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## PROTO-COCCUS; OR, A REVELATION OF THE MICROSCOPE.

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What a world of wonder and beauty lies concealed from the naked eye in all the departments of physical nature! It is, in fact, only "the rough of things" that the natural eye can see at all. The interior refinements and secret springs of creation it can only discover by the powerful aid of that most scientific and beautiful of instruments, the Microscope. Not that we would disparage the value or interest of the things which the eye itself can see; these certainly are not wanting in beauty, sublimity, or practical importance. The eye can see, and that truly, the magnificent elevation of the vast Temple of Nature,—its perfect proportions, harmonious details, and gorgeous decorations; and these are certainly more than enough to awaken, in reflecting minds, the liveliest satisfaction and delight. But it is only where the eye enters into the interior chambers, crypts, and recesses of Nature, through the open gates of Science, that it can discover the infinite variety, beauty, and use of the things which they contain. The outward things allure the inquirer to the knowledge of things that are within. The wise are not satisfied with that which is apparent to the eye or to sense; they want, besides, to see their foundations, and to discover, as far as may be, the hidden causes of their outward forms, and the inner processes of their manifest life.

Every one is familiar with the outward forms of vegetable life. All know, and more or less love, the trees, the shrubs, the herbs, and the flowers of the forest, garden, and field. The love of the vegetable world seems to be inherent in human nature. The shady retreat is pleasant to the weary and the feeble. Children and youth delight to gambol in the green fields. We call that place a wilderness in which there is little vegetation, and that a paradise which is rich with the boscage of trees and the sweet odor of flowers. But how few there are who care to penetrate into the interior of this magnificent verdure! yet there is no finer field of research than this. Much that is wonderful is revealed at every step of the inquiry. The student soon becomes sensible of two remarkable features running through the whole kingdom of life, namely, the manifest relations of the individuals to one another, and the gradations in their forms from the complex to the simple,—from the greatest to the least. Beginning with the gigantic Douglas pine of the Rocky Mountains, he can descend by easy steps to the almost invisible Diatoms that inhabit the ponds and the brooks. Yet in all he will likewise see a similar life and organic structure, and like processes of absorption, assimilation, reproduction, growth, and decay. He will further discover that the best way to know the character of the great and the complex is by research into that of the little and the simple. The great are generally hard and opaque, and cannot be readily got into, while the little are generally soft, pliant, and clear as crystal. There are thus advantages in beginning the study of vegetable forms and processes, by selecting the lowest in the kingdom as the subject of observation and from them rising up to the highest.

We purpose in this paper to introduce the reader to one of the tiny forms of vegetation;