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BLIGHTS OF THE WHEAT.

CHAPTER X.—CONCLUDED.

But it is impossible to conceive that infinite wisdom, and power, and goodness, can give vitality to such atoms without a direct and a beneficial design. Science has, indeed, recently had its reward in discovering such a design in the infusorial animalcules in their living state. "A wise arrangement of nature," says Liebeg, "has assigned to the infusoria the dead bodies of higher orders of beings for their nourishment; and has in these animalculæ created a means of limiting to the shortest possible period, the deleterious influences which the products of dissolution and decay exercise upon the life of the higher classes of animals. The recent discoveries which have been made respecting these creatures are so extraordinary and so admirable, that they deserve to be made universally known." The principal fact in these discoveries is, that the functions of animal nature are reversed in these animalcules, and that instead of evolving carbonic acid gas, they evolve pure oxygen. Count Rumford made a similar discovery many years ago; but it was, like numerous other good facts, totally buried in oblivion. The air bubbles given out by water containing these animalcules contain such pure oxygen, that a small bit of deal match-wood, in which a flame has just been extinguished, will burst into a flame again on being immersed in any one of them. "I myself," the celebrated German chemist last named tells us, "took an opportunity of verifying this remarkable fact, upon finding in a trough of water in my garden the fluid coloured green by the presence of various species of infusoria. I filtered it through a very fine sieve, in order to separate all confervæ, or vegetable matters; and then exposed it to the light of the sun in an inverted beaker-glass, completely full, the aperture of which was confined by water. After the lapse of a fortnight, more than thirty cubic inches of gas had collected in the glass, which proved to be very rich in oxygen." Here, then, we have actually in these creatures, unsuspected and unseen till the microscope revealed them, a source of pure vital air. From the instant, therefore, that these infusoria appear in stagnant water impregnated with deleterious matter, that water ceases to act injuriously on the higher orders of plants and animals. To quote Liebeg once more; "In the most extensively diffused animalculæ, namely, the green and red infusoria, we recognise a most admirable cause which removes from water all substances injurious to the life of the higher classes of animals; and creates in their place nutritive matters for the sustenance of plants, and the oxygen indispensable to the respiration of animals." Again, he observes, "The infusorial animalculæ cannot be the causes of putrefaction—of the production of poisonous matter deleterious to plants and animals—but an infinitely wise intention designs them to accelerate the transition of the elements of putrefying substances into their ultimate products." The reason of their presence in these places as regards themselves obviously is, that in them they find the conditions suitable for their development and sustenance. When these circumstances take place, the universal presence of the atmosphere through which their eggs are diffused, causes them to make their appearance wherever the requisite state of things for their vivification exists. They are, however, subject to the injurious influences of actual putrefaction, and are killed by the sulphuretted hydrogen gas evolved during that process. They abound in all decaying substances, but never in really putrid masses. Their province therefore, evidently, is that mentioned by Liebig, to hasten on decay, and limit the health-destroying influences of putrescent matters.

If a globule of water in which they are found is placed on a slip of glass under a microscope, they will, as has been said, be seen swimming about in it with extreme vivacity. Just take the least drop of sulphuric acid on some fine point, of a hair, or a pin, or a feather, and touch the water. They die instantaneously, as if suddenly shot. Nothing can be conceived more momentary than this effect.

The contemplation of such subjects must ultimately produce great changes in the process of man's thoughts. How often have we been disgusted in looking upon the red and green colouring matter of some pond or ditch, and regarded it as a nuisance. This view was, like many others in which we indulge, far from the truth. Instead of being what our imagination misrepresented to us, it was a world of beautiful and useful creatures performing unseen the great purposes of God, and actually conferring benefits on us who were regarding them in a wrong light. The remembrance of the errors of ignorance ought to humble us; and while nature is daily opening the treasures of her hidden marvels, we ought to learn that revelation can unfold greater marvels, still, to rebuke our trust in feeble sense, and quicken our faith. It is hoped that the remarks in this chapter on the fungi and insects that may be regarded as the congeners of those it was the chief object to describe, will give an increased interest to the details before given. They may tend also to the good of the agricultural reader, by God's blessing, in more ways than in pointing out certain mundane evils and their remedies. It is desired that they beget in his mind many considerations to which, perchance, he may heretofore have been a stranger. Lessons of piety are not only written in the gospel, but those lessons we find there, are enforced by a right knowledge of nature. The natural and moral perfections of God are in perfect unison; and we may be certain, that as science advances in Christian lands, its discoveries will help to close the lips of the sceptic, and the true light brightening at the same time, "wisdom and knowledge" will indeed become both the "stability of our times, and the strength of our salvation."

In order, however, that this happy result may accrue, it is necessary not merely that we should view nature in the great and the small, with admiration of the power and wisdom of the Creator, but that we should see physical truth through a spiritual medium. Ages past, the heathen poet could say of the great Supreme Cause, "In him we live, and move, and have our being." In the same manner we may say now with our own—

> "Hail, Source of Being! Universal Soul
> Of heaven and earth! Essential Presence, hail!
> To thee I bend the knee: to thee my thoughts
> Continual climb: who, with a master hand,
> Hast the great whole into perfection touched.
> By thee the various vegetative tribes,
> Wrapt in a filmy net, and clad with leaves,
> Draw the live ether, and imbibe the dew.
> By thee dispersed into congenial soils,
> Stands each attractive plant, and sucks, and swells,
> The juicy tide; a twining mass of tubes.
> At thy command the vernal sun awakes
> The torpid sap, detruded to the root
> By wintry winds; that now in fluent dance,
> And lively fermentation, mounting, spreads
> All the innumerous coloured scene of things."

This is all true, and beautifully expressed; but more is required. And as the present mixed state of the world is unquestionably declared in Scripture to be due to the fall of its