would therefore appear also to possess, at first, the characters of the Shanny; but as development goes on, the jaws are pushed out, the belly is reduced in comparative size, and the dorsal and anal fins are shortened, and become ultimately separated from the caudal. Thus, in course of time, the young gradually assume the form and characters of the parent. And there can be little doubt that this would have been found to be the case with the young of the Fifteen-spined Stickleback, had Mr. Couch watched their development a little longer. The obtuse form of the head, on which that gentleman places much stress, is the embryonic condition of all fishes; the elongation of the jaws is always an after-development.

In conclusion it may be remarked, that of the three or four other species of fish, described to nidify, one, a native of Demerara, is stated to remain by the side of the nest with as much solicitude as the hen guards her eggs; the same is said respecting another species inhabiting the Black Sea: but in none, so far as I am aware, has parental attachment been observed to equal that evinced by the Three-spined Stickleback. Yet we must not, therefore, conclude that it does not exist to the same extent in others of the finny tribes. The habits of these animals are very little known; and who can say what time may bring to light respecting the œconomy of the inhabitants of the deeper regions of the sea? It is only, as it were, the other day that nothing was known of the nidification of the Three-spined Stickleback,—a resident of almost every pool, river, and rivulet in the kingdom.

XXII.—*A Catalogue of British Spiders, including remarks on their Structure, Functions, Œconomy, and Systematic Arrangement.* By John Blackwall, F.L.S.

[Concluded from p. 189.]

198. *Epëira bicornis.*

Epëira bicornis, Walck. Hist. Nat. des Insect. Apt. t. ii. p. 124; Blackw. Linn. Trans. vol. xix. p. 126; Koch, Die Arachn. B. xi. p. 92. tab. 382. fig. 902, 903.

—— *arbustorum*, Koch, Uebers. des Arachn. Syst. erstes Heft, p. 3.

In the wooded parts of Denbighshire this rare species occurs on the trunks of trees. It pairs in June, and in July the female constructs a subglobose cocoon of light brown silk of a loose texture, about $\frac{1}{3}$rd of an inch in diameter, which includes her eggs.

199. *Epëira conica.*

Epëira conica, Walck. Hist. Nat. des Insect. Apt. t. ii. p. 138; Latr. Gen. Crust. et Insect. tom. i. p. 109; Sund. Vet. Acad. Handl. 1832, p. 248; Hahn, Die Arachn. B. ii. p. 45. tab. 57. fig. 130.
Singa conica, Koch, Uebers. des Arachn. Syst. erstes Heft, p. 6; Die Arachn. B. xi. p. 145. tab. 392. fig. 943–945.
Titulus 4, Lister, Hist. Animal. Angl. De Aran. p. 32. tab. 1. fig. 4.

I have seen immature individuals of this remarkable spider which were captured in Middlesex, and in 1852 I received from Mr. Meade an adult male which was sent to him from that county. Lister states that he has frequently found *Epëira conica* in lofty and umbrageous woods in Cambridgeshire and Yorkshire.

200. *Epëira tubulosa.*

Epëira tubulosa, Walck. Hist. Nat. des Insect. Apt. t. ii. p. 86.
Singa hamata, Koch, Die Arachn. B. iii. p. 42. tab. 88. fig. 197, 198; Uebers. des Arachn. Syst. erstes Heft, p. 6.
—— *melanocephala*, Koch, Die Arachn. B. iii. p. 44. tab. 88. fig. 199.
Titulus 7, Lister, Hist. Animal. Angl. De Aran. p. 40. tab. 1. fig. 7.

According to Lister, *Epëira tubulosa* is sometimes met with in great abundance in moist situations; it is one of the few native species, however, which I have not yet succeeded in obtaining.

Genus Tetragnatha, Latr.

201. *Tetragnatha extensa.*

Tetragnatha extensa, Walck. Hist. Nat. des Insect. Apt. t. ii. p. 203; Latr. Gen. Crust. et Insect. tom. i. p. 101; Sund. Vet. Acad. Handl. 1832, p. 256; Hahn, Die Arachn. B. ii. p. 43. tab. 56. fig. 129; Koch, Uebers. des Arachn. Syst. erstes Heft, p. 5.
—— *gibba*, Koch, Uebers. des Arachn. Syst. erstes Heft, p. 5.
Titulus 3, Lister, Hist. Animal. Angl. De Aran. p. 30. tab. 1. fig. 3.

This is the only species belonging to the genus *Tetragnatha* which has been found in Great Britain. It frequents damp localities, constructing among bushes and plants in the vicinity of brooks, ditches and pools a slight net having a circular aperture at the centre. The specific name *extensa* has reference to its habit of extending the first and second pairs of legs forwards and the posterior pair backwards in a line with the body.

