

throughout. It was effected by boring holes with augers, which were then connected by means of the axe, and occupied twenty-five men for five days. But even when this was done, so accurately perpendicular was the noble column that it would not fall, and it was only by applying a wedge and strong leverage, during a heavy breeze, that its over-throw was at last effected. In falling it seemed to shake the ground like a earthquake; and its immense weight forced it into the soft virgin soil so that it lies imbedded in a trench, and the stones and earth were hurled upward by the shock with such force that these records of the fall may be seen on the surrounding trees to the height of nearly a hundred feet. The stump was smoothed, and has been fitted up for theatrical performances and balls, affording ample room for thirty-two dancers. The bark was removed for a certain length, and being put up symmetrically, as it originally subsisted, constituted a large room furnished with a carpet, a piano, and seats for forty persons. In this state it was exhibited in various cities of America and Europe.

So successful was this speculation, that another hero of the Barnum tribe proceeded to separate the entire bark from the "Mother of the Forest," to a height of one hundred and sixteen feet, removing it in sections, carefully marked and numbered, for future reconstruction. It is this trophy which has been exhibited in London, first in Newman Street, and afterwards at the Adelaide Gallery. These buildings, however, would not admit of the erection of the whole, so that it was removed in 1836 to the Crystal Palace, where it now delights the eyes of thousands daily.

Perhaps we can scarcely regret the removal and transport of these relics, especially as it is said the "Mother" has not been perceptibly injured in health by the abstraction of her outer garment. Yet it is a matter of congratulation that pecuniary avidity will not further diminish this noble grove, for the law has now prohibited the injury of any more trees, on any pretence whatever.

All these are the mighty works of an Almighty God; not self-produced, as some would fain assure us, by the operation of what are called eternal "laws," but designed by a Personal Intelligence, created by a Living Word, and upheld by an Active Power.

"Praise the Lord from the earth, ye dragons, and all deeps: . . . mountains, and all hills; fruitful trees, and all cedars; beasts and all catt; &c., &c.; things, and flying fowl! His glory is above the earth and heaven." (Ps. cxlviii.)

#### THE MINUTE.

If great bulk excites our admiration, so does great minuteness. He who of old wrote the Iliad within the compass of a nut-shell, might have copied the poem a hundred times over, without eliciting one puff of that gas which enabled him *hominum volitare per ora*, if he had confined himself to the ordinary scale; and the curious interest with which we gaze on a dozen spoons carved out of one cherry-stone, and enclosed in another, we should not think of bestowing on the same number of dessert spoons in the plate-basket. The excessive minuteness of the object in question is the point to be admired, and yet not mere minuteness; we might see objects much smaller, atoms of dust for instance, and pass them by without a thought. There must be minuteness combined with a complexity, which, in our ordinary habit of thinking, we associate with far greater dimensions: in the one case, the number, form and order of the letters that make up the poem; in the other, the number, shape and carving of the toy-spoons.

And thus, when we look on the tiny harvest mouse, two of which scarcely weigh a halfpenny, and which bring up its large life-family of eight hopeful mouse-ings in a nest no bigger than a cicet ball, or the still tinier Etruscan shrew, it greatly enhances our interest to know that every essential organ is there which is in the giant torquial of a hundred feet. The humming-bird is constructed exactly on the same model as to essentialia as the condor; the little spherodaetyle, which we might put into a quill-barrel, and carry home in the waist coat pocket, as the mighty crocodile; the mackerel-midge, which never surpasses an inch and a quarter in length, as the huge busking-shark of six-and-thirty feet.

Complexity of structure, the multiplicity and variety of organs, do not depend upon actual dimensions, but rather upon the position in the great plan of organic existence which the creature in question occupies. The harvest mouse possesses a much more elaborate organization than the vast shark or colossal snake. In general, all the creatures of simple structure are minute—the most simple, the most minute; but we need to limit this proposition by many conditions and exceptions, before we shall fully apprehend the true state of the case. I do not exhibit to you of oxygenated microscopes will frequently, indeed, be heard to declare that all the species that are seen shooting to and fro, or revolving, top-fashion, in their populous droplets of water, are furnished with all the organs, tissues, and members that constitute

the human frame; and similar statements were not uncommon in cheap compilations of natural history a few years ago. This has been abundantly shown to be erroneous; but the tendency has been to run into an opposite extreme; and to assume that what are called "low forms" of organic life are exceedingly simple in their structure. There is, I say, error here; the microscope is daily revealing the fact, that in such beings the tissues that had been too hastily thought simple and almost homogeneous are really complex, and that systems of organs of the most elaborate character are present, which had been altogether overlooked and unsuspected.

