



## XLV. On the crossing spider

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XLV. *On the Crossing Spider.* By R. TEED, Esq.*To Mr. Tilloch.*

Lancaster Court, Strand.

SIR,  
 YOUR ingenious correspondent, signed Lehmann, (Phil. Mag. vol. ii. p. 320,) having given an interesting, and in my opinion the best account of the crossing spider (*Aranea Diadema*), induced me not long ago to examine more minutely the wonderful sagacity and contrivance of that curious insect: and as the experiment I made is simple, and can be repeated by any person inclined to ascertain the fact, (to whom I will promise much pleasure from the result,) I shall describe as briefly as possible the method I pursued to obtain the most ample satisfaction. In the month of September last as I was one evening amusing myself in my garden at Kentish-Town, just as the sun was setting, I observed a large crossing spider in the centre of his web, watching for the unwary fly who should chance to be entangled in it. I took him from his post on a small stick, and, suspending the insect between myself and that bright luminary, I observed that he let himself down to the distance of about one yard; which was no sooner done, than I saw the thread by which he was suspended, in a moment divide or split into five or six lengths of a smaller size, and nearly half a yard long. A gentle breeze at that instant blowing towards the setting sun, and consequently from me, I was enabled to see more distinctly the very wonderful and surprising operation; for the end of one of the threads nearest the stick, being at liberty, was blown by the wind until they were all unfolded to some distance; and being stopped by a tree, the spider, who appeared perfectly acquainted with the business, felt with one of his hinder legs that it had laid hold of something. I soon perceived his object; I extended the stick, and thereby tightened the thread: this being known to the spider, he crossed from the stick to the tree with the greatest alacrity. I was then convinced how easy it is for these insects to transport themselves

selves from one side of a garden to the other, or to cross lanes, rivers, &c. But it may be asked, How the spider, who has an inclination to cross a garden, knows when the line or thread is long enough to answer his purpose?—A second experiment with another of these curious creatures most fully satisfied me. Repeating what I have already stated, I so managed the floating web that it should not presently fix on the tree; but as the air wafted it to a distance, I was much gratified by observing the line to lengthen, not from any more folds, but from the spider's body, the wind drawing it out, and no doubt aided by some internal force which he had the power to exert, thereby lengthening it at least ten yards:—it was then suffered to light on a wall, when the spider in a moment ran along the thread with the greatest ease. Now, sir, these experiments I have many times made, and advise others who are fond of exploring Nature in all her wonderful works to do the same; but it is best to have a strong light, in order to observe the curious foldings of the web, which appears (when viewed with a glass of one inch focus) to be fastened with something like a slip knot\*.

The observations which I shall make are as follows:—First, it appears to me that Nature has furnished these little creatures (which we from habits of education too much despise) with a most curious method of ejecting at pleasure a glutinous thread many times double; and although moist, the spider can contrive to separate or spin singly, by which means they not only weave their beautiful nets, but make a thread which has excited the wonder of thousands, to know by what means they have crossed roads, &c. And secondly, that by the power they have of lengthening those threads they can cross to any distance. It is indeed probable that instinct informs them when the wind is fair for their purpose; and it is remarkable that these powers are confined to the crossing spider, as no other which I have ever met with possesses them. The largest spiders have the strongest webs, and are best for the experiment; but the

\* You will remark that M. C. G. Lehmann has not noticed this: and I am persuaded that each folding is fastened by a knot leaving one end loose.

smallest have the same properties, and the thread may be seen to unfold with a good glass. By what means these threads are separated at the instant they are drawn from the spider's body, I am at a loss to determine, and by what kind of construction the aperture from whence they are drawn is contrived to spin a thread of a gummy consistence, either single or double, at the pleasure of the spider, is equally mysterious.

The spider, for some reason or other, is generally looked upon with abhorrence, and some have declared them to be poisonous, but the fact is otherwise; they are perfectly innocent, which could be easily proved, and they are a very ingenious and wonderful little insect, highly deserving the attention of the curious. When I say they are not venomous, I speak only of our English spiders; for notwithstanding their dexterity in killing a fly, there is, I believe, no doubt as to the means they use for that purpose, being commonly done by incisions made with their formidable forceps, and then sucking their blood.

There are many other very curious observations which might be made, peculiar to the spider, and which I may at a future period trouble you to insert in your valuable Magazine.

I am, sir, yours, &c.

R. TEED.

XLVI. *On Oxalic Acid.* By THOMAS THOMSON, M.D.  
F.R.S. Ed. Communicated by CHARLES HATCHETT,  
Esq., F.R.S.

[Continued from p. 111.]

### III. *Decomposition of the Oxalates.*

1. **W**HEN oxalic acid, in the state of crystals, is exposed to heat, it is only partially acted upon, a considerable portion escaping without alteration; but when an alkaline or earthy oxalate is heated, the acid remains fixed till it undergoes complete decomposition. The new substances into which the acid is converted, as far as my experience goes, are always the same, what oxalate soever we employ. They are