In June the female attaches to some object near her snare, a subglobose cocoon, about $\frac{1}{5}$th of an inch in diameter, composed of fine silk of a loose texture, which is either whitish with small tufts of a dull green colour on its exterior surface, or else is of a

dull green colour with whitish tufts. The eggs deposited in different cocoons vary greatly in number; but I have never noticed fewer than 60 nor more than 214 in a single set; they are spherical, of a pale yellow colour, and are agglutinated together in a subglobose mass.

Tribe Senoculina.

Family *Dysderidæ*.

Genus Dysdera, Latr.

202. *Dysdera erythrina*.

Dysdera erythrina, Walck. Hist. Nat. des Insect. Apt. t. i. p. 261; Latr. Gen. Crust. et Insect. tom. i. p. 90; Hahn, Die Arachn. B. i. p. 7. tab. 1. fig. 3; Koch, Uebers. des Arachn. Syst. erstes Heft, p. 20; Die Arachn. B. v. p. 76. tab. 165. fig. 389; Blackw. Linn. Trans. vol. xix. p. 128.

Specimens of *Dysdera erythrina* have been taken under stones in the central parts of the city of Manchester; others have been transmitted to me from Cambridge by Professor Potter and Mr. Alfred Bishop, and from Oxford by Mr. W. H. Baxter; and Mr. Walker informs me that he has met with this spider on the south coast, near the seashore.

203. *Dysdera rubicunda*.

Dysdera rubicunda, Koch, Die Arachn. B. v. p. 79. tab. 165. fig. 390, 391; Blackw. Linn. Trans. vol. xix. p. 129.

The only individual of this species which has come under my observation was an adult male, contained in a collection of spiders sent to me from Cambridge by Charles C. Babington, Esq., M.A. M. Walckenaer is certainly mistaken in supposing that *Dysdera rubicunda* is merely a variety of *Dysdera erythrina* (Hist. Nat. des Insect. Apt. t. ii. p. 444), as well-marked differences in the structure of the palpal organs of the males prove to demonstration that they are distinct.

204. *Dysdera Hombergii*.

Dysdera Hombergii, Walck. Hist. Nat. des Insect. Apt. t. i. p. 263; Blackw. Linn. Trans. vol. xix. p. 129; Koch, Die Arachn. B. x. p. 95. tab. 351. fig. 819, 820.

—— *Latreillii*, Blackw. Lond. and Edinb. Phil. Mag. Third Series, vol. i. p. 190.

—— *gracilis*, Wider, Museum Senckenb. B. i. p. 200. taf. 14. fig. 1.

—— *punctata*, Koch, Die Arachn. B. v. p. 84. tab. 167. fig. 395, 396.

Distinguished arachnologists have mistaken *Dysdera Hom-*

bergii, first briefly described by Scopoli (Entomologia Carniolica, p. 403, No. 1119), for the young of *Dysdera erythrina*, from which it differs in colour and organization. Being convinced of its specific distinctness by a careful examination of specimens captured in 1832, in the same year I gave a description of it in the 'London and Edinburgh Philosophical Magazine,' under the appellation of *Dysdera Latreillii*; but the trivial name, of course, is superseded by that originally given to it by Scopoli. The tarsi of this species, unlike those of its congeners, have three claws at their extremity, and are destitute of scopulæ.

Crevices in rocks and walls and the under side of lichens growing on trees are the favourite resorts of *Dysdera Hombergii*, which is plentiful in the wooded districts of Denbighshire, Caernarvonshire and Lancashire; and in the spring of 1849 I received an immature female from Mr. J. Hardy, who took it in Berwickshire. The sexes pair in May, and in the succeeding month the female envelopes herself in an oval cell of white silk of a slight texture, on whose exterior surface are disposed minute pebbles, small pieces of indurated soil, and other heterogeneous materials; in this cell she deposits between 20 and 30 spherical eggs of a pale pink colour, which are not cemented together.

Genus Segestria, Latr.

205. *Segestria perfida.*

Segestria perfida, Walck. Hist. Nat. des Insect. Apt. t. i. p. 267.
—— *florentina*, Hahn, Die Arachn. B. i. p. 5. tab. 1. fig. 1; Koch, Uebers. des Arachn. Syst. erstes Heft, p. 20; Die Arachn. B. v. p. 72. tab. 164. fig. 385, 386.
—— *cellaria*, Latr. Gen. Crust. et Insect. tom. i. p. 88.

The claim of this fine species to a place among our indigenous spiders rests on the authority of Dr. Leach, who has recorded an instance of its capture at Plymouth, in the Supplement to the 4th, 5th and 6th editions of the 'Encyclopædia Britannica,' article Annulosa.

206. *Segestria senoculata.*

Segestria senoculata, Walck. Hist. Nat. des Insect. Apt. t. i. p. 268; Latr. Gen. Crust. et Insect. tom. i. p. 89; Sund. Vet. Acad. Handl. 1831, p. 145; Hahn, Die Arachn. B. i. p. 6. tab. 1. fig. 2; Koch, Uebers. des Arachn. Syst. erstes Heft, p. 21; Die Arachn. B. v. p. 75. tab. 164. fig. 388.
Titulus 24, Lister, Hist. Animal. Angl. De Aran. p. 74. tab. 1. fig. 24.

