

and a rush. About the mouths of the cavities from which hot gases were slowly being exhaled, a moss was found growing in great abundance, with several lowly organised Cryptogams; the whole being confined to the spot occupied by these fumeroles, and forming green patches in the midst of the surrounding entirely bare rock.

The hot streams were full of green Algæ, and as these streams, being very small, became cooler and cooler from their source downwards, the temperature at which the Algæ commenced to flourish could be determined. At the source of one of these streams, as it issued from beneath the volcano, the water had a temperature of $145^{\circ}2$ F., and was thus too hot to be borne by the hand. Here there were no Algæ at all growing in the water. There were, however, small green patches on stones projecting out of the bed of the stream into the air, and also along the margins of the stream where they were not bathed by the hot water itself, but only soaked up the moisture and received the spray occasionally. At a distance of a few yards lower down, in a little side pool fed by the stream, abundance of Algæ were growing, but the pool had a temperature of only $101^{\circ}5$ F., though the stream which fed it constantly was at 122° F. Lower down again, Algæ were growing in the middle of the stream, in water at $113^{\circ}5$ F., and this seems thus to be the limit of temperature at which the particular Algæ gathered will flourish in water impregnated with a certain amount of salts in solution. No doubt the amount of salts present has a limiting effect as well as the temperature. Oscillatoriæ have been observed growing in water, at a much higher temperature, even 178° to 185° F.¹ The fact is interesting, as showing that green algæ of some considerable complexity may have commenced life on the earth in its early history, before the water on its surface had anywhere cooled down to a temperature sufficient to be borne by the human hand, and which may have been strongly impregnated with various volcanic gases and salts.

The upper slopes of the mountains of Camiguin Island were thickly wooded; while the lower slopes were cleared and planted with Manila hemp. A Manila hemp plantation is not at all pleasant or easy to traverse; the large trees, a species of Banana (*Musa textilis*), from the stems of which the fibres known as Manila hemp are obtained by maceration, are planted close together. The plantations are full of fallen stems in a half decayed condition, nasty pasty masses, which block the way and are very unpleasant to handle and climb over, or crawl beneath.

At 6 P.M. the vessel left the anchorage and steered to the westward towards Silino Island. In steering towards, as well as on leaving, the anchorage, the north points of Camiguin Island were kept in line, and no soundings were obtained with 15 fathoms until the Sandy Cay on the reef bore west of north. Whilst the ship was at anchor, the tide was falling until 4 P.M., after which it began to rise; the ebb stream set N.E., the flood S.W.

¹ See W. T. Thiselton Dyer, *Proc. Linn. Soc. Lond. (Bot.)*, vol. xiv. p. 327, 1875.