

## METEOROLOGY, ETC., IN MAURITIUS

THE following letter from Mr. C. Meldrum, dated "Observatory, Mauritius, April 2," to a friend in England, gives some interesting data tending to prove a connection between solar activity and the state of the weather. With his new instruments we may hope soon to have some most important results.

"Since December last the colony has been suffering from drought, and there is very little appearance of a favourable change. February has been the driest month since systematic observation commenced in 1852, and the rainfall for January and March has been far below average. If the present state of things continue long, the island will be hard up for water.

"Coincident with this drought there has been, as usual on such occasions, a great falling off in the number and violence of cyclones in the Indian Ocean. We copy here the log-books of all vessels arriving in port from India, Australia, the Cape, England, &c., so that no great storm can take place over the greater part of the ocean without our getting more or less information about it. Well, the hurricane season is nearly over, and we have heard of only two storms, one on the 24th of January away to the northward of us, and one on the 7th of March, away to the eastward of us, and neither of them seems to have been extensive or very violent, only two vessels having been involved in each. The season thus bears a remarkable contrast to the corresponding periods for 1871, '72, and '73, and furnishes another instance of the now oft-observed fact that when Mauritius suffers from drought the Indian Ocean is almost free from hurricanes. The neighbouring island of Réunion has fared as badly as Mauritius, and the log-books furnish evidence that the drought has prevailed over a wide area.

"The S.E. trade-wind has been blowing from S.E. to E. and E.N.E. almost without interruption during the last three months, and the barometer been unusually high and steady for the season, thus showing that from some cause or other the belt of calms and variables between the S.E. trade and the N.W. monsoon has not advanced so far to the south as it did in the years 1871-74.

"It is only now that I am enabled to keep a continuous record of the sun-spots, the photo-heliograph having been put up a fortnight ago, and being at work only for a week; but from observations made directly, as often as possible, it would appear that there has been a great falling off in the number and magnitude of the spots. If this is the case, then we have, as on many other occasions, a decrease of spots, a decrease of cyclones, and a decrease of rain all at or about the same time.

"Our latest telegraphic news, *via* India, states that severe cold prevailed throughout Europe. It would be very interesting to know the conditions of weather for the whole habitable globe during the last three months. Comparative meteorology—including the sun's—can alone throw light on the nature of the relations subsisting between weather changes and variations of solar activity.

"Although the sun-spots decreased considerably in January and February, yet one or two pretty large ones appeared towards the end of February, and on the 27th of that month, between 1 and 7 P.M. we had (for this latitude) a remarkable magnetic storm. I fancy next mail will bring us news of auroras and magnetic storms having been observed in different parts of the world at that time. We had no aurora here, but on the 25th, 26th, 27th, and 28th there appeared, shortly after sunset, long beams of light radiating from a point near the horizon at E. by N. (nearly opposite the sun). This of course is easily explained without an aurora or any fitful outburst on the sun, but I have noticed that these radiating beams, which are sometimes very gorgeous, and occasionally radiate from points near the poles, are much more frequent in some years than others—which may arise from different states of the vapour and clouds. Dr. Lyall, who took a series of observations in Madagascar about forty-five years ago, makes mention of them, and describes them under the name of Aurora.

"We have all the instruments at work now, except the thermograph, which has not arrived. I have been so much occupied with the putting up of the instruments and removing into the new Observatory, that I have had very little time for anything else. I wished to send to the Royal Society some papers, but I could not manage to get sufficient leisure to prepare them. In a short time we shall be in train, and I hope to resume the subject of periodicities, &c."

