OUR ASTRONOMICAL COLUMN.

MELBOURNE OBSERVATORY.—The Annual Report of this Observatory, dated August 14, 1887, states that the buildings and equipment of the Observatory were in good condition with the exception of the mirrors of the great Cassegrain reflector, which had become so dull as materially to interfere with the observation of the fainter nebulæ. It was proposed to substitute mirror A, the less tarnished of the two, for mirror B, now in the telescope, and either to have B repolished on the spot or to send it to Dublin to be re-polished under the care of Sir H. Grubb. The new transit circle was in excellent order, and 2487 right ascensions and 1301 polar distances had been observed during the year. Eighty-seven southern nebulæ had been examined with the great reflector, and four searched for, but not found. The use of the photo-heliograph, which had been altered in July 1886, so as to take pictures on a scale of 8 inches to the solar diameter, had been much interfered with by bad weather, and only 121 photographs had been secured. The principal fresh work proposed for the Observatory was the co-operation in the photographic survey of the heavens; the Victorian Government having consented to the Observatory joining in that undertaking, and having placed £1000 on the estimates of the current year towards the necessary expenditure.

THE AMERICAN NAUTICAL ALMANAC OFFICE.—The Report of Prof. Newcomb, Superintendent of the Office, for the year ending 1887 June 30 has recently appeared. From this we learn that the printing of the several Nautical Almanacs published by the Office fell a little into arrear in 1887, the printing of the American Ephemeris for 1890, which should, according to custom, have appeared in June, not being quite ready in October. The computations for the following years were in their usual state of forwardness. The principal part of the Report deals with the new tables of the planets on which Prof. Newcomb and his assistants are engaged. The work is divided into four sections—viz.: (I.) The computation of the general perturbations of the planets, the work now in hand relating to those of the four inner planets; on twelve of the fourteen pairs of planets which come into play in this part of the undertaking, the work has already been completed. The incomplete perturbations are those of Venus and Mars by Jupiter. (II.) The re-reduction of the older observations, and discussion of the later ones, with a view of reducing them all to a uniform system. In this section Maskelyne's Greenwich observations from 1765 to 1811, and Bradley's, 1750 to 1762, have been already reduced, the latter by Dr. Auwers. Airy's Greenwich observations, the Paris observations from 1800 as reduced by Leverrier, and Bessel's Königsberg observations, will need no discussion except that necessary to reduce them to the adopted standard system. The re-reduction of Piazzi's Palermo observations, 1791–1813, is in hand, but it is not yet decided as to whether Taylor's Madras observations should be included. (III.) The computation of tabular places of the planets from Leverrier's tables up to the year 1864—the most laborious and difficult part of the work—is in a fairly advanced state. (IV.) The final discussion of the results. Prof. Newcomb estimates that the equations of condition for correcting the elements of the four inner planets will be ready for solution towards the end of 1889, but they will involve extended discussion and comparison in order to get the results in the final form for publication. Of the work on the four outer planets, Uranus and Neptune are yet untouched; but Mr. Hill's new theory of Jupiter and Saturn is in the hands of the printer, and Mr. Hill is now engaged in the construction of the tables and ephemerides for finally correcting their elements. In connection with the lunar theory, the principal work on hand is the comparison of Hansen's tables with observed occultations since 1750. Another branch of the planetary work is the determination of the mass of Jupiter from the motions of Polyhymnia: the perturbations of the planet have been computed from its discovery in 1850 to October 1888, and the work awaits the observations during the approaching opposition to be brought to a final discussion.

ASTRONOMICAL PHENOMENA FOR THE WEEK 1888 *FEBRUARY* 19–25.

(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 19

Sun rises, 7h. 9m.; souths, 12h. 14m. 6·2s.; sets, 17h. 19m.: right asc. on meridian, 22h. 9·7m.; decl. 11° 22′ S. Sidereal Time at Sunset, 3h. 15m.

Moon (at First Quarter February 20, 2h.) rises, 10h. 25m.; souths, 17h. 46m.; sets, 1h. 18m.*: right asc. on meridian, 3h. 42·8m.; decl. 14° 34′ N.