Segestria senoculata is of frequent occurrence in many parts of England and Wales, and in December 1848 a young individual was transmitted to me from Berwickshire by Mr. J. Hardy.

It spins a long tube, which serves for a domicile, in the crevices of rocks and walls, and under lichens growing on trees. Towards the end of May or the beginning of June the female deposits between 80 and 90 spherical eggs of a yellowish white colour, not agglutinated together, in a lenticular cocoon of white silk of a fine but compact texture, measuring $\frac{1}{4}$th of an inch in diameter, which is inclosed in a silken cell, attached to objects near her retreat, and covered with particles of earth and the refuse of her prey.

This species, when in captivity, does not complete its several changes of integument and arrive at maturity in less than two years, and I have ascertained that its existence sometimes extends through a period of four years. Only three spinning tubes are connected with each intermediate spinner of this spider; they are situated at its extremity and are of large dimensions.

Genus Schœnobates, Blackw.

207. *Schœnobates Walkeri.*

Schœnobates Walkeri, Blackw. Ann. and Mag. of Nat. Hist. Second Series, vol. vi. p. 343.

An adult male of this very interesting spider was captured at Broadstairs in Kent in the month of September, and is in Mr. Walker's cabinet. It is preserved in Canada balsam, and has suffered from compression, circumstances which render an investigation of its structure difficult. After a most careful inspection under the microscope, I could not ascertain that it had more than six eyes; but even should it ultimately be found to possess eight of those organs, it must still, by its other essential characters, constitute a new genus.

Genus Oonops, Templeton.

208. *Oonops pulcher.*

Oonops pulcher, Templeton, Zoological Journal, vol. v. p. 404. pl. 17. fig. 10; Blackw. Linn. Trans. vol. xix. p. 129.

Deletrix exilis, Blackw. Lond. and Edinb. Phil. Mag. Third Series, vol. x. p. 100.

Dysdera pulchra, Walck. Hist. Nat. des Insect. Apt. t. iv. p. 382.

In the 'London and Edinburgh Philosophical Magazine,' I proposed the genus *Deletrix* for the reception of this minute spider, which I described, under the specific name of *exilis,* from immature females whose colours had been injured by captivity. At that time I was not aware that I had been anticipated by Mr. Templeton, whose genus *Oonops,* founded on the organic peculiarities of this species, has the claim of priority.

M. Walckenaer does not admit the validity of the well-defined genus *Oonops* (misprinted *Conops*), but has placed this spider in the genus *Dysdera*. See the synonyma.

Oonops pulcher occupies interstices in rocks and walls, and among lichens growing on trees, in Lancashire, Denbighshire and Caernarvonshire, being abundant in the wooded parts of the last two counties. By the agency of a small scopula, connected with the extremity of each tarsus, it is enabled to move with celerity and security on dry objects having polished perpendicular surfaces. In May the female fabricates near her retreat several contiguous subglobose cocoons of white silk of a delicate but compact texture, measuring about $\frac{1}{16}$th of an inch in diameter, in each of which she usually deposits two spherical pink eggs, not cemented together.

Family *Scytodidæ*.

Genus Scytodes, Latr.

209. *Scytodes thoracica*.

Scytodes thoracica, Walck. Hist. Nat. des Insect. Apt. t. i. p. 270; Latr. Gen. Crust. et Insect. tom. i. p. 99.
—— *tigrina*, Koch, Die Arachn. B. v. p. 87. tab. 167. fig. 398.

Dr. Leach has stated in the Supplement to the 4th, 5th and 6th editions of the 'Encyclopædia Britannica,' article Annulosa, that *Scytodes thoracica* has occurred twice near Dover; but that both individuals were females.

Genus Savignia, Blackw.

210. *Savignia frontata*.

Savignia frontata, Blackw. Lond. and Edinb. Phil. Mag. Third Series, vol. iii. p. 105; Research. in Zool. p. 312. pl. 2. fig. 1, 2.

The male of this small and interesting species was discovered on iron rails at Crumpsall Hall in the autumn of 1832, and has since been met with, at different seasons of the year, in various parts of Lancashire, Yorkshire, Cheshire, Denbighshire and Caernarvonshire. As regards its œconomy, I can merely state that it is active during the day, decidedly aëronautic, making frequent ascents into the atmosphere, and that it can exist for a long period immersed in water. Though the male is far from being uncommon, yet I have not succeeded in capturing a single female.

By the conical protuberance on the anterior part of the cephalo-thorax, the relative length of the legs, the converging maxillæ and semicircular lip, *Savignia frontata* is connected with the spiders belonging to the genera *Walckenaëra* and *Neriëne*.