12 7 ...	17 1 ...	13 17 S.
Venus ...	6 1 ...	11 45 ...	17 29 ...	3 51 S.
Mars ...	18 48* ...	1 29 ...	8 10 ...	7 24 N.
Jupiter ...	20 13* ...	2 15 ...	8 17 ...	0 22 S.
Saturn ...	11 49 ...	20 0 ...	4 11* ...	22 44 N.

* Indicates that the rising is that of the preceding evening and the setting that of the following morning.

Variable-Stars

Star	R.A. h. m.	Decl. ° ′			h. m.	
U Cephei	0 52·2 ...	81 16	N. ...	Feb. 21,	21 38	*m*
				,, 26,	21 17	*m*
Algol	3 0·8 ...	40 31	N. ...	,, 23,	5 47	*m*
				,, 26,	2 35	*m*
λ Tauri	3 54·4 ...	12 10	N. ...	,, 22,	20 28	*m*
				,, 26,	19 20	*m*
ζ Geminorum ...	6 57·4 ...	20 44	N. ...	,, 27,	21 30	*m*
U Monocerotis ...	7 25·4 ...	9 32	S. ...	,, 25,		*m*
S Cancri	8 37·4 ...	19 27	N. ...	,, 26,	1 54	*m*
W Virginis	13 20·2 ...	2 47	S. ...	,, 25,	5 0	*M*
δ Libræ	14 54·9 ...	8 4	S. ...	,, 25,	23 2	*m*
U Coronæ	15 13·6 ...	32 4	N. ...	,, 26,	22 30	*m*
U Ophiuchi	17 10·8 ...	1 20	N. ...	,, 21,	3 55	*m*
		and at intervals of			20 8	
W Sagittarii ...	17 57·8 ...	29 35	S. ...	Feb. 24,	2 30	*m*
β Lyræ	18 45·9 ...	33 14	N. ...	,, 21,	2 30	m_2
				,, 24,	7 0	*M*
R Lyræ	18 51·9 ...	43 48	N. ...	,, 25,		*M*
δ Cephei	22 24·9 ...	57 50	N. ...	,, 24,	0 0	*m*

M signifies maximum; *m* minimum; m_2 secondary minimum.

Mira Ceti, R.A. 2h 13·6m., Decl. 3° 30′ S., should arrive at maximum about this time, but there seems a little uncertainty as to the precise date. It is possible that it has already passed the maximum. Its spectrum should be examined whilst it remains bright.

Occultations of Stars by the Moon (visible at Greenwich)

Feb.	Star	Mag.	Disap. h. m.	Reap. h. m.	Corresponding angles from vertex to right for inverted image ° °
21 ...	Uranus ...	... — ...	5 53 ...	6 34 ...	51 334
23 ...	κ Virginis...	... 4½ ...	1 3 ...	1 20 ...	325 298
25 ...	49 Libræ ...	... 5½ ...	2 13	near approach	313 —

Feb.	h.	
21 ...	2 ...	Jupiter in conjunction with and 0° 8′ south of the Moon.
24 ...	16 ...	Mercury in superior conjunction with the Sun.

GEOGRAPHICAL NOTES

LIEUT. WISSMANN, who was on his way back to Europe from his last great journey in the Congo district, stopped at Madeira for the benefit of his health, and has now returned to Africa for further explorations. Lieut. von François, who took part in Lieut. Wissmann's expedition on the Kassai River, has returned to Brussels. He reports that on June 16, 1884, he started with Wissmann from Malange to the Lulua River; thence Wissmann turned northwards and founded the station of Luluaburg, while Francois investigated the Mukenge district. As he wished to regain Wissmann he built five large boats, in which he reached Luluaburg on the Lulua. He also met Tchingenge, the chief of the Balubas tribe, and Mutenda, one of the first chiefs of the Camokas, who received him kindly. After consulting Wissmann he travelled to the Kassai, which they ascended; then, descending the Congo, they eventually reached Leopoldville, after fifty days' journey. Afterwards Francois accompanied the missionary, Mr. Grenfell, to the tributaries of the Upper Congo. They first ascended the Lulongo (on the right bank of the Congo), and then the Shuapa, which Stanley names the Uranki. The Shuapa retains its name for the whole length of its course, a circumstance which does not often occur in the Congo lands. It is a large river, navigable everywhere, with extremely fertile banks, which for objects of navigation even surpasses the Kassai. The inhabitants of Batua, on the middle Congo, are a real race of dwarfs. The men have an average height of 1·30 metres, the women of 1·10 metres; but they are well developed and very warlike. When the travellers ascended the river they were attacked by the inhabitants, while on the return journey they were very well received. They also discovered the Bussera, a tributary of the Shuapa. Further on they examined the mouth of the Mobangi, a large tributary of the Congo on its right bank. Grenfell is of opinion that the Mobangi and the Welle River, which has its sources in the Southern Soudan, are one and the same river; François, however, believes that the Mobangi is the continuation of the Nana River, situated further to the north. François states that the land of the Balubas is extremely fertile, no less than three harvests annually being the rule. When exploring the Kassai, François and Grenfell found that this river, instead of joining the Uranki (Shuapa), as Stanley supposed, flows into the Congo near Kwamouth. The Leopold Lake flows into the Kassai at a distance of about 1½° from the Congo. The Lulongo runs parallel to the Congo for a considerable distance on its northern side. The two travellers discovered numerous other smaller tributaries.

A RECENT number of *Cosmos* contains an article by M. de Morgan, who was employed by the Government of the Straits Settlements to prepare a map of the State of Perak in the Malay peninsula, on the Stone Age there. In the course of his work, the writer had to visit the range of mountains forming the watershed of the peninsula, and here came into contact with the Sakayes, Seumangs, Rayats, and other pre-Malay Negrito tribes, as nearly in their original state as they can now be found in these regions. He refers to other tribes living in recesses of the mountains, of whom he learnt from the Sakayes. The latter call them "fire apes"; their language is said to have nothing in common with Malay or Negrito dialects. M. de Morgan received here two polished stone axes, which were said to be made by the "fire apes." One was made of a fine-grained yellow porphyry, and was 224 mm. in length, 53 mm. in breadth, and 16 mm. thick; the other was of a green quartz schist, and