over-manned, as it consists but of sixteen persons, including officers, *savants*, two engineers, and three stokers. It is possible that by this time Nordenskjöld may have broken out of the ice and be on his way home by the Suez Canal. The letters received from him, referred to last week, are, Mr. Oscar Dickson informs us, dated February 8.

LETTERS from Prejevalsky, dated from Zaisan, March 20, inform us that the deep snows which cover the steppes had detained him there much longer than he had calculated. He was, however, to leave on March 21, and expected to reach Khami at the end of May, by way of the River Urunga and the southern spurs of the Altaï; unless prevented by excessive heat and want of water, he was to pursue his journey to the town of Shachjeou. Then he would attempt to ascend the two plateaux of Tibet; after ascending the second plateau he would have I,000 versts of desert to make before reaching Lassa, from which he hopes to visit South-east Tibet.

A COMPLETE history of all North Polar Expeditions from the remotest ages down to the present day is about to be published by Cotta of Stuttgart. The title will be "Im ewigen Eis," the author is the popular writer, Herr Friedrich von Hellwald. Numerous illustrations, maps, and plans will enhance the value of the work, which will appear in thirty parts. The well-known explorer, Julius Payer, one of the commanders of the Austrian Polar Expedition in 1874, has accepted the dedication of the work.

FROM the *Colonies and India* we learn that a private telegram from Aden conveys intelligence of the arrival there on the 15th inst. of the British India Steam Navigation Company's steamer *Chinsura*, from Bombay, *en route* for Zanzibar, having on board four Indian elephants, the property of the King of the Belgians. These elephants will be employed for the purpose of ascertaining whether such animals can be made a means of transport in Africa.

THE Inter-Oceanic Canal Congress has been diligently carrying on its work in Paris for the last fortnight. It was divided into several sections, each to consider a special department of the subject. On Monday the Technical Section of the Congress met to hear reports from its two sub-committees, the second of which admitted the possibility of constructing a canal with locks by way of Nicaragua, while for a level canal it considered the course proposed by Lieutenants Wyse and Reclus to be the best, subject, however, to certain modifications. The first sub-committee presented estimates of the probable cost of the various routes.

## OUR ASTRONOMICAL COLUMN

THE TOTAL SOLAR ECLIPSE OF MAY 22, 1724.—In the *Illustrated London News* of Saturday last are some quaint extracts from the newspapers of the time, relating to this eclipse, the last that was total in England. It may not be without interest to examine the general circumstances of this phenomenon, which we are now enabled to do with much precision, by taking advantage of the data furnished in Prof. Newcomb's recently published "Researches on the Motion of the Moon." The elements are as follow:—

G.M.T. of Conjunction in R.A., 1724, May 22, at 5h. 26m. 33s.

Right A	Ascension					59	32	12.8	
Moon's	hourly mo	tion in R	.A.			57	38	21'1	
Sun's		,,					2	30.4	
moon's	declination	1				21	5	7'4 IN.	
Sun's	**					20	31	28'9 N.	
Moon's			IO	53'3 N.					
Sun's	, ,,,,	,,	,,		•••		0	29'0 N.	
Moon's	horizontal		•••			60	44'5		
Suns	**	39						8.2	
Moon's	true semi-o	liameter			•••		16	33'1	
oun's	"	"	•••	•••			15	47.4	

The sidereal time at Greenwich mean noon on May 22 was 4h. 1m. 3 6s., and the equation of time at conjunction in R.A. was 3m. 49 1s. additive to mean time.

Hence it appears that the central eclipse began at 3h. 41'6m. in long.  $151^{\circ}$  39' W., lat. 13° 55' N.; it occurred with the sun on the meridian in long.  $82^{\circ}$  36' W., lat. 54° 30' N., and ended in long.  $11^{\circ}$  57' E., lat. 45° 28' N., or the sun set centrally eclipsed near Padua.

It was therefore late in the afternoon with the sun at small altitude that the eclipse was witnessed in these islands, and the following figures must very nearly define the course actually pursued by the moon's shadow :---

ONGITUDE	N, Limit	<b>.</b>	LAT Centr		S. Limit.		
4° W.	 5°2 37		51	29.9		50 24	
2° W.	 51 57		50	49'5		49 43	
O°	 51 15		50	7.6	•••	49 I	
2° E.	 50 32		49	24'4		48 18	

The popular interest excited in this eclipse we may infer was mainly due to the publication of a chart of its track by Halley, then Astronomer-Royal. A copy of this chart is preserved at the apartments of the Royal Astronomical Society; it is entitled "A Description of the Passage of the Shadow of the Moon over Europe, as it may be expected May 11, 1724, in the Evening, by Edm. Halley, Ast. Reg." It was "Engraved and Sold by John Senex at the Globe against St. Dunstan's Church in Fleetstreet, Price 1s." Halley concludes some footnotes as follows :---"At London we compute ye Beginning at 5h. 40m. P.M., ye Middle, when it will be nearly Total at 6.37, and ye End 7.29. We wish our Astronomical Friends a clear Sky."

It will be borne in mind that the old style was still in use in this country in 1724, and the eclipse was thus dated May 11. Halley's predicted track is in very close accordance with that we have obtained above. His chart shows the central eclipse passing just south of Wexford, north of Bridgwater, over the Isle of Wight and south of Dieppe to near Venice; his northern limit of total phase passes just south of Dublin, over Leominster and Oxford, and Brentford near London, by Cambray and just north of Strasburg; the southern limit passes a little south of Kinsale, Padstow, Chartres, &c.

Kinsale, Padstow, Chartres, &c. Dr. Stukeley observed the eclipse from Haradon Hill, near Amesbury, Wilts, and the account of it which he published in his *Itinerarium Curiosum* has been frequently transferred to our popular works. Assuming his position to have been in about 1° 47' west of Greenwich, with a latitude of 51° 11', we find by the above elements that totality would commence at 6h. 26m. os. local mean time, and continue 2m. 34s., the sun being at an altitude of 12°. The eclipse was central at or close to Ventnor, and was total there for 2m. 47s.; the newspaper of the time says, more than  $1\frac{1}{2}$  minute. Observations were made by Delisle and others at the Observatory of Paris, and by Maraldi and Cassini, at the Trianon, Versailles, "en presence du Roy." The calculated duration of totality at Paris is 2m. 23s., the middle at 6h. 49m. 41s. apparent time; Gaudin observed the duration 2m. 22s., and the middle at 6h. 50m. 2s.; other observers made the duration twenty seconds longer, which is certainly an error; at the Trianon it was observed to be 2m. 16s., a little less than the calculation makes it. The original observations of the French astronomers are given at p. 129 of Prof. Newcomb's work.

The next total eclipse of the sun visible in England will take place early on the morning of June 29, 1927, but totality will only continue some ten seconds.

## THE MIGRATION OF BIRDS

IN a reply of Dr. Weismann's to some remarks by Prof. A. Newton in his paper on the migration of birds (NATURE, vol. xix. p. 579), a statement of mine is