anguinus) from the Caves of Adelsburg, presented respectively by Prof. W. H. Corfield, F.Z.S. and Dr. E. Rickards; a Spotted Salamander (Salamandra maculosa), European, presented by Mr. Alban Doran; a Gorilla (Anthropopithecus gorilla 8), three Pluto Monkeys (Cercopithecus pluto), an Erxleben's Monkey (Cercopithecus erxlebeni ?) from West Africa, deposited; two Coypus (Myopotamus coypus), born in the Gardens.

# OUR ASTRONOMICAL COLUMN.

NEW MINOR PLANET .-- A new minor planet, No. 270, was discovered by Dr. Peters on October 13.

OLBERS'S COMET.—The following corrected elements and ephemeris for this object are by Herr O. Tetens (Astr. Nachr. No. 2806) :-

> $\begin{array}{c} -149 & 48 & 7 \\ 8 &= 84 & 27 & 40 \\ i &= 44 & 32 & 53 \\ \phi &= 68 & 35 & 36 \\ \log q &= 0.078899 \end{array}$  Mean Eq. 1887 0 T = 1887 October 8.4938 Berlin M.T.  $\begin{array}{l} x = [9.854835] \ r \sin \left( v + 237 \right)^{\circ} \ 35' \\ y = [9.972351] \ r \sin \left( v + 168 \right)^{\circ} \\ z = [9.891623] \ r \sin \left( v + 95 \right)^{\circ} 54 \end{array}$ **3**5 **3**1) 22)

> > Ephemeris for Berlin Midnight.

3)

			-			5				0		
			I	λ.A.			D	ecl.		log r.	log ∆.	
1887		h.	m.	s.		~	,					
Oct.	22		13	6	38	· • •	2Ĭ	47.3	N.	0.0826	0'2795	
	24	•••	13	15	8	•••	20	43'7				
	26		13	23	28	•••	19	59'3		0.0808	0'2831	
	28	•••	13	31	39	• • •	19	14.2				
	30		13	39	39	•••	18	29'4	•••	0.0920	0.2875	
Nov.	I	• • •	13	47	30	•••	17	44'I				
	3		13	55	10		16	58.8	•••	0.1010	0'2924	
	5		14	2	4 I	• • •	16	13.2				
	7	•••	14	10	2	• • •	15	28.3	•••	0.1022	0*2979	
	9		14	17	13	• • •	14	43'5				
	II	•••	14	24	15	•••	13	59'0	N.	0'1152	0.3037	

The brightness on October 26 will be 1'48, and on November 11, 1.20; that on August 27 being taken as unity.

SOUTHERN DOUBLE STARS.—A welcome addition to the still somewhat scanty supply of observations of southern double stars is contained in the Monthly Notices for June 1887, which furnishes a series of measures of stars in relative motion recently made at the Sydney Observatory, special attention having been paid to the binaries  $\alpha$  Centauri and  $\gamma$  Coronæ Australis. The mean of eighteen measures of position-angle and distance of the components of a Centauri gives for the epoch 1886'47 : angle =  $202^{\circ}$ '3, distance = 15'''10; whilst the mean of four measures of difference of R.A. and of declination of the components gives for  $1886^{\circ}55$ : angle = 201° o, distance = 14".87. Referring to Monthly Notices, vol. xlvi. p. 340, we find that for the former epoch the computed places are as follows :-

Downing-Elkin orbit-angle =  $202^{\circ}6$ , distance =  $15^{\circ}11$ . Powell orbit-angle = 201.8, distance = 15.26.

