

An Abstract of what is contained in the Preface to the Sixth Volume of Mons. Reaumur's History of Insects, relating to the above-mentioned Observations, and delivered in to the ROYAL SOCIETY, immediately after the foregoing Paper.

AS the Sixth Volume of Mons. *Reaumur's History of Insects*, just publish'd at *Paris*, is not yet come over, so as to be met with among the Booksellers here: I thought a short Extract of what he there says, in his Preface, relating to the Subject of Monsieur *Trembley's Paper*, might not be unacceptable, to the Gentlemen of the SOCIETY present.

He there observes, that tho', in the Histories he has already given of minute Animals in this Work, he has had occasion to produce many new and unexpected Phænomena: One he has now to mention would exceed all Belief, if it was not confirmed by the strongest repeated Observations; which is, that there are Species of Insects, who are multiplied by being cut to Pieces, and among which, one single Animal, divided into 8, 10, 20, 30, or 40 Parts, becomes so many entire Animals, each similar to that of which it was at first only a Piece. This Animal, being one of those that undergo no Change in their common Form, does not belong to the Design of this present Volume, which treats only of some of those, which, having been first a Worm or Maggot, are then changed into a Chrysalis, and from thence, either into a Fly or Scarabee.

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Yet *Monf. Reaumur* observes, the Number of Questions that had been put to him concerning this Insect, as well by Persons at home, as by his Correspondents abroad, had made him think he ought not to defer giving now some Satisfaction to the Curiosity of the Publick. Besides that he found himself obliged, to give in this manner his Attestation to the Truth of this Fact, first observed by *Mr. Trembley*, a Gentleman of *Geneva*, now residing in *Holland*, and confirmed by Numbers of the most curious and accurate Experiments: Which Attestation he also observes, in so strange a Fact, could hardly be expected to have sufficient Weight, should he not say enough to put his Readers in a Condition to observe themselves, and see with their own Eyes, the Truth of the Particulars he relates.

Mr. Trembley, about two Years and a half since, observing the numerous Insects, with which the Water of a Ditch, covered with Duck-weed, was plentifully stock'd, discovered some odd-shaped Bodies, of a greenish Colour, concerning which he was doubtful whether to look on them as Plants or Insects; he thought, by cutting them, to assure himself to which of these Classes they properly belonged; as supposing, if to the former, they would probably not be destroyed by cutting, but vegetate again: They seem'd to do so; and upon this, he was inclined to look on them as a Sort of Water Sensitives; till fresh Experiments every Day shew'd him new Operations. They discover'd a sort of voluntary locomotive Faculty; they seem'd to seek the Light; they caught other Insects, and they devoured them with great Eagerness. This threw him into fresh Amazement; yet a prudent Diffidence still hindered

hindered him from pronouncing positively concerning them; he communicated his Observations, and dispatched some of the Insects themselves to Monsieur *Reaumur*, in *December 1740*. He, he says, repeated all Mr. *Trembley's* Experiments, and not only by himself, but with *Monf. Bernard de Jussieu*, of the *Royal Academy of Sciences*, and of this SOCIETY, and with several more of the *Academy*. The Experiments succeeded as they had done in *Holland*, and they were all convinced they could not refuse acknowledging the Insects in question, to be really such: however new and surprising their Properties appeared.

Monsieur *Reaumur* then gives a general and very succinct Account of the Experiments tried by Mr. *Trembley* and himself; which agreeing perfectly with what is contained in the Paper just read to the SOCIETY, I avoid again transcribing. I shall only add, that he says, when he, the first time, saw two complete Animals forming themselves from the Parts of one *Polypus* cut asunder, he did not know how to believe his Eyes; and that he can hardly yet see it without fresh Amazement, after Experiments a hundred and a hundred times repeated. He avoids, he tells us, entering into further Details of Particulars, as these will be seen in the Work Mr. *Trembley* is actually finishing upon this Head; the Publication of which, he says, would be expected with the utmost Impatience, if the Public could know, as he does, how many curious Facts they will there find; and with what Pleasure they will read the Account of the ingenious Means, by which that Gentleman has enabled himself, to come at the Knowledge of so many strange and singular Truths.