## SCIENTIFIC SERIALS

THE current number of the *Quarterly Journal of Microscopical Science* commences with an account by Mr. Wm. Archer of a new freshwater sarcodic organism, named by the author *Chlamydomyxa labyrinthuloides*, which is illustrated by a superb folio-sized coloured plate, as well as an octavo one. The species is shown to be closely allied to *Labyrinthula* of Cienkowski. The matrix is enclosed in a multilaminar cellulose envelope, which at times appears to burst and give exit to protoplasmic contents, which emerge in an arborescent manner with hyaline prolongations, along which small fusiform protoplasmic masses travel.—Rev. M. J. Berkeley gives a short account of the Thread Blight of Tea, in which he describes the fungus producing it, although he is unable to name it because he has not had an opportunity of examining the fructification.—Mr. P. Kidd draws attention to the occurrence of spontaneous movement in the nucleoli of the epithelium of the frog's mouth.—This paper is followed by an excellent and illustrated account of the structure of the Pacinian corpuscles, considered with reference to the homologies of the several parts composing them, by Mr. Edward Schäfer, in which it is shown—assuming an ordinary nerve fibre to consist of the axis cylinder in the middle, surrounded by, first, the medullary sheath, or white substance; secondly, a delicate layer of protoplasm containing nuclei; thirdly, the primitive sheath (of Schwann); and lastly, the numerous laminae of the neurilemma, which, however, encloses a layer of finely filamentous connective tissue—that the coats of the Pacinian are the layers of the neurilemma; that the sheath of Schwann surrounds the core, this latter being an expansion of the protoplasmic substance; that the medullary sheath, if not retained as such, disappears, and that the axis-cylinder becomes the central fibre.—Mr. A. W. Bennett gives an account of modern researches into the nature of yeast, specially noticing those of Reess and Cienkowski.—Prof. Lankester has a paper of special theoretical importance, on the Invaginate Planula, or Diploblastic Phase of *Poludina vivipara*; in which, after proposing the name "blastopore" for the orifice of invagination of those Planulae which exhibit it, he proposes a classification of Planulae, which helps to simplify this intricate part of embryonic history. He divides Planulae into two groups: *Delaminate* Planulae, in which there is no invagination, but a splitting of the blastosphere to form the endo- and ecto-derm; and *Invaginate* Planulae, which may be *embolic*, or have no food-yolk; or *epibolic*, possessing a "residual yolk." The Hydrozoa and Calcareous Sponges have delaminate planulae; Amphioxus, Ascidians, many Mollusca, Sagitta, Echinodermata, and many Vermes have embolic invaginate planulae; whilst in the third group are included many Mollusca, many Vertebrata, the Ctenophora, certain Vermes, and certain Arthropods.—Mr. H. C. Sorby describes the absorption spectrum of *Bonellia viridis*, and draws attention to a most striking point, namely, that there seems to be a constant ratio between the wave-lengths of the different bands in these spectra.—The number contains its usual excellent quarterly chronicle, notes, &c.

THE *Journal of the Chemical Society* (March 1875) contains the following papers, besides a large number of abstracts from other serials, already noticed in NATURE:—The formulæ of the alums, by S. Lupton. The author briefly states the formulæ given to the alums before they were finally designated as  $A'B''2SO_4 \cdot 12H_2O$  (where A stands for an alkali metal and B for a metal of the iron group). At present some chemists use this formula, while others double it into  $A_2'B_2''4SO_4 \cdot 24H_2O$ . The cause of this variety of usage rests in the uncertainty attaching to the atomicity of aluminium; this metal appears as a tetrad when combined with chlorine, bromine and iodine, but as a triad in its methyl and ethyl compounds. The author tried to obtain certain bodies similar to the alums in constitution, but differing in the number of molecules of water which they contain; the latter have often served to establish the formula of salts. Experiments were made with iron and ammonium alum, aluminium and potassium alum, and aluminium and ammonium alum; these experiments are described, and the author arrives at the conclusion that the doubled formula as above is the correct one, as it seems that upon dehydration the residue  $R_2R_2''4SO_4$  remains unaffected, and exists therefore in the ordinary alums in combination with 24 molecules of water.—On the colour of cupric chloride, by Walter Noel Hartley. This salt is almost invariably described as being of a green colour, but the author has found that the salt is only green as long as there is a trace of moisture about it; as soon as the salt is quite dry its crystals are