

think that in the *Araneida* production by virgin females takes place, and that fecundation by the males is unnecessary, at least under all circumstances. But to get at the knowledge of the truth, it is often very useful not to rest satisfied with a single set of observations. The examination of the generative organs of the *Araneida* in fact gives the most complete explanation of these productions by females kept in captivity for several years.

Amongst the *Araneida* we must distinguish between those whose life only lasts one season, and those of which, on the contrary, the existence is prolonged far beyond this term. In the former a single oviposition takes place; in the others, the broods succeed each other from year to year without the concurrence of the males; only, as is shown by attentive observation and experiment, the concurrence of the male is necessary at least once.

Mygale, *Clotho*, *Filistata*, *Segestria*, &c., all belong to the category of species which usually live several years; in all, leaving out of consideration certain secondary modifications, the female apparatus is composed of two large tubes, sometimes united at the extremity, sometimes isolated and terminated by a cæcum, to which the ovarian chambers are appended. At the moment of copulation these tubes receive the seminal fluid in abundance; they are true spermatoc reservoirs; the eggs, on the point of being expelled, are impregnated during their passage. The fecundating liquid not being exhausted by a single oviposition, and being preserved with all its qualities in its reservoirs, as I have repeatedly ascertained by microscopic examination, new ovipositions may take place at longer or shorter intervals, without any necessity for fresh copulations.

The study of the arrangement of the generative organs, and the ascertainment of the presence of spermatozoids in the large ovarian conduits, prove convincingly that the female *Araneida* are not fitted to furnish fertile products, except after copulation. But this kind of proof is not the only one to which I have turned my attention. Keeping in captivity spiders of different kinds, especially of the genera *Mygale* and *Filistata*, which had not acquired their full development, I have succeeded, in many cases, in feeding them up to the term of their growth; these individuals, taken young, had certainly never received the approaches of the male, and the eggs obtained from them always remained barren.—*Comptes Rendus*, 6 April 1857, p. 741.

On the Brain of the Dytici, in its relations to Locomotion.

By E. FAIVRE.

The following experiments have been made upon a great number of *Dytici*, both males and females, with the view of ascertaining the relations of the cerebral ganglia to the locomotion of the animals.

1. *Total or partial removal of the supra-oesophageal ganglion.*—If the whole of the supra-oesophageal ganglion be removed from a *Dyticus*, the animal remains motionless for some moments, without giving any signs of great pain. It soon begins to walk straight forward, but with much greater difficulty than in the normal state; it

swims more readily than it walks. Moving always in the same direction, it is constantly striking against the same point of the vessel in which it is kept. In general it scarcely survives the operation twenty-four hours.

When one of the lobes of the supra-œsophageal ganglion of a *Dyticus* has been removed, the power of walking is diminished, but the animal still swims with great celerity. In either case the insect always moves towards the uninjured side, so that it describes interminable circles in the same direction. Thus, when deprived of one of its lobes, the *Dyticus* loses the power of directing itself towards the side of this lobe, from which we may conclude that each lobe presides in the direction of its side.

2. *Total or partial removal of the sub-œsophageal ganglion.*—When this ganglion is entirely removed, the *Dytici* are totally incapable of swimming or walking. This is not owing to the paralysis of any of the legs, for each member moves spontaneously and draws back when pinched. The ambulatory feet are even seen to move, as if to walk, and the natatory feet as if to swim. But the insect only moves accidentally; it neither walks nor swims.

The exciting power of its motions, and that by which they are coordinated, cease with the removal of the sub-œsophageal ganglion. The insect raises itself on its feet, it advances an ambulatory foot with a natatory one, or even the natatory feet of one side, and this disagreement produces no result.

These observations lead to the following results:—

The supra- and sub-œsophageal ganglia and the peduncles which unite them, represent the brain of the *Dyticus*, and exert an incontestable influence upon locomotion.

The upper part of the brain, placed above the œsophagus, is the seat of volition and of the direction of the movements.

The lower part is the seat of the exciting cause and of the coordinating power.—*Comptes Rendus*, 6 April 1857, p. 721.

On Spiochætopterus, a new genus of Annelides from the Coast of Norway. By M. Sars.

SPIOCHÆTOPTERUS, Sars.

Corpus filiforme, antice truncatum ibique infra et ad latera labium formans carnosum spathulatum seu infundibuliforme, in cujus fundo os. Lobus capitalis supra os, parvus, rotundatus, oculis nullis. Cirri tentaculares duo longissimi et sulco longitudinali ornati. Segmenta novem antica corporis depressa, brevia, mamillis pedalibus conicis seu pyramidalibus solummodo dorsalibus (ventralibus carentibus), setis instructis capillaribus apice subhastato-acuto non in fasciculum congestis, sed seriem transversam seu ad longitudinem mamillarum formantibus, segmentum quartum etiam seta validissima apice oblique truncato et denticulo ornato.

Segmentum decimum et undecimum subteretia, longissima, pinnis seu mamillis pedalibus foliaceis ornata, scilicet una dorsali fasciculum



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