

ASTRONOMICAL PHENOMENA FOR THE WEEK, 1885, OCTOBER 25-31

(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 25

Sun rises, 6h. 44m.; souths, 11h. 44m. 7' 5s.; sets, 16h. 45m.; decl. on meridian, 12° 16' S.: Sidereal Time at Sunset, 19h. 2m.

Moon (two days after Full) rises, 17h. 32m.\*; souths, 0h. 46m.; sets, 8h. 11m.; decl. on meridian, 12° 52' N.

Planet	Rises h. m.	Souths h. m.	Sets h. m.	Decl. on meridian
Mercury ...	7 18 ...	12 7 ...	16 56 ...	14 22 S.
Venus ...	10 56 ...	14 38 ...	18 20 ...	24 54 S.
Mars ...	0 1 ...	7 26 ...	14 51 ...	15 30 N.
Jupiter ...	3 15 ...	9 32 ...	15 49 ...	2 33 N.
Saturn ...	20 13* ...	4 21 ...	12 29 ...	22 17 N.

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

Occultations of Stars by the Moon

Oct.	Star	Mag.	Disap.	Reap.	Corresponding angles from vertex to right for inverted image
			h. m.	h. m.	o
25 ...	B.A.C. 987 ...	6½ ...	3 0 ...	4 10 ...	137 313
26 ...	B.A.C. 1256 ...	6 ...	22 3 ...	near approach	151 —
28 ...	B.A.C. 1930 ...	6½ ...	0 0 ...	1 6 ...	51 249
29 ...	I Cancrī ...	6 ...	22 5 ...	22 26 ...	115 164

Phenomena of Jupiter's Satellites

Oct.	h. m.	Phenomenon	Oct.	h. m.	Phenomenon
25 ...	4 3	II. occ. reap.	29 ...	6 0	IV. occ. disap.
28 ...	6 32	I. tr. ing.	29 ...	6 10	I. occ. reap.
29 ...	3 7	I. ecl. disap.	30 ...	3 19	I. tr. egr.

The Occultations of Stars and Phenomena of Jupiter's Satellites are such as are visible at Greenwich.

Oct.	h.	Phenomenon
28 ...	17 ...	Saturn in conjunction with and 4° S' north of the Moon.

GEOGRAPHICAL NOTES

A RECENT Blue-book (Siam, No. 1, 1885) contains a report by Mr. Archer, of the Consular service in Siam, on silk-culture in the province of Kabin, which lies on the eastern side of the Siamese delta, at the foot of the mountains separating the Meinam valley from that of the Mekong. In the course of his journey Mr. Archer came across certain Laos settlements, of which he gives an interesting account which is deserving of note, on account of the very little known of the Laos. He says the settlements in the provinces of Pachim and Nakon Nayok are, as it were, the south-western outposts of the Laos race, which forms the bulk of the population of Eastern and Northern Siam, but they are "phung khao," or "white-bellied," and therefore distinct from the "black-bellied," or inhabitants of the Chieng-mai provinces. They are not, however, the original inhabitants of these provinces, but captives from Muang Kalassin, a province to the north east of Korat, formerly dependent on Wien Chan, who, after the war waged successfully by the Siamese against that ancient kingdom about sixty years ago, were transported to and allowed to settle in the country extending from the province of Nakon Nayok to that of Battambang. This country consists, for the most part, of a series of slight and gradual elevations and depressions, the dwellings, gardens, and any other plantations being generally situated on the former, whilst rice is cultivated in the latter. The population is sparse, and consequently the greater part of the country is covered with jungle. The inhabitants are exceedingly indolent, and appear unable to exert themselves to procure more than enough rice for their bare sustenance. Their mode of living is of the simplest description, and their country being far from any commercial centre and outside any trade route, hardly any foreign goods, with the exception of cotton, are to be found amongst them. All Laos tribes, however, are not characterised by such indolence. Those living in the provinces closer to Korat are much more active, and devote more attention to agriculture, especially to the rearing of silkworms. This is stated to be due to the latter having a poorer soil at a higher altitude, which compels the inhabitants to devote more attention to silk-producing as a means of livelihood.

MR. COUTTS TROTTER read a paper at the Aberdeen Meeting of the British Association "On Recent Explorations in New Guinea," bringing up to date the information he laid before the Section two years ago. It deals with certain hydrographical and other physico-geographical questions on which light has been lately thrown by Mr. Chalmers's journey, and by the ascent of the Amberno River, and points to the conclusions to be drawn from certain temples, with a special priesthood and objects of worship lately discovered—implying an order of religious ideas quite foreign to the Papuan mind. As regards the natives of New Guinea, he believes the conflicting jurisdiction, and different views as to the mode of dealing with them, must be prejudicial to their interests.

THE Arctic steamer *Alert* returned to Halifax on October 18 from Hudson Bay with the observation party who have spent fifteen months there testing the practicability of that route for navigation from the Canadian north-west to Europe. The result of the observations shows that the average temperature is not so low as was expected, nor so low as the average winter temperature in the North-West. The lowest monthly average was 30° below zero. The ice observations show that the Hudson Straits and Bay are navigable by properly built and equipped vessels for from three to four months—from July to October. While this report is somewhat favourable, doubts are expressed in Canada whether the Hudson Bay route can ever be made practicable.

THE GREAT OCEAN BASINS<sup>1</sup>

II.

THE advances during recent years in the knowledge of the forms of life inhabiting the floor of the ocean surpass those in any other department of oceanic investigation. Thousands of new organisms have been discovered in all seas and at all depths in the ocean, and either have been, or are now being, described by specialists in all quarters of the world. There does not seem to be any part of the ocean bed so deep, so dark, so still, or where the pressure is so great as to have effectually raised a barrier to the invasion of life in some of its many forms. Even in the greater depths all the great divisions of the animal kingdom are represented.

As might have been expected, forms of life are most rich and varied in the shallow water surrounding the continents, where there is abundance of food, sunlight, and warmth; where there is motion, rapid change of water through currents, and other congenial conditions. At the depth of half a mile there are still numerous animals, though many of them differ from those of shallower depths, but plant-life seems to have wholly disappeared, if we except the diatoms and calcareous algae, whose frustules and skeletons have fallen to the bottom from the surface, carrying with them some of their protoplasm and chlorophyll.

At the depth of one mile there are a few animals which are barely distinguishable from, if they be not identical with, shallow water forms; but the majority of the animals are specifically distinct from those found within the 100-fathom line, and many of them belong to species peculiar to the deep sea, and are universally distributed over the ocean bed in deep water.

As we descend into still deeper water, and proceed further seawards from the borders of the continents, species and the number of individuals become fewer and fewer, though they often present archaic or embryonic characters, till a minimum is reached in the greatest depths furthest from continental land. Distance from continental land is, indeed, a much more important factor in the distribution of deep-sea animals than actual depth.

If we neglect the Protozoa and compare the results of twelve of the *Challenger's* trawlings and dredgings in the central line of the Pacific, in depths greater than 2000 fathoms, on globigerina ooze, radiolarian ooze, and red clay, with twelve trawlings and dredgings taken under similar conditions and depths, but on the blue and green muds within 200 miles of the continents, we find that the Central Pacific stations have yielded 92 specimens of animals belonging to 52 species, all, with two doubtful exceptions, new to science, and among them 13 new genera; on the other hand, the stations near the continents have given over 1000 specimens belonging to 211 species, of which 145 are new species and 66 belong to species previously known from

<sup>1</sup> Lecture delivered at the Aberdeen meeting of the British Association by Mr. John Murray, Director of the *Challenger* Reports. Continued from p. 584.