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These Experiments were no sooner known among the Curious in *France*, but it was presently imagined, these Insects were not the only Species to which Nature had given so extraordinary a Faculty : And numberless Observations were made to that Purpose. Monsieur *Bonnet* was not long before he found a very slender Water-worm, of about an Inch and a half long, that had the same Property ; and Monsieur *Lyonnett* discovered another above three Inches long, and of the Thickness of the Treble String of a Violin, that being cut into 30 and 40 Parts, afforded the same Phænomena. Monsieur *Reaumur* was desirous, if possible, to see the Success of these Experiments in some Animals of a larger Size ; and inclin'd to believe some Sea Productions, not very unlike in Shape to these Fresh-water ones, together with other Bodies among those distinguished by the Name of *Urticæ Marinae*, and Star-fish, might not improbably be endowed with the like Faculties ; he engaged Monsieur *Guettard*, and Monsieur *Jussieu*, to be assistant in making Variety of Experiments by the Sea-side, on these several Sorts of Bodies ; the first was on the Coasts of *Poictou*, the other on those of *Normandy* ; and they were soon sufficiently satisfied, the same Laws of Nature had Place in these Sorts of Animals also. Many of the Star-fish Kind particularly, and which usually consist of five equal *Radii* or Arms, were found wanting, some one, others two, three, or four, of those *Radii* ; and Nature was reproducing in them the *Radii* wanting. Monsieur *Jussieu* broke and cut Star-fish into several Parts ; he had the Pleasure to see those several Parts continue alive, and to observe their Wounds to cicatrize and heal, though
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he could not stay long enough in the Country to see the new Parts break out, in the room of those he had cut away; which has been however, supplied by Monsieur *Girard de Villars*, who, on the Coasts near *Rochelle*, has seen the *Urticæ* reproduce all that had been cut off, and the Parts of the Stars also putting out each new *Radii* in the room of those he had deprived them of. Monsieur *Jussieu* also reported, that this Fact in the Star-fish, so new to him, was not so to the common Fishermen of the Country, who seeing him tearing and cutting to Pieces one of those Animals, told him, *Qu'il auroit beau faire, qu'il ne parviendroit pas à leur ôter la vie*: Those poor People having been accustomed to see daily a Fact, the more philosophical Part of Men had never so much as heard of.

Monsieur *Reaumur*, though very sensible that Water Insects had a considerable Advantage over others for the Recovery of their Wounds, was yet willing to try if some Land Insects might not possibly afford also some like Observations; and after several Trials, both he and Monsieur *Bonnet*, have met with some Sorts of Earth Worms capable of bearing the Operation. Monsieur *Reaumur* has cut in two some of these Worms; the anterior Part, that to which the Head belong'd, seem'd to have little suffer'd: In less than two Days, the *Anus* was form'd again, as it had been before, and the Worms were complete to all Purposes, but that they were shorter, and wanted of their Length: They lengthened, however, by degrees, the Number of the Rings of which they are composed increased, and they came again to their first Length at the End of some Months. But the posterior Part of
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the Worms, that to which the Tail belonged, wanted Matters of another Consequence; that Part had lost not a Head only, but the Parts of Generation also of both Sexes; which in those Creatures are placed not very distant from the Head: And to reproduce all these was the Work of some Months; it has, however, in many Instances, been done after that Time; and several of these hinder Parts of Worms have again become complete Worms, having each both a Head, and Male and Female Parts of Generation, and in as complete a Manner, as the whole Worms had before their Section. Tho' many, indeed, have died during the Operation, before the Reproduction was made complete: Yet, as in various Instances, where proper Care has been taken, the Experiment has succeeded; it is equally to be regarded, as if the making it required neither so long Time, nor so much Care.

This general Account of what is relating to this Subject, in the Preface to Monsieur *Reaumur's* new Volume, I hoped might not be disagreeable to the Company, as it might in some measure gratify their present Curiosity, till this Preface itself, and Monsieur *Trembley's* own Book, shall be in every Body's Hands.