IV.—*On Collecting and Mounting Entomostraca.*

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IN this paper I propose, as shortly as possible, describing the methods employed by our late friend and member, Mr. Clayton, in collecting and preparing *Entomostraca* for microscopic examination, and it must be a matter of sincere regret to every one of us, that he has not survived to make the promised communication, and gratify that eager curiosity, which the neatness and brilliance of such objects, as mounted by him, so generally evoked.

It is needless to remark, that wherever water exists, containing organic matter passing into a state of decay, these active little scavengers will be met with, in greater or lesser abundance and variety; even the splash left by the summer shower, and remaining unevaporated for a few hours, may afford them. Various modes of capture must be pursued according to locality. To obtain the free-swimming oceanic species, we have obviously no other resource than the muslin tow-net, while there is practically no better means of securing the littoral species than by the collection of filamentous algae, in which they harbour, from the rock pools, rinsing them in a basin of fresh water, and on subsidence, selecting the dead specimens. From the ponds and ditches, what may be called the bag and bottle net, is by far the most convenient and efficient implement for obtaining them. This consists of a ring, five or six inches in diameter, screwing into a staff, to which a conical bag of crinoline, or some other material readily permeable by water, is attached, a draw-string in the apex securing a short wide-mouthed bottle firmly by its neck. This net, insinuated under floating weeds or the vegetation which borders and rests upon the water, and slightly shaken, disturbs and intercepts the *Entomostracans* in the act of sinking to the bottom for safety. In bright sunny weather, however, when they are found in greater numbers sporting on the surface, or in the warmer water of the shallows, a long narrow-necked vial (a ten-drachm one answers sufficiently well), fastened by an india-rubber loop to the staff, dipped just below the lip, and the water allowed to flow gently in and fill it, will be found more effective. In either mode of proceeding the contents of the bottles may be run off through a Wright's collecting-bottle, until a sufficient supply is procured. I may here take the opportunity of mentioning a small improvement on Wright's bottle, effected by attaching a fan-shaped, curved plate of metal, to the entrance-tube, so directing the current of water against the muslin which covers the mouth of the outflow tube, as to prevent that accumulation of sordes upon it, which occasionally impairs its utility.

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It should be borne in mind, that some species of *Entomostraca* are strictly local, limited even to a small part of a particular pool. *Daphnia mucronata*, for example, will be obtainable by hundreds, from the space of a very few square yards, whilst but a solitary or perhaps not a single specimen will be found beyond the well-defined area. In such cases, local knowledge can alone avail the collector.

The *Entomostraca* thus secured should be picked out under the dissecting microscope, transferred to watch-glasses of FILTERED water, and allowed to remain for twenty-four hours, in order that the contents of the laden intestine may be discharged, some of which if this precaution be not taken, would, under the pressure of the covering glass, inevitably be squeezed out, and sully the mount; drawing off the water, a little spirit of wine speedily deprives them of life; and all dirt having been removed by the aid of a camel's hair pencil, they are to be placed in a few drops of diluted medium (half medium and half water) on a glass slip, protected from dust, until saturation is complete, and not until then, put up in the medium; shallow cells being mostly necessary.

After many and repeated experiments, attended with variable success, Mr. Clayton found Mr. Farrants's modification of his medium, by the omission of the arsenic, and the reduction of the glycerine to a minimum, on account of the known effects of that fluid in slowly dissolving the carbonate of lime of shell, gave the best results, in the greatest amount of transparency and permanence of which such subjects are susceptible. The receipt is as follows:—Gum arabic (picked), 1 oz.; distilled water, 1 oz.; glycerine, $\frac{1}{2}$ oz. The gum to be dissolved in the water, the glycerine added, and the whole filtered through white blotting-paper previously moistened with distilled water.

In giving this brief account of the late Mr. Clayton's practice, I can only express the hope, that some of our members, through the information now afforded, may be induced to emulate that manipulative skill which made his preparations unrivalled as yet in excellence, and that through them, his endeavours to preserve the *Entomostraca* as permanent objects for the microscope may be carried to a still higher degree of perfection.