Planet.	Rises.	Souths.	Sets.	Right asc. and declination on meridian.
	h. m.	h. m.	h. m.	h. m. ° ′
Mercury..	7 29 ...	13 17 ...	19 5 ...	23 13·3 ... 3 7 S.
Venus.....	5 39 ...	9 49 ...	13 59 ...	19 44·5 ... 20 46 S.
Mars.....	22 38*...	3 57 ...	9 16 ...	13 51·7 ... 8 43 S.
Jupiter....	2 3 ...	6 17 ...	10 31 ...	16 12·1 ... 20 12 S.
Saturn....	14 20 ...	22 16 ...	6 12*...	8 13·4 ... 20 29 N.
Uranus...	21 36*...	3 9 ...	8 42 ...	13 3·3 ... 6 0 S.
Neptune..	10 5 ...	17 45 ..	1 25*...	3 41·7 ... 17 56 N.

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

Occultations of Stars by the Moon (visible at Greenwich).

Feb.	Star.	Mag.	Disap.	Reap.	Corresponding angles from vertex to right for inverted image.
			h. m.	h. m.	° °
20 ...	Aldebaran	... 1 ...	15 56	near approach	346 —
21 ...	119 Tauri...	... 5½ ...	19 10	near approach	7 —
24 ...	*d'* Cancri ...	... 6 ...	21 30 ...	22 28 ...	112 226

Feb.	h.	
23 ...	1 ...	Mercury stationary.
24 ...	20 ...	Saturn in conjunction with and 1° 22′ north of the Moon.

Variable Stars.

Star.	R.A. h. m.	Decl. ° ′			h. m.	
U Cephei	0 52·4 ...	81 16 N. ...	Feb. 19,	19	38	*m*
			,, 24,	19	17	*m*
R Arietis	2 9·8 ...	24 32 N. ...	,, 22,			*M*
R Tauri	4 22·2 ...	9 55 N. ...	,, 21,			*M*
R Leporis	4 54·5 ...	14 59 S. ...	,, 23,			*M*
R Canis Majoris...	7 14·5 ...	16 12 S. ...	,, 21,	20	26	*m*
			,, 22,	23	42	*m*
δ Libræ	14 55·0 ...	8 4 S. ...	,, 22,	1	58	*m*
U Coronæ	15 13·6 ...	32 3 N. ...	,, 21,	21	51	*m*
U Ophiuchi	17 10·9 ...	1 20 N. ...	,, 19,	3	2	*m*
		and at intervals of		20	8	
X Sagittarii	17 40·5 ..	27 47 S. ...	Feb. 19,	2	0	*M*
W Sagittarii ...	17 57·9 ...	29 35 S. ...	,, 19,	4	0	*M*
Z Sagittarii... ...	18 14·8 ...	18 55 S. ...	,, 25,	1	0	*M*
β Lyræ...	18 46·0 ...	33 14 N. ...	,, 24,	0	0	*M*
S Sagittarii	19 12·9 ...	19 14 S. ...	,, 24,			*M*
δ Cephei	22 25·0 ...	57 51 N. ...	,, 20,	2	0	*M*
			,, 23,	20	0	*m*

M signifies maximum; *m* minimum.

Meteor-Showers.

	R.A. °	Decl. °	
Near β Trianguli... ...	30 ...	35 N. ...	February 24.
From Canes Venatici ...	181 ...	34 N. ...	February 20.
Near δ Serpentis	234 ...	11 N. ...	Swift; streaks.
,, π Herculis	262 ...	36 N. ..	Feb. 20. Swift.

GEOGRAPHICAL NOTES.

AT Monday's meeting of the Royal Geographical Society, the paper read was by Mr. Randle F. Holme, on Labrador, which he visited in July–October of last year. Mr. Holme succeeded in penetrating into the heart of Southern Labrador, as far as Lake Waminikapou, and not far from the Grand Falls, which Mr. Holme believes will turn out to be the greatest falls in the world; but, as General Strachey pointed out in the discussion, Mr. Holme's conception of the height is probably exaggerated. Mr. Holme went from Newfoundland to Bonne Espérance on the south-east coast of Labrador, and sailing northwards touched at several points, proceeding up Hamilton Inlet and the Grand River, to the point mentioned above. Mr. Holme found many difficulties in the way, and much of the country he visited was virtually unexplored. With regard to the height of the Grand Falls, Mr. Holme states that the centre of Labrador, as is generally known, is a vast tableland, the limits of which are clearly defined, though