

of these numerous properties is adequately and most appropriately represented by the Mongian equation. The question has been, what fact in the history of the conic, if I may say so, is most intimately associated with the vanishing of the Mongian; and that fact, I believe, is given in my interpretation. Whether the fact admits of an easy verification or not seems to me to be wholly foreign to the question.

Calcutta, July 27.

ASUTOSH MUKHOPADHYAY.

Upper and Lower Wind Currents over the Torrid Zone.

AFTER my arrival in China in 1883, I made inquiries, among persons who had kept meteorological registers, concerning the direction from which clouds usually come here, but was told that they came from all directions without any apparent order. But the observations made during January 1884, printed in the Weather Report published on February 11, showed at once clearly that the lower clouds came from the east, and that the directions veered with increasing height, the highest clouds coming from the west, as explained in the text of the Annual Weather Report published on February 17, 1885. This might have been expected in analogy with what obtains in cyclones, as the trade-wind blows into the calm belt as if this were the centre of a depression drawn out to extend round the whole earth near the equator.

The Hon. R. Abercromby, to whom my Reports were sent without delay, convinced himself of the truth of those remarks during a tour round the world, and addressed a letter to NATURE on the subject on October 26, 1885, but it is of importance that the subject should be investigated at fixed observatories within the tropics, where hardly enough attention has hitherto been paid to the movements of clouds, to judge from what has hitherto been published.

In the Annual Weather Report for 1885, it is stated that, from June to September inclusive, cirri come from two different directions—from about north-east while a typhoon is in existence somewhere, their direction often backing from about east to north while the centre of the typhoon is yet over 700 miles away; and from about west when there are no signs of a typhoon. But cirri are rarely seen in summer except before typhoons, through whose agency vapour is evidently carried up to the higher regions of the atmosphere. It is, however, to be expected that the existence of the southerly monsoon (caused by the low barometer in the northern part of the Chinese Empire) during the summer to some extent influences the movements of the clouds.

The following table exhibits from four years' observations (1884 to 1887 inclusive) the average directions from which the wind comes at the Observatory, about 150 feet above M.S.L., and at the Peak about 1850 feet above M.S.L., as well as the average directions from which the upper and lower clouds come, but the difference between the latter is so great that intermediate directions will be missed:—

Month.	Obs.	Peak.	Lower C.	Upper C.
January ...	E 11 N	E 10 N	E by S	W by S
February...	E 15 N	E 17 N	E by N	W
March ...	E 4 N	E 17 S	ESE	W by S
April ...	E 3 N	E 30 S	SE	W by S
May...	E 11 S	E 44 S	SSE	WNW
June...	E 51 S	E 67 S	S by E	NNW
July ...	E 46 S	E 87 S	S by E	NE
August ...	E 72 S	S	S	NE
September	E 12 N	E 1 N	ESE	NNE
October ...	E 15 N	E 8 N	E by N	W by S
November	E 28 N	E 10 N	ENE	W by S
December	E 26 N	E 18 N	E by N	WSW
Mean ...	E 6 S	E 22 S	E 30° S	W 33° N

If an observer outside the earth were to determine the period of this planet's rotation by observing spots formed by clouds, he would obtain different values according to the level of the respective cloud-layer, just as we obtain different values for the period of rotation of Jupiter from observations of different classes of spots. In the case of the earth, the observation of the highest clouds near the equator might possibly furnish a value of the period too short by a tenth, and there is no doubt it would be different nearer the Poles.

W. DOBERCK.

Hong Kong Observatory, August 11.

The Natural History of the Roman Numerals.

SOME time ago I had the pleasure of reading in your journal (vol. xxxvi. p. 555) an interesting article by Mr. Lymburn on the above subject. In this the writer shows the probable evolution of the X ten, from the V hand, and thence the broad arrow, ↗. As the Scandinavians used this arrow sign, calling it *tir* or *tyr*, as an equivalent for T in the Runes (see Taylor, "The Alphabet," vol. ii., p. 18), it is therefore connected with the Greek *tau*, the headless cross, the X of the Semitic languages. I have no doubt that many of your readers take an interest in anything bearing on this subject. This is my apology for calling their attention to an article published in the last volume of Transactions of the New Zealand Institute,¹ wherein I break new ground by showing that the word *tau* was known in Polynesia as a cross, as ten, and probably as meaning "writing."

I have given, in the different dialects of New Zealand, Samoa, Tonga, Hawaii, &c., the meanings of the word, and shown its entry into other compound words. A brief *précis* runs as follows:—

Tatau (*ta-tau*) is the Tahitian word which Cook brought to us, and is better rendered by his spelling *tattoo* than by our English *tattoo*. In Maori, *tatau* means to count, to repeat one by one; but in Hawaiian it means to write, to make letters upon, to print as upon *tapa* (native cloth) as in former times. In this Hawaiian, *tau* means to dot, to fix the boundaries of a land or country, to give publicity to a thing. In Tahitian, *tatau* means not only to tattoo, but to count, number; in Samoan, *tau* is to count, and in Marquesan, *tatau* to reckon. In composition, too, it enters into many words, such as teacher, pupil, genealogy, &c., and it seems impossible but that the tattooing (at one time done in "three-marks" and arrow-heads) meant some kind of character or script.

As to the numeral "ten," I bring some interesting evidence which I cannot condense.

As to the figure of the cross being used as a sacred sign, there are innumerable evidences to that effect in the Polynesian islands; notably that the Southern Cross is called in Tahitian *tau-ha* ("four-cross"), and that the cross X was the taboo sign in front of Hawaiian temples. I have since learnt that in the Solomon Islands the cross taboos anything to the chief.

Wellington, N.Z., August 5.

EDW. TREGAR.

Indian Life Statistics.

THOUGH several weeks have now elapsed since Dr. Hyde Clarke's inquiry about the effects of lucky and unlucky times and seasons upon the Indian birth-rate was published (in NATURE of July 26, p. 297), none of your readers in England who happen to be acquainted with India have come forward to answer it. I therefore write to point out that, though the times of Hindu marriages are to a very great extent controlled by supposed lucky or unlucky days, months, or years, these have nothing whatever to do with variations in the birth-rate, for the usual age of marriage of girls is from eight to ten years, and child-bearing at the earliest does not commence before twelve or thirteen.

With regard to the *Holi* and other religious festivals, I have it on the authority of Mr. J. C. Nesfield, Inspector of Schools in Oudh, who has made a life-long study of Hindu castes and their customs, that, whatever the origin and primary significance of the *Holi* may have been, it is not now connected in any special manner with the multiplication of the species. The religious ceremony to which the Hindu looks for the furtherance of his desire for offspring is the *Durga Pujah*, or worship of the consort of *Shiva*, which is the occasion of the annual family reunion all over Bengal. In the Upper Provinces a totally different festival is celebrated at the same time of the year—the *Rām Lila*, a sort of dramatic performance or mystery-play, commemorating the expedition of Rāma to Ceylon for the recovery of his lost wife; but Mr. Nesfield says that during the *Rām Lila* some member of every family is specially set apart to conduct a ceremonial worship of *Kālī*, or *Durga*, ending with the sacrifice of a male kid, and that the object of this ceremony is to obtain the favour of *Kālī* and her consort for the continu-

¹ Trans. N.Z. Inst., vol. xx., "Ancient Alphabets in Polynesia," by E. Tregar, F.R.G.S. (London: Trübner and Co.)