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XIV.—Catalogue of Irish Entozoa, with observations

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Subgenus *NECROPHILÆOPHAGUS*, Newport.

1. *N. longicornis*, Leach, sp.
2. — *punctiventris*, mihi. Yellow, head dark ferruginous; antennæ yellow, scarcely three times as long as the cephalic segment; joints punctured, hairy; labium quadrate, deeply punctured; internal margin of the mandibles bidentated; anal appendages large, with deeply impressed hairy punctures; legs hairy, sixty-six pairs. Sicily.

Genus *GEOPHILUS*, Leach.

1. *G. carpophagus*, Leach.
2. — *subterraneus*, Leach.
3. — *acuminatus*, Leach.
4. — *rubens*, Say.
5. — *barbaricus*, Gervais.
6. — ———? Greece.

Genus *GONIBREGMATUS*, Newport.

1. *G. Cumingii*, Newp. Philippine Islands.

XIV.—*Catalogue of Irish Entozoa, with observations.* By O'BRYEN BELLINGHAM, M.D., Member of and Professor of Botany in the Royal College of Surgeons in Ireland, Member of the Royal Zoological, Geological and Natural History Societies of Dublin, &c.

[Continued from Charlesworth's Magazine of Natural History, vol. iv. p.351.]

THE following list of the Entozoa indigenous to Ireland (the first part of which appeared some time since) is confined almost altogether to the species which I have discovered and examined myself, and the great majority are new to the British fauna. The classification followed is that given by Rudolphi in his 'Synopsis Entozoorum,' and adopted by Bremser and most zoologists. In the nomenclature I have also followed Rudolphi; and where species are mentioned which had been discovered previously in this country, I have been careful to notice the fact and to give the credit to the discoverer.

Order 1. NEMATOIDÆA.

Genus 6. SPIROPTERA.

(Derived from *spira*, a curl or circle.)

Body cylindrical and elastic, slightly attenuated at each extremity. Mouth orbicular. Anus large, a little in front of the posterior extremity. Caudal portion of the male spiral, with lateral alæ, between which the penis, a simple filament, projects.

This genus was first named *Acuaria* by Bremser in his cata-

logue of the Vienna collection; it was subsequently changed to *Spiroptera* from the disposition of the caudal extremity. The species are numerous, forty being enumerated by Rudolphi, of which eighteen are marked doubtful; they occur only in vertebral animals, and are most common in birds. They inhabit the œsophagus or crop, and are found between the membranes of the alimentary canal and in tubercles connected with these parts, more frequently than in the canal itself; in fish they sometimes occur in the swim-bladder. The species are arranged by Rudolphi in two subdivisions, from the character of the parts about the mouth.

Ore papilloso.

1. <i>Spiroptera anthuris</i> ..	œsophagus of rook (<i>Corvus frugilegus</i>).
2. ——— <i>cystidicola</i> .	{ Swim-bladder of trout (<i>Salmo Fario</i>).
Swim-bladder of Gillaroo trout (<i>Salmo Fario</i> , var.).
3. ——— <i>leptoptera</i> {	œsophagus and crop of sparrow-hawk (<i>Accipiter fringillarius</i>).
[——— <i>strumosa</i> .	Stomach of mole (<i>Talpa europæa</i>).]

Species dubiæ.

4. <i>Spiroptera</i> ..	œsophagus of raven (<i>Corvus Corax</i>).
5. ——— ..	œsophagus of golden plover (<i>Charadrius pluvialis</i>).
6. ——— ..	Small intestine of bald-coot (<i>Fulica atra</i>).
7. ——— *	{ Tubercles in œsophagus of shieldrake (<i>Tadorna Bellonii</i>).
8. ——— †	Crop of shearwater (<i>Procellaria Anglorum</i>).
9. ——— ..	Stomach and intestine of skate (<i>Raia Batis</i>).

* This species of *Spiroptera*, which I found in tubercles connected with the œsophagus of the common shieldrake, appears not to have been previously noticed, and it differs from every species hitherto described (except one observed by Creplin and named *Spiroptera aculeata*) in having the body armed with spines. None of the specimens which I possess however are quite perfect; the longest, which appears to be nearly so, is an inch and a half in length, cylindrical and very nearly of the same diameter throughout; a narrow line runs along the dorsal, and another along the abdominal surface from the head to the caudal extremity. The mouth is orbicular, conspicuous, and without papillæ, hence it belongs to the first division in Rudolphi's arrangement; the head and the whole anterior portion of the body are armed over every part with innumerable recurved hooks. The alimentary canal extends in a straight line from before backwards, and is nearly of the same diameter in every part.

† This species of *Spiroptera*, which occurred in the crop of the shearwater (*Procellaria Anglorum*) like the preceding, is armed with spines. The specimens which I possess are females; they were attached to the mucous membrane of the crop by their anterior extre-

Genus 7. STRONGYLUS.

(Derived from *στρογγύλος, teres.*)

Body cylindrical and elastic, attenuated at each extremity. Mouth orbicular or angular, simple or provided with tubercles. Anus sub-terminal. Penis a simple filament, issuing from the centre of a kind of pouch, which terminates the body of the male.

This genus was established by Müller, and has been adopted by zoologists since. The species are numerous: Rudolphi enumerates thirty-eight, of which fifteen are doubtful; they occur in mammalia and birds, rarely in reptiles, and are not found in fish. They occur in almost every part of the body, but inhabit principally the trachea, œsophagus, or tubercles connected with these parts, the stomach and intestines; they are sometimes contained in aneurismal tumours of the mesenteric artery in the horse and ass. The species have been arranged by Rudolphi in his 'Synopsis' under three subdivisions.

Ore orbiculari noduloso seu papilloso.

1. <i>Strongylus tubifer</i> ..	{	Tubercles in œsophagus of teal (<i>Anas Crecca</i>).
Tubercles in œsophagus of pintail (<i>Anas acuta</i>).
Tubercles in œsophagus of shoveller (<i>Anas Clypeata</i>).
2. ————— <i>contortus</i> .	{	Small intestine of sheep (<i>Ovis Aries</i>).

Ore nudo.

3. <i>Strongylus retortæformis</i> ..	{	Small intestine of rabbit (<i>Lepus Cuniculus</i>).
Small intestine of hare (<i>Lepus timidus</i>). |
|---------------------------------------|---|--|

mity, and they lived in water for some time. Their length is six to seven lines, they are thicker posteriorly than anteriorly, and when recent were quite pellucid, so that the whole tract of the alimentary canal could be traced through the parietes; this was straight, narrow anteriorly, and becoming wider posteriorly.

The mouth is orbicular and prominent, with four tubercles surrounding it, which varied in shape when the animal was alive; hence this species must be referred to the second division in Rudolphi's arrangement, in which the mouth is papillary. The anus rounded, and a little in front of the caudal extremity. The part which might be called the neck is armed with recurved hooks; the anterior third of the body is also armed with four rows of much smaller hooks or spines, which are very numerous and close anteriorly; they diminish in number, and gradually disappear near the junction of the anterior with the middle third of the body. The caudal portion of the body is double the thickness of the anterior, and its extremity is conical.

4. <i>Strongylus Trigonocephalus</i>	{	Small intestine of dog (<i>Canis familiaris</i>).
5. ——— <i>Tetragonocephalus</i>		Stomach and small intestine of fox (<i>Canis vulpes</i>).
6. ——— <i>suis</i> *		Bronchial tubes of pig (<i>Sus Scrofa</i>).
7. { <i>Strongylus trachealis</i> †.	{	Trachea of domestic fowl (<i>Gallus domesticus</i>).
{ <i>Syngamus trachealis</i> , Sieb.		Trachea of partridge (<i>Perdix cinerea</i>).
		Trachea of peacock (<i>Pavo cristatus</i>).

* In the trachea and bronchial tubes, particularly in the latter, of the pig (*Sus scrofa*), I have found a species of *Strongylus* in great numbers which possesses the characters of the *Strongylus suis*, noticed in the Appendix (Mantissa) to Rudolphi's 'Synopsis,' the female only of which he appears to have seen. The females are an inch and a half in length, the males little more than half an inch; their colour is white, they are of equal diameter in every part, and the females exceed the males in diameter as in length. The mouth is papillary; the caudal extremity of the female is incurved and obtuse, with a short spine: in the male it ends in a pouch which has an anterior and a posterior lobe. The penis is long and dark-coloured; the ova exceedingly numerous and barely visible to the naked eye.

Every specimen, male or female, which was placed in cold water became distended, and in a few minutes the integuments ruptured, allowing the ovaries and intestine to protrude; some gave way near the anterior, others near the caudal extremity, and some near the centre.

† This species was first noticed by Colonel George Montagu in the Memoirs of the Wernerian Natural History Society: his communication is entitled 'An account of a species of *Fasciola* which infests the trachea of poultry,' and contains a figure of the species.

Dr. Charles T. von Siebold of Dantzic has given a full account of it in a paper published in Wiegmann's 'Archiv,' which has been translated in the 'Philosophical Magazine.' He considers it a double animal, in which the male and female are attached permanently to one another, and has given it the name *Syngamus trachealis* from this circumstance. Nathusius looks upon it to be a *Strongylus* in the act of coitus. There is no doubt it ought to be referred to this genus. Rudolphi, who never could have seen this species, or he would hardly have made such a mistake, supposes it to be identical with the *Distoma lineare* discovered by him in the intestinal canal of the domestic fowl. Speaking of the *Distoma lineare* he observes, "huc pertinebit etiam *Distoma tracheæ* Georgii Montagu in trachea pulorum phasianii galli &c. repertum."

The *Strongylus trachealis* is frequently met with in the trachea of young partridges and poultry, and is believed to be the cause of the disease which is so destructive to them, known under the name of

Species dubiæ.

8. *Strongylus*. Cavity of thorax of moor-buzzard (*Buteo rufus*).
9. ———. Trachea of turkey (*Meleagris Gallopavo*).
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'the gapes.' I have found three specimens, each upwards of half an inch in length, in the trachea of a chicken which died of the gapes a fortnight after being hatched, and was informed that it had manifested symptoms of the disease when only five days old.

In the specimens which I have examined the male portion of the animal (as it has been called) was of a paler colour than the other, and no trace of a convoluted tube was visible through its parietes, though very evident in the female portion.

[To be continued.]

XV.—*Abstract of a paper entitled "Account of a Botanical Tour in North Wales, the South of England and Jersey, during the months of August and September 1843." By R. GRAHAM, M.D., Professor of Botany in the University of Edinburgh*.*

IN this communication the Professor only noticed such plants observed by him as are not natives of Scotland, are scarce there, or which otherwise possess interest from marked peculiarities of geographical distribution in the districts which he visited. The journey extended from Liverpool to Chester, and thence by St. Asaph to Bangor. From Bangor the Professor and his party walked up Carnedd Llewellyn, and by the slate quarries of Fearnlyn to Llanberris, botanizing in the woods and valleys in the neighbourhood, ascending Snowden from the west, and passing on to Capel Curig and the Devil's Kitchen, from which they went by the mail to Birmingham. From Birmingham Dr. Graham proceeded to Dorsetshire and Jersey. Whatever was noticed regarding the vegetation elsewhere was seen only from the coach, or during the almost momentary stoppages at the stages. On returning from Jersey, a few hours were spent in a very hasty examination of the road-side in a corner of the Isle of Wight.

The following are the plants seen in the first half of the journey, and not truly wild in Scotland:—*Lactuca muralis*, in a little glen a few miles to the westward of Chester, and not again observed in the whole journey; and in the same place, *Tamus communis* (afterwards found to be very frequent further south); *Chlora perfoliata*, *Helminthia echioides* (also profuse near Weymouth); *Diplotaxis tenuifolia*, abundant on the walls near Ches-

* Read before the Botanical Society of Edinburgh, Dec. 14, 1843.