

MIGRATING LARVÆ OF *SCIARA CONGREGATA*
JOHANNSEN.

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The species of *Sciara* which Prof. Johannsen describes in this issue of *PSYCHE*, first came under my observation on July 6, 1912, when I noticed an army of the larvæ in a chain about five feet long and three inches wide at its greatest width. The chain of larvæ was widest at about the middle and tapered toward each end.

The general appearance of the army was that of a dead snake and I was about to pass by it when closer observation showed that it consisted of a migrating mass of larvæ. The chain was moving very slowly at a rate of probably not more than a few inches per minute.

In general the movement of the army suggested a sort of flowing motion in which the larvæ from the rear came up and traveled over their fellows in front of them. It was noticed that the larvæ on the top made much better progress than those below. This would naturally be the case since the individuals on the top depended upon those beneath them for purchase. Since the larvæ must have been piled up about eight deep in the middle of the procession it would seem that those next to the ground would be unable to make much progress, and that they would therefore have to wait until those to the rear had passed over them before they could gain any headway. It was thus noticed that the advance of the chain was made by the larvæ from above. These larvæ, naturally, made more rapid progress than those beneath them, and they no sooner gained the ground in front of the chain than they were followed and covered by the great mass of migrating larvæ coming from behind. Probably they did not emerge again until most of the chain had passed over them.

The locomotion of the individual larva was accomplished by a series of intermittent, jerky, flowing movements by which the larva glided over those beneath it. These migrating larvæ left a sort of trail in their wake somewhat similar to the track passed over by a snake.

A number of the migrating larvæ taken into the insectary and placed in a cage, containing some oak leaf mold into which they soon dispersed and fed rather actively for several days. About three days later on lifting layers of the mold, I noticed that most of the larvæ had transformed to delicate yellow pupæ. No accurate record was made of the time passed in the pupal stage but this was probably about two weeks.

On July 16, 1913, a little over a year after the first observation, a second army of the worms was noticed. This was also found in the town of Fayetteville, only a few hundred yards from the locality where the observation of the previous year was made. The army was much smaller than the one noticed last year (1912), probably not more than three feet long.

Some of these larvæ were kept and pupated about one week after they were transferred to the leaf mold. The adults emerged probably two to three weeks later, during my absence. This insect proved to be the same one observed last year. Specimens sent to Prof. O. A. Johannsen were determined by him as a new species. They are described in the present issue of *PSYCHE* under the name of *Sciara congregata*.

NATURAL ENEMIES OF SIMULIUM: NOTES.

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In the concluding paragraphs of his paper on "American Black Flies or Buffalo Gnats," Bulletin 26, Technical Series Bureau of Entomology, April, 1914, the author, Mr. J. R. Malloch, calls attention to the occurrence of parasites of the larvæ found in Illinois, and also found by Mr. E. H. Strickland near Boston, Mass.

In the last paragraph of his paper, Mr. Malloch refers to some work done by agents of the Bureau of Entomology many years ago. As this reference leaves the matter somewhat obscure, it may be stated that on May 6, 1888, while studying *Simulium* in the St. Francis River, near Madison, Ark., the writer found a *Simulium* larva about one-fourth grown, presumably belonging to what was then known as *Simulium pecuarum*, infested by some



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