

Herr Schlagintweit has given a list of forty-five vegetable species collected on the Alpine crests, between 10,500 and 15,500 feet above the sea ; that is, at ice-stricken points of elevation, where we would have thought all life impossible.

The same order of phenomena furnishes us with an explanation of the *red spots* sometimes remarked on the snowy sheet of the Alps, and which have always excited the curiosity of tourist or traveller.

This red snow, as it has been erroneously called, is especially abundant during the months of July and August, at elevations not exceeding 9000 feet. Let us briefly describe the manner in which it appears and disappears.

The snow begins to blush with "rosy gleams," which tint it to a depth of some few inches. Gradually, these spots spread farther and farther, and assume a deeper hue. But, towards the month of September, the colouring matter decomposes, and nothing is visible on the broad white glittering surface but a black powder.

The microscopical researches of Vogt and Shuttleworth have shown that this singular substance is composed of infusoria (such as the *Astasia nivalis*, and *Gygas sanguineus*), and of the spores of a lichen called the *Protococcus nivalis* ;\* in allusion to the curious primitive simplicity of its organization, and the peculiar nature of its habitat.

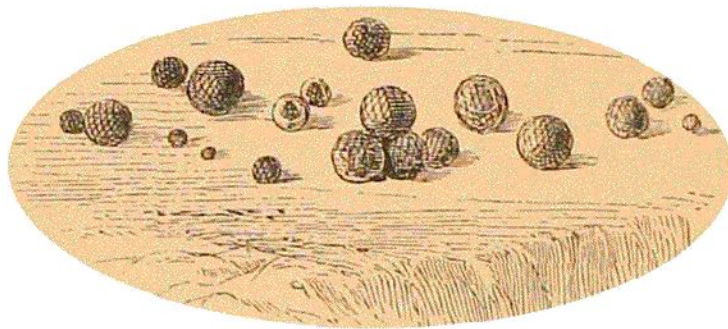


FIG. 95.—PROTOCOCCUS NIVALIS.

[If we place a small quantity of snow coloured with this plant upon a piece of white paper, and allow it to melt and evaporate, the result is a residuum of granules sufficient to communicate a very faint crimson tinge to the paper. Examine these granules with a microscope, and they resolve themselves into small spherical cells, from the  $\frac{1}{1000}$ th to the  $\frac{1}{3000}$ th part of an inch in diameter. Each cell has an opening, surrounded by indented lines, whose smallest diameter measures only the  $\frac{1}{1000}$ th part of an inch. When perfect, the plant may aptly be likened to a red-currant berry ; as it decays, the red colouring matter passes into a deep orange, and finally into a brownish-black. The thickness of the wall of the cell does not exceed the  $\frac{1}{3000}$ th part of an inch.

Each one of the cells, says Mr. Macmillan,† may be regarded as a distinct individual plant, since it is entirely independent of others with which it may be aggregated, and performs for and by itself all the functions of growth and reproduction, having a containing membrane which absorbs liquids and gases from the surrounding matrix or elements, a contained fluid of peculiar character formed out of these

\* [The *palmella nivalis* of Sir William Hooker.]

† [Rev. Hugh Macmillan, "Foot-notes from the Page of Nature."]