What is more interesting than an examination, by means of a first-rate microscope, of a tiny atom that inhabits almost every clear ditch—the *Melicerta*? The smallest point that you could make with the finest steel-pen would be too coarse and large to represent its natural dimensions; yet it inhabits a snug little house of its own construction, which it has built up stone by stone, cementing each with perfect symmetry, and with all the skill of an accomplished mason, as it proceeded. It collects the material for its mortar, and mingles it; it collects the material for its bricks, and moulds them; and this with a precision only equalled by the skill with which it lays them when they are made. As might be supposed, with such duties to perform, the little animal is furnished with an apparatus quite unique, a set of machinery to which, if we searched through the whole range of beasts, birds, reptiles, and fishes, and then, by way of supplement, examined the five hundred thousand species of insects to boot,—we should find no parallel.

The whole apparatus is exquisitely beautiful. The head of the pellucid and colourless animal unfolds into a broad transparent disk, the edge of which is moulded into four rounded segments, not unlike the flower of the heart's-ease, supposing the fifth petal to be obsolete. The entire margin of this flower-like disk is set with fine vibratile cilia, the current produced by which runs uniformly in one direction. Thus there is a strong and rapid set of water around the edge of the disk, following all its irregularities of outline, and carrying with it the floating particles of matter, which are drawn into the stream. At every circumvolution of this current, however, as its particles arrive in succession at one particular point, viz., the great depression between the two uppermost petals, a portion of these escape from the revolving direction, and pass off in a line along the summit of the face towards the front, till they merge in a curious little cup-shaped cavity, seated on what we may call the chin.

This tiny cup is the mould in which the bricks are made, one by one, as they are wanted for use. The hemispherical interior is ciliated, and hence the contents are maintained in rapid rotation. These contents are the atoms of sedimentary and similar matter, which have been gradually accumulated in the progress of the ciliary current; and these, by the rotation within the cup becoming consolidated, probably also with the aid of a viscid secretion elaborated for the purpose, form a globular pellet, which as soon as made is deposited, by a sudden inflexion of the animal, on the edge of the tube or case, at the exact spot where it is wanted. The entire process of making and depositing a pellet occupies about three minutes.

I say nothing about the other systems of organs contained in this living atom: the arrangements destined to subserve the purposes of digestion, circulation, respiration, reproduction, locomotion, &c., though these are all more or less clearly distinguishable in the tissues of the animal, which is as translucent as glass. For the moment I ask attention only to the elaborate conformation of organs, which I have briefly described, for the special purpose of building a dwelling. No description that I could draw up, however, could convey any idea approaching to that which would be evoked by one good sight of the little creature actually at work;—a most charming spectacle, and one which, from the commonness of the animal, and its ready performance of its functions under the microscope, is very easy to be attained.

It is impossible to witness the constructive operations of the *Melicerta* without being convinced that it possesses mental faculties, at least if we allow these to any animals below man. If, when the chimpanzee weaves together the branches of a tree to make himself a bed; when the beaver, in concert with his fellows, gnaws down the birch saplings, and collects clay to form a dam; when the martin brings together pellets of mud and arranges them under our eaves into a hollow receptacle for her eggs and young,—we do not hesitate to recognize *mind*—call it instinct, or reason, or a combination of both—how can we fail to see that in the operations of the invisible animalcule there are the workings of an *innata principia*? The creature must be a power to judge of the condition of its case, of the height to which it must be carried, of the time when this must be done; a will to commence and to go on, a will to cease off (or the ciliary current is entirely under control); a consciousness of the readiness of the pellet; an accurate estimate of the spot where it needs to be deposited (may I not say, also, a memory where the previous ones had been laid,