These orbits give for the periodic time of  $\alpha$  Centauri the values 76 years and 87 years respectively; it appears, however, that several more years' observation will be necessary to decide which of these is the more accurate. Of  $\gamma$  Coronæ Australis eight measures were made at Sydney in 1886. The most satisfactory orbit of this binary hitherto published is that computed by Mr. Gore (*Monthly Notices*, vol. xlvi. p. 104), and the errors of the computed quantities as compared with the observations which have been published since the computations were made are :--

repoeu.	Ob:	served ang	gie.	E	ror.	Obse	rved dis	tance.	Ę,	rror.
1881.72 1883.62 1886.615	••••	225.5 217.8 200.6	•••	+ -	1.8 1.3 4.6	 	í ·38 1 ·62 1 ·45	••••	-	0.02 0.33 0.33
-					•					

Eman Observal distance

Freeh

Observed engle

The first two of these observations were made at Cincinnati, and published in the Observatory, vol. ix. p. 234, the last at

Sydney. Mr. Gore's orbit gives 1886'53 as the time of periastron passage; it is very desirable, therefore, that this pair should be repeatedly measured during the next few years in order that the small corrections to the elements which appear to be required may be accurately determined.

### ASTRONOMICAL PHENOMENA FOR THE WEEK 1887 OCTOBER 23-29.

(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 October 23

Sun rises, 6h. 39m. ; souths, 11h. 44m. 26 2s. ; sets, 16h. 50m. ; decl. on meridian, 11° 24' S. : Sidereal Time at Sunset, 18h. 57m.

Moon (at First Quarter October 23, 18h.) rises, 13h. 37m.; souths, 18h. 1m.; sets, 22h. 28m.; decl. on meridian, 18° 47' S.

Planet.		R	ises.		Sou	ths.		Se	ets.	Dec	l. on	meridian	۱.
Mercury		- 9	7	•••	13	14		17	21	•••	21	14 5.	
Venus	•••	3	15	•••	9	21		15	27	•••	0	30 N.	
Mars		I	25	•••	8	25	•••	15	25	•••	10	57 N.	
upiter		7	50		12	36		17	22	•••	14	49 S.	
Saturn		22	40*		6	28		14	16		19	6 N.	

\* Indicates that the rising is that of the preceding evening.

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

Oct.	Star.	Mag.	Disap.	Reap.	Corresponding angles from ver- tex to right for inverted image.
23 σ ( 24 θ ( 26 70 28 B. 29 26 29 29	Capricorni Capricorni Aquarli A.C. 81 Ceti Ceti + Oo	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	h. m. 20 18 16 32 19 50 23 32 19 22 22 40 following mod	h. m. 21 29 17 52 21 7 0 21† 20 37 23 57 orning.	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
Oct. 27 28 ·	h. 3 Me Ve	ercury at g 24° east. enus at per	greatest elo iod ofgreat	ngation f	from the Sun, hing brilliancy.
		Varia	ble Stars.		
Star.		R.A.	Decl.		,
U Cephe	i	h. m. 0 52'3	81 16 N.	Oct.	23, 351 m
Algol		3 0.8	40 31 N.	,, … ,,	28, 3 30 m 24, 2 32 m
<b>(</b> Gemino	rum	6 57.4	20 44 N.	,, ,,	25, 0 0 M
S Ursæ M	Azioris	0 3/ 5 ···	61 13 N.	•••• ,,	25, 210 m
U Corona	e 1	15 13.6	32 4 N.	,,	24, I 58 m
T Ophiuc	hi 1	6 27 3	15 53 S.	,,	25, M
U. Ophiu	chi	17 10.8	. 1 20 N.	··· ·›,	23, 0 51 m
			and at	interval	soi 20 ð
η Aquilæ	1	19 46 7	0 43 N.	Oct.	24, 20 0 <i>m</i>
S Aquilæ	• 2		15 17 N.	••• ••	23, m
o Cepnei	••• ••• 2	22 25 0	. 57 50 IN.	··· ,,	25, 1 0 <i>m</i>
	M si	gnifies maxi	imum ; <i>m</i> mi	nimum.	

### Meteor-Showers.

	R.A.	Decl.	
Near & Tauri	··· 78 ··	30 N	Swift.
From Canis Minor	··· 105 ··	12 N	Swift ; streaks.
,, Cancer	··· 135 ··	20 N	Very swift.

# GEOGRAPHICAL NOTES.

MM. BONVALOT, CAPUS, AND PEPIN, who have just returned to France from an extensive journey in Central Asia, are credited with having been the first to cross the Pamir. They may certainly have been the first to take the particular north to south route traversed by them, but the Pamir has been crossed