

(*Chelydra serpentina*) from North America, a Leopard Tortoise (*Testudo pardalis*) from South America, two Argentine Tortoises (*Testudo argentina*) from the Argentine Republic, deposited; a Gold Pheasant (*Thaumalea picta*, ♂) from China, two Little Bitterns (*Ardetta minuta*), European, purchased; a Burrhel Wild Sheep (*Ovis burrhel*), born in the Gardens.

OUR ASTRONOMICAL COLUMN

COMET BORRELLY-BROOKS (1900 b).—The following elements and ephemeris are furnished by Herr J. Möller in the *Astronomische Nachrichten* (Bd. 153, No. 3654).

Elements.

T = 1900 Aug. 3^h 29^m 8^s Berlin Mean Time.

$\omega = 12^{\circ} 30' 2''$
 $\Omega = 328^{\circ} 1' 8''$
 $i = 62^{\circ} 35' 6''$
 $\log q = 0.00636$

Ephemeris for 12h. Berlin Mean Time.

1900.	R.A.			Decl.			Br.
	h.	m.	s.				
Aug. 16 ...	3	50	8	...	+75	55.7	... 0.63
17 ...	4	0	12	...	77	36.3	... 60
18 ...	4	12	37	...	79	10.3	... 56
19 ...	4	28	4	...	80	37.7	... 53
20 ...	4	47	52	...	81	57.7	... 50
21 ...	5	13	26	...	83	9.5	... 48
22 ...	5	47	9	...	84	11.4	... 45
23 ...	6	31	8	...	85	0.8	... 42
24 ...	7	26	5	...	85	34.6	... 40
25 ...	8	28	54	...	+85	49.3	... 0.38

EPEHEMERIS FOR OBSERVATIONS OF EROS.—The following is a continuation of co-ordinates computed by Herr F. Ristenpart (*Astronomische Nachrichten*, Bd. 152, No. 3643).

Ephemeris for 12h. Berlin Mean Time.

1900.	R.A.			Decl.		
	h.	m.	s.			
Aug. 16 ...	2	0	29.40	...	+27	56 22.5
18 ...	3	19	51	...	28	38 11.6
20 ...	6	6	71	...	29	20 17.4
22 ...	8	50	73	...	30	2 40.0
24 ...	11	31	33	...	30	45 19.5
26 ...	14	8	25	...	31	28 16.1
28 ...	16	41	22	...	32	11 29.5
30 ...	2	19	10.01	...	32	54 59.5

THE ASTROGRAPHIC CHART CONFERENCE.—The fourth meeting of the International Committee for directing the photographic delineation of the sky has recently been held in Paris, commencing July 19. The first matter taken in hand was the appointment of a sub-committee of nine astronomers to draw up a scheme for the systematic observation of Eros during the coming opposition, for determinations of solar parallax. The reports from the co-operating observatories show that in fifteen of them the work is being vigorously pushed forward; unfortunately, in the remaining three, Rio de Janeiro, La Plata and Santiago (Chili), the work has entirely fallen through.

Dr. Thome, of the Cordoba Observatory, has been enabled, by the generosity of the Argentine Government, to volunteer for the work assigned to La Plata (−24° to −31°), and M. Enrique Legrand stated that he had induced his Government to found an observatory near Monte Video (Uruguay) to carry out the zone (−17° to −23°) allotted to Santiago. It was also suggested that the new observatory at Perth, West Australia, might possibly carry out the work on the remaining zone (−32° to −40°).

Another important item of the discussion was the advisability of publishing the rectangular co-ordinates of the stars as measured, with, of course, the constants of each plate, or delaying the work until these could be transferred to equatorial co-ordinates. It was considered that in the near future the absolute positions of the comparison stars would be much more accurately known than at present. The only drawback to this scheme is that Dr. Scheiner, of Potsdam, has already started the publication of the catalogue giving R.A. and Decl. of the stars.

In connection with the assignation of photographic magnitudes, it appeared to be generally believed that the estimation of diameters by means of a scale is a surer plan than measurement with a micrometer for this particular branch of work, but no definite ruling was given on this point.

The original plan agreed to in 1896 for taking the chart plates with three exposures of 30m. each has not been followed at all the observatories, and it was resolved at this meeting that in future the method of taking the chart plates shall be decided by the individual directors. In the reproduction of these chart plates, it is unlikely that uniformity will be secured; the French observatories have made enlarged copies by heliogravure, but as each observatory would have to expend some 10,000*l.* to do this, the actual method of reproduction is left unsettled.

DETERMINATION OF SOLAR PARALLAX.—A circular has been issued by the special committee appointed by the International Astrophotographic Conference held recently at Paris containing the resolutions passed for systematising the work to be done at all the world's observatories during the coming autumn and winter, when it is hoped, by means of observations of the minor planet Eros, to determine the parallax and distance of the sun with a degree of accuracy previously unattainable. The following is a summary of the suggestions adopted:—

(1) That the determination of parallax of Eros be made by micrometric, heliometric and photometric measurements. (a) By observations of the planet east and west of the meridian at the same observatory. (b) By the co-operation of the observatories of Europe and North America. (c) By the co-operation of the observatories of the northern and southern hemispheres.

(2) During the period of parallax observations the diurnal movement of Eros should be determined as accurately as possible by heliometer, micrometer and photography.

(3) (a) Observers determining the parallax in right ascension should make measures each night and morning, profiting by all favourable circumstances to operate with as large hour angles as possible. (b) Observers finding parallax by difference of declination in northern and southern hemispheres, should arrange that the mean instants of observation do not vary much from the meridian passage of the planet at the southern station.

(4) It is necessary that special series of photographs be taken of the region traversed by Eros, in order to furnish accurate determinations of the positions of comparison stars.

As the varying atmospheric conditions will play an exceedingly important part in the observations, particularly those away from the meridian, MM. André and Prosper Henry have been asked to prepare suggestions for eliminating these difficulties.

At the time of writing, the following observatories have signified their intention of helping with the scheme:—Algiers, Athens, Bamberg, Bordeaux, Cambridge (England), Cambridge (U.S.), Cape of Good Hope, Catania, Cordoba, Chicago (Yerkes), Edinburgh, Greenwich, Heidelberg, Leyden, Leipzig, Lyons, Marseilles, Minneapolis (U.S.), Mount Hamilton (Lick), Nice, Potsdam, Rome, San Fernando, Strassburg, Tacuboya, Toulouse, Upsala, Vienna (Ottahring), Vienna (Währing), Washington.

THE DISTANCE TO WHICH THE FIRING OF HEAVY GUNS IS HEARD.

IN a discussion which took place in NATURE some time ago on the so-called "Barrisál Guns" and other mysterious sounds, Prof. Hughes suggested that it would be desirable to ascertain how far the firing of guns can be heard (vol. liii. p. 31). In connection with another subject, that of spurious earthquakes (see NATURE, vol. lx. pp. 139-141), I have for some time been collecting notes on this point, and I propose here to describe some of the facts obtained, chiefly with regard to the great naval review at Spithead on June 26, 1897, and the operations of the French fleet at Cherbourg on July 18, 1900.

I will mention first a few cases referring to more or less isolated observations of the reports of distant guns. The firing during the battle of Camperdown on October 11, 1797, is said to have been heard in Hull, the distance between the two places being more than 200 miles. A gentleman, formerly resident at Kertch in the Crimea, informs me that he has heard the sound of the guns fired at Sebastopol, distant 158 miles. During the American Civil War, the roar of the guns at the battles of Malvern Hill and Manassas (or Bull Run) was perceptible at