

heat at noon. Nevertheless, the scientific labours of the expedition had great success, the country being explored in all directions, and the gallant Colonel only hopes to attain as fruitful results in Thibet. He intended advancing to Barkul and Chami, as the shortest way through the southern Altai range.

FROM the Annual Report upon the Survey of the Northern and North-Western Lakes and the Mississippi River, in charge of Major C. B. Comstock and Capt. H. M. Adams, we learn that on Lake Erie the triangulation has been carried from Cleveland, Ohio, to the west end of the lake. The topography and hydrography have been extended to include all of the American shore, and the Canadian shore from Detroit River to Point Pelée. A base-line has been measured near Chicago and the connecting triangulation east has been completed to White Pigeon, Mich. The latitude and longitude of Memphis, Tenn., have been determined, and in connection with Capt. W. S. Stanton, United States Engineers, the longitudes of Fort Laramie, Wyo., Camp Robinson, Neb., and Deadwood, Dak., have been determined. The survey of the Mississippi River has been carried from Mound City, above Memphis, to Scanlon's Landing, Ark., and a line of precise levels has been completed from Memphis, Tenn., to Austin, Miss. A chart of Lake Ontario, coast charts Nos. 1 and 2 Lake Ontario, coast charts Nos. 7, 8, and 9 Lake Michigan, and detail charts Nos. 1, 2, 3, 4, 5, 6, and 7 Mississippi River have been completed.

IN his last report from Saigon, Mr. Consul Tremlett states that the water communication between Saigon, Cholon, and the western provinces of French Cochinchina being very circuitous and inadequate to the traffic, the Canal of Cho-goo has been cut from Cho-goo to Soug-tra, being six miles in length and 110 feet broad. This canal is of immense importance to the country between the River Donnai and the Mei-Kong. Another short canal is to be cut near the junction of the Viaco and Soir-ap, two arms of the Donnai. Mr. Tremlett also mentions that a canal which did not attract much attention was opened in 1876, connecting the lower and upper branches of the Mei-Kong; it is  $3\frac{1}{2}$  miles long, and opens a more direct course from the south-western parts of the colony to Cholon, the great centre of traffic.

ERNEST MARNO, the well-known Austrian traveller in Africa, who originally formed one of the staff of the Belgian expedition under the late Capt. Crespel, has recently been appointed deputy governor of the province of Galabat in the Soudan. M. Statin, another Austrian traveller, has gone to the region of the Upper Nile, the special object of his journey being meteorological investigations.

MESSRS. S. T. LEIGH AND CO., of Sydney, have issued a map which will be very useful to persons visiting Australia during the approaching exhibition. It shows the Great Western Railway of New South Wales crossing the Blue Mountains, from the Nepean River to Bowenfels, also the localities and natural features of greatest general interest. The map has been compiled on the scale of one geographical mile to an inch by Mr. E. Du Faur, and is intended to accompany some fine photographs of the same region which Mr. Du Faur published about two years back. The more remarkable gorges and cliffs among the mountains are illustrated by dark shading.

NO. 1 of the new volume (36) of *Globus* has the first of a series of articles on the Island of Chios, by Dr. Ad. Testevuide, of that island. There are two papers of considerable ethnological interest: one by M. Andrée on the ethnological boundaries in France, and the other by Dr. Jung, mentioned in next note, on Australian types and sketches. Among the news are some details concerning Severtzov's second journey in the Pamir.

"AUSTRALIEN UND NEUSEELAND" is the title of an historical, geographical, and statistical sketch by Dr. Carl E. Jung, which has just been published at Leipzig (O. Mutze), with ten illustrations.

#### LAST YEAR'S SOLAR ECLIPSE<sup>1</sup>

WE have received an interesting account of the observations made during the late eclipse in Texas, under the direction of Mr. Waldo. The first part of the Report is chiefly taken up with an account of the determination of the geographical position of Fort Worth. The second part contains the reports of the various observers. Mr. Waldo gives a description of the photographs obtained. Unfortunately the camera had no proper clockwork. An ingenious, though most likely shaky, arrangement was used to correct the sun's motion in altitude, while his motion in azimuth was left to take care of itself. Each point more luminous than the remainder of the sun's corona is therefore drawn out into a line; but this outline of the moon's edge at the beginning and end of totality is sufficient to determine the position of these brighter points. An attempt was made to obtain photographic evidence of the polarisation of the corona, by inserting a double image prism between the lenses of the camera. The result was doubtful. The photographs were examined by Prof. Pickering, who found inequalities in them, which, as far as they go, tend to indicate a tangential polarisation; but in the opinion of Dr. Hastings, the evidence is not conclusive.

Mr. R. W. Willson observed the corona through a 3-inch telescope. By an oversight a red shade was not removed before totality. Through this shade the corona seemed to have a pretty well-defined limit about four or five minutes from the moon's limb. After the shade had been removed, other portions of the corona could be seen, the light of which was nearly as intense as that near the sun's limb; while the ring, which alone was visible through the shade, was not distinguished from the other parts of the corona. These observations would indicate that there is more red light in the corona near the body of the sun than away from it; and this observation is confirmed by Prof. S. H. Lockett, who, in a letter to Mr. Waldo, calls the outer corona "more bluish-white" than the inner corona.

Prof. J. H. Rees made some spectroscopic observations with a two-prism spectroscope. No bright lines were seen; but on widening the slit dark lines were noticed, amongst them especially C and D.

Mr. W. H. Pulsifer made also some spectroscopic observations. He noticed the reversal of the Fraunhofer lines with a tangential slit, and from the length of these lines he determined approximately the thickness of the reversing layer to be about 524 miles. No observations could be made during totality, as the image of the corona on the slit was lost, and could not be found again. The mischief was caused originally by one of the lamps, which went out just before totality. Moral: Don't trust to any lamps during eclipse observations. There is always a gust of wind at the beginning of totality, which is pretty sure to extinguish lamps.

Mr. Seagrave could see the inner corona about thirty seconds before totality.

Several gentlemen have sent in sketches of the corona, which are given on the last of the four plates accompanying the report. The remaining plates are taken up by an enlarged copy of the best photograph obtained, by a sketch illustrating Mr. Willson's report, and by a sketch of the corona made by Prof. Lockett.

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<sup>1</sup> Report of the Observations of the Total Solar Eclipse, July 29, 1878, made at Fort Worth, Texas. Edited by L. Waldo. (Cambridge: J. Wilson and Son, 1879.)