und nur ventral einen längeren Fortsatz hat. Sie tragen starke Klauen, während diese bei den Vordertarsen verkümmert sind, deren Gliederzahl ich nicht genau angeben kann. Man erkennt deutlich nur zