

Natural History Department.

A DAY'S RAMBLE WITH A NATURALIST.

BY H. B. SMALL.

(Continued.)

Should the road lead by or near a pool, he shrinks not from the wet and swampy ground surrounding it, for the forget-me-not is there, with blossom blue as the heaven, and its golden-eye, bright as hope itself; there is the calamus or sweet-scented flag, the iris, the bulrush, heavy and swaying in the wind, the waterlily rivaling in its blossom the magnolia of southern climes, and harboring under its broad leaves the pike and the perch, the bass and the pickerel, those favorites of meek Walton's followers. The delicate whites and pinks and yellows and blues of the aquatic blossoms, how bewitching are they in the sunlight! There is that masterpiece of swimmers the frog, whose progeny we see in every stage, from black specks encased with slime, clustered on some favorite reed, or as tadpoles, known more familiarly by the euphonic appellation of "pollywogs" endeavoring to divest themselves of their tail appendage whilst the well known 'hunc hunc,' answered by the 'hi hi,' of two full grown adults hidden in the sedges, point out their presence. True the mosquitoes may be there; but what of that? is not their origin a beautiful one; called into existence like Venus from a watery bed, they have no regard for man; and whilst she permits her child in wanton sport to pierce the heart of many, they in wanton malice buzz and tease, transfixing not the heart, but leaving unmistakable evidences of their presence in the flesh. Happy ephemerals, whose day is as man's life, and yet more varied! Adhering to the pondweed or slowly dragging their homes along with them, are visible the water-snails, amongst which is conspicuous the *planorbis* or coil shell, the only descendant left us of the ammonite, one of the most universal fossils of the secondary strata; shells whose colossal proportions in days of yore have dwindled down to the size of an ordinary halfpenny, contrasting in their diminution the present pigmy race of man with his predecessors described in that Good Volume, as "giants in the earth."

But what is our naturalist examining now in that handful of water he has scooped up? He tells us, it is a creature with neither arms nor legs properly so called, but which catches animals more lively than itself, and twice its own size; with no eyes, yet loving the sunshine; whose stomach can be turned inside out, apparently without hurting it, and which if cut in two, will not die, but each part grow into a perfect creature. To inexperienced eyes it looks like a tiny piece of green sewing silk about a quarter of an inch long and a little untwisted at one end. This however is really a set of delicate limbs placed round the thicker end of the slender body of the little Hydra, (for such is the name it goes by.) These tentacles float in the water like fairy fishing lines. Little creatures invisible to our unaided sight that have been frisking round full of life and activity are seized, and one tentacle after another being wound around its

prey the process of digestion takes place. When we laugh at the idea of two or three hydras growing out of one if severed, we are told the reason is, that the principle of life is diffused equally in all parts; that any part can live without the rest, and like the cutting of a plant having life in itself, it can grow into a perfect creature. Journeying onwards he tells us of another animalcule provided with two hairy wheels upon his head, whirling continually around, producing a strong current towards his mouth, placed between them, carrying in all lesser objects floating near, and like the rotary wheels of a steamship carrying him onward, unless desirous of rest he grasps with his prehensile tail some friendly water plant. With still greater surprise, we hear that these animalcules each have shells which in some places during the course of centuries have formed thick layers of white fine earth, so fine that on the shores of a lake near *Urne* in Sweden, the peasants have for many years mixed with their flour this so called "Mountain-meal." Verily we think these Swedes must literally fulfil the old adage of eating "their peck of dirt before they die"! When we think that the vast thickness of the chalk cliffs were all formed from the deposition of animalcular exuvie, surely the mind of man is inadequate to count the myriads of ages through which this process was going on; a process still silently and invisibly working in the depth and darkness of the mid-Atlantic, as lately revealed to science by the researches of Lieut. Maury in his deep sea soundings for the Atlantic cable, when microscopic examination showed a white deposit of the minutest fragments of animalcular shells, which having lived their short lives and died near the surface, are gradually sinking in accumulating masses to be pressed compactly together by the superincumbent weight of water, preparing the sandstone rocks and chalk formation of some future continent, to be perhaps upheaved for the dwelling of successive races, long after our short span shall have passed away.

Skirting the pond which has thus engrossed our attention we may see rocks now rising up in rugged masses,—now sloping quietly to the water's edge, partly clothed with lichens and moss, here covering the stone to the depth of several inches,—there clustering around some bare patch of rock. Our Mentor tells us how the first accumulation of soil thus took place, when order was first produced from Chaos,—soil which year by year increasing from the decomposition of these rudiments of vegetable life, afforded depth and nourishment for plants of a higher order and larger growth, to be in turn succeeded by a more luxuriant vegetation adapted for animal life. How of old in the lapse of ten thousand centuries, the lower deeps acted upon by some plutonic agency began to grow shallow, and the imprisoned tides to foam and roar as they struggled to follow the moon, their leader, angry to find that the solitude of their ancient domain was year by year invaded by the ever rising land. At that time, had man been on the earth to see it, the highest mountain peaks were, clusters of lofty islands, each mountain-pass a tide-swept ford, in and out of which, daily rushed the sea, bringing down vast piles of water-worn gravel, now covered with dense vegetation at the mouth of each great valley. So twenty-thousand years rolled on, and all this fair earth, as the roar of the