

no use. Notwithstanding, I undertook to work it out, and extended my operations over nearly all the specimens, because, according to my opinion, Zoology ought never to take up a point of view, the effect of which would be that she must remain excluded from a large field of knowledge. In such cases it is rather the bounden duty of those who are working out the material to discover characteristics by which the recognition of the species is rendered possible, and this I believe I have achieved. Whoever keeps in view all the points taken into consideration in the description, the structure of the tentacles, of the septa, of the oral disk, of the circular muscle, &c., should find no difficulty or doubt in identifying a form with a living species, taking for granted that he has gained a correspondingly accurate anatomical knowledge of the latter.

In conclusion, let me add a few words as to the state of preservation in which the material for investigation was handed over to me. As all naturalists who have had much to do with Actiniæ know from personal experience, the animals are difficult to preserve, and require special attention in putting up. As such attention could not be devoted to them in the Challenger expedition, many of the Actiniæ did not fulfil the demands made by any kind of accurate histological investigation. I regret especially that many of the specimens had been first placed in chromic acid or chromate of potash, and then in alcohol. These were so dry and friable that they fell asunder like tinder under the slightest pressure; methodical dissection was therefore impossible, especially as even letting them lie for some time in water did not restore flexibility to the body. Preservation in chromic acid and chromate of potash must therefore be avoided, as it offers no advantages for histological investigation.

In many of the Actiniæ, hardened in alcohol, the inner parts were likewise macerated, perhaps because a large number had been placed in too small a quantity of alcohol, or because dilute alcohol had been used. Anyone collecting Actiniæ for examination ought to attend to the following points. In the first place, it is advisable to keep the animals separate till they are completely hardened, in order to prevent them from being flattened while soft by pressing against each other. If this be not done, not only the form but the sculpture of the surface suffers, which was often the case in the Challenger material. In the second place, it is advisable to syringe the inside of the animal with alcohol, placing the nozzle of the syringe through the mouth, or through a hole made in the wall or the pedal disk. On the other hand, cutting or even halving of the living animal is to be objected to, as in that case it is impossible to avoid the destruction of many of the septa, and the parts will be displaced much more than in the ordinary contraction of the animal.

In order to fulfil all requirements exactly, the Actinia before being preserved should be subjected to a process which paralyses the muscles, such as has been previously described by my brother and myself. This, however, requires more time and care than can usually be bestowed by the collector on a single object.