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EXHIBITING A VIEW OF THE
PROGRESSIVE DISCOVERIES AND IMPROVEMENTS
IN THE
SCIENCES AND THE ARTS.

CONDUCTED BY

ROBERT JAMESON,

REGIUS PROFESSOR OF NATURAL HISTORY, LECTURER ON MINERALOGY, AND KEEPER OF
THE MUSEUM IN THE UNIVERSITY OF EDINBURGH;

Fellow of the Royal Societies of London and Edinburgh; Honorary Member of the Royal Irish Academy; of the Royal Society of Sciences of Denmark; of the Royal Academy of Sciences of Berlin; of the Royal Academy of Naples; of the Geological Society of France; Honorary Member of the Asiatic Society of Calcutta; Fellow of the Linnean and Geological Societies of London; of the Royal Geological Society of Cornwall, and of the Cambridge Philosophical Society; of the Antiquarian, Wernerian Natural History, Royal Medical, Royal Physical, and Horticultural Societies of Edinburgh; of the Highland and Agricultural Society of Scotland; of the Antiquarian and Literary Society of Perth; of the Statistical Society of Glasgow; of the Royal Dublin Society; of the York, Bristol, Cambrian, Whitby, Northern, and Cork Institutions; of the Natural History Society of Northumberland, Durham, and Newcastle; of the Imperial Pharmaceutical Society of Petersburg; of the Natural History Society of Wetterau; of the Mineralogical Society of Jena; of the Royal Mineralogical Society of Dresden; of the Natural History Society of Paris; of the Philomathic Society of Paris; of the Natural History Society of Calvados; of the Senkenberg Society of Natural History; of the Society of Natural Sciences and Medicine of Heidelberg; Honorary Member of the Literary and Philosophical Society of New York; of the New York Historical Society; of the American Antiquarian Society; of the Academy of Natural Sciences of Philadelphia; of the Lyceum of Natural History of New York; of the Natural History Society of Montreal; of the Franklin Institute of the State of Pennsylvania for the Promotion of the Mechanic Arts; of the Geological Society of Pennsylvania; of the Boston Society of Natural History of the United States; of the South African Institution of the Cape of Good Hope; Honorary Member of the Statistical Society of France; Member of the Entomological Society of Stettin, &c. &c. &c.

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no scored surfaces, no boulders are to be seen, and this change is effected by an ascent of only a few yards! So great is the contrast, that any one viewing these mountains from a distance, would, in many cases, naturally conclude that their bases and their summits were composed of quite different formations.

Descriptions of some New Crustaceous Animals found in the Firth of Forth. By HENRY D. S. GOODSIR, Esq., Surgeon, Anstruther. Communicated by the Author. (No. IV.)*
With a Plate.

SECTION I.—ON THE GENUS MUNNA.

WHILE engaged during the end of July last in examining the produce of a day's dredging from the mouth of the Firth of Forth, I observed a crustaceous animal running briskly along the bottom of the vessel, which I at first took to be a small *nymphon*. On a more minute examination, I found that it was an *Isopodous Crustacean* belonging to the *Famille des Asellotes* of Milne Edwards.

I had applied the name of *Thetis* as a generic title to this animal, and it was my intention to publish it under this name. Some days afterwards, however, as I was accidentally looking over a few numbers of the *Isis* for last year (1841), I was both delighted and disappointed to find in the No. VI. for that year, my genus *Thetis*, fully described and figured by M. Kroyer of Copenhagen under the name of *Munna*. I, of course, immediately assumed his generic title.

The only species of this genus which I have examined is remarkable in so far that it possesses pedunculated eyes, which are at the same time quite immoveable, and also in the last or filiform portion of the superior antennæ being double.

The external plate of the abdominal branchiæ is extremely

* This intimates the fourth of the series of Original Observations on British Crustaceans, as communicated by the Author.

narrow, and is not composed of two equilateral pieces, as in the other *Assellota*, but consists of one piece only, with an immoveable suture in its mesial line; it is attached to the body by means of its proximal extremity only.

These animals differ also from all the other *Isopodous Crustaceans*, in the great length of their ambulatory legs, which leads the observer at first to suppose them to belong to the *Nymphonidæ*; its quick and active habits, however, very soon undeceive him.

The habits of this species of *Munna*, like the rest of the *Isopoda*, are interesting; it is quick and active in its motions, running along the branches of the smaller corallines with great rapidity. I have never observed it swim; in fact, it is not adapted to this mode of progression. When pursued along the bottom by any larger animals, or with the point of a needle, it runs quickly before it; but often stops suddenly, turns round, and becomes assailant.

The eggs are carried in a large oviferous pouch, which is situated between the thoracic legs, and is composed of four large plates, very like those of the *Caprellæ*. I now subjoin M. Kroyer's definition of this genus.

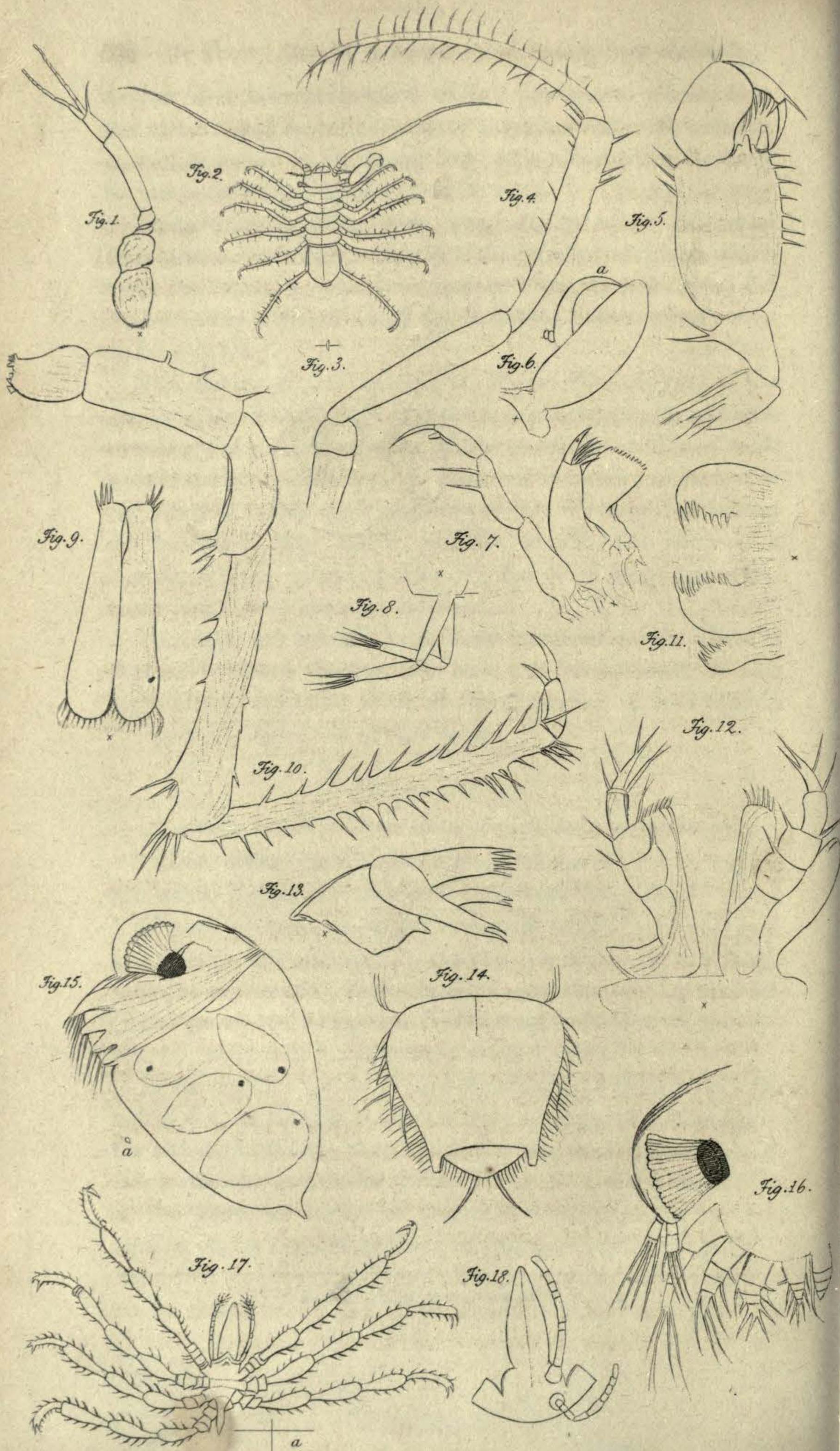
MUNNA (*Kroyer.*)

“*Novum Isopodum Genus (inter Assellota, Latr. prope Jaeram).*”

“*Oculi valde prominentes (fere pedunculati), tota capitis latitudine distantes; antennæ inferiores longissimæ; pedes 1 mi paris prehensiles (manu ungueque mobili instructi), reliqua 6 paria ambulatoria, longissima (pleraque corporis longitudinem superantia), biungulata; 7 mus thoracis annulus minimus parumque conspicuus; cauda appendicibus omnino destituta; branchiæ unica tantum tectæ lamina.*”*

In the species which I have examined of this genus, the tail is not, as Kroyer states, entirely destitute of appendages; for although minute, they are easily seen with a small power. They are four in number (Plate VI. fig. 14.), one spine at each of the posterior angles of first abdominal segment, and two smaller styles from either side of the apex of the last joint.

* Kroyer. *Isis von Oken*, 1841, p. 428.



MUNNA KROYERI. (*Mihi.*) Plate VI. fig. 2.

With the eyes extremely prominent, and with the whole body very spiny.

Description.—The whole animal of an ochrey-brown colour, except the reticulated portion of the eyes, which are black. The head is large, rounded anteriorly, and slightly pointed in the middle. The palpi of the external maxillæ are seen projecting in front of the anterior edge, and they are always in motion. The dorsal surface of the head is quite smooth, and the internal or superior antennæ arise from it within the margin, and a little anterior to the eyes; they are extremely curious, and are composed of a peduncle of three articulations, and of a double multiarticulate setaceous portion, which arises from the last joint of the peduncle; these are very slender, and incline towards one another at their extremities (Plate vi. fig. 1). The whole organ is equal in length to the two first joints of the inferior antennæ and the proximal half of the third joint. The external antennæ are much produced, being considerably longer than the body; the peduncular portion is composed of four joints, the setaceous portion is multiarticulate. Two large blood-vessels are seen running through these organs.

The eyes are large and pedunculated, but quite immoveable; the reticulated portion is small, and is almost altogether confined to the lower surface. The first six thoracic segments of the body are almost all equal; the seventh is obsolete. The first pair of legs are prehensile, and the mechanism is rather curious (Plate VI. fig. 5); the fourth joint is very large and rounded, the inferior angle of its distal extremity is armed with four large and strong teeth, two of which are large, the other two being smaller; the fifth joint is not so large, and is reniform; the sixth joint is long and pointed, bearing at its extremity a strong claw. The following six pair of feet are ambulatory (Plate VI. fig. 10). They are very spiny, and the last joint is armed with two strong claws, which are not placed in the usual way, but with the one above the other; the superior is largest and strongest. The abdominal portion of the body (Plate VI. fig. 14) is composed of two segments. The first, which is largest, is of a square shape, and is armed with two strong spines at its posterior angles. The last segment is almost triangular, the apex being directed posteriorly, two small styles arise from each side of the apex. All the external margins of both of these segments are thickly fringed with minute hairs and spines.

The abdominal branchiæ are almost semicircular, and each of them is armed on its internal edge with a small appendage. Length of body one line; span of legs three lines. (Plate VI. fig. 6).

I dedicate this species to M. Kroyer, the original discoverer of the genus, and a naturalist who has added much to our knowledge of the crustacea of the north of Europe. The *M.*

Boeckii of Kroyer is the only other species of this genus known.*

SECTION II.—ON THE GENUS EVADNE.

The next animal to be described is a *Daphnoid Crustacean*; it is the *Evadne Nordmannii* of M. Loven.

About the end of June and the beginning of July last (1842), innumerable shoals of species belonging to this genus, with immense numbers of *Entomostracous Crustaceans*, ranging under the order *Copepoda* of Milne Edwards, appeared at the mouth of the Firth of Forth. These shoals were most numerous about the sheltered parts of the island of May. And so abundant were they, that by drawing a scum-net once through the water, the animals could be taken out of it in handfuls.

Although I have observed one or two undescribed species amongst those specimens which I have got, I have not been able, from want of time, to examine them minutely. In the meantime, then, I will merely give a short account of the observations I have made on M. Loven's species:—

GENUS EVADNE (*Loven.*)

The head not detached from the body; the anterior branch of the antennæ composed of three, and the posterior branch of four, articulations.

Evadne Nordmannii. Plate VI. fig. 15.

Description.—The whole animal almost colourless, except the posterior portion of the eye, which is black; the anterior portion is much larger, and is deeply ribbed longitudinally. The antennæ are composed of two branches, an anterior and posterior; and a number of long spines arise from the extremity of each. Four short articulated legs arise almost immediately below the eye; a strong muscle ascends from the legs, and, passing upwards immediately behind the eye, is attached to the dorsal portion of the shell. Each leg is composed of four articulations, and a number of strong spines arise from these articulations. All that portion of the internal cavity of the shell, immediately behind the muscle, is apparently empty, except during the season of spawning, when this part of the body may be observed filled with ova or young. The posterior part of the body is produced, in the middle, into a strong pointed spine. There is no appearance of an intestinal canal, and its organism is apparently very simple. Length, half a line.

* Kroyer. Isis von Oken, 1841, p. 428.

The habits of this animal are extremely active, and are very similar to those of the *Daphnia*. This species, along with different *Entomostraca*, forms the principal food of the herring during the summer months.

SECTION III.—ON A NEW GENUS OF PYCNOGONIDÆ.

GENUS PASITHOE

Forms a new type among the *Pycnogonidæ*. Its generic characters are very distinct. The rostrum is very long, and is armed on either side with a long and powerful palpus, which is composed of eight articulations. No mandibles. Oviferous legs very short, and nine-jointed.

P. VESICULOSA. (*Mihi.*) Plate VI. fig. 17.

Description.—The whole animal is of a brown colour. The rostrum is oblong, oval, contracted at either extremity, and considerably swollen in the middle. The palpi are eight-jointed, rather longer than the rostrum, and are armed at their extremities with long hairy spines. The three coxal joints of the ambulatory legs are minute; the second one is considerably dilated at its distal extremity. The femoral and two tibial joints are all equal in length, and each of them is peculiar in shape; about one-third of its proximal extremity is very much contracted, and quite cylindrical; the succeeding portion then swells suddenly out, and is rounded off at its distal extremity. The first or contracted portion of these joints is apt to be mistaken for a separate articulation. The first tarsal joint is minute and rounded; it is only seen from the lower surface. The second tarsal joint is equal in length to the femoral or tibial joints, and is very much bent, and its extremity is armed with the usual number of claws; but the two auxiliaries are very minute. The first thoracic segment of the body is the largest, being as large as the three others combined. The oculiferous tubercle is situated near the anterior edge; it is small, and the eyes are placed around it. The last or abdominal segment is very long and slender, being almost as long as the rostrum; it ends in a fine point. The oviferous legs are very short; the fifth joint is longest. Span of legs half an inch.

This animal approaches more nearly to the genus *Pycnogonum* than any other species of the family yet known; and, at the same time, many of its characters assimilate it to the genus *Phoxichilus*; thus, I should think, forming the connecting link between these two genera.

Description of Plate VI.

- Fig. 1. Superior antennæ of Munna Kroyeri.
 ... 2. Munna Kroyeri.
 ... 3. Nat. size of do.
 ... 4. Inferior antennæ of Munna Kroyeri.
 ... 5. First or prehensile pair of legs.
 ... 6. Abdominal branchus, *a*, appendage.
 ... 7, 8, 11, 12, 13, Parts of the mouth.
 ... 9. Abdominal plate.
 ... 10. Ambulatory leg.
 ... 14. Abdominal segments.
 ... 15. Evadne Nordmannii, *a*, nat. size.
 ... 16. Anterior part of body of an Evadne.
 ... 17. Pasithœ Vesiculosa, *a*, nat. size.
 ... 18. Rostrum, palp, and oviferous legs of do.

*Extracts from Professor Valentin's Report on the Progress of Embryology in the year 1840.**

SOME interesting discoveries rendered the past year a highly productive one for embryology. Two main problems which engaged the various physiologists here occupy the foreground; namely, the earliest development of the Mammalia, and the metamorphoses of the germinal membrane in its transformation into the embryo. * * * * * So long as the metamorphoses of the germinal vesicle following fecundation could be considered only hypothetically, it was assumed that the Purkinjean [germinal] vesicle either burst and poured out its contents, or became flattened; and now in one of these two ways contributed to the formation of the germinal membrane. Both theories had been put forth before the discovery of the germinal spot. But when the existence of the latter became known, the discoverer said, that probably the *macula germinaliva* represented the first foundation of the germinal membrane. This conjecture obtained more probability from the obvious fact, that the number, size, and distribution of the germinal spots alternated according to the different stages. Research, however, first in the mammalia, and then in reptiles and fishes, shewed that, in consequence of fecundation,

* *Repertorium f r Anatomie und Physiologie.* Jahrgang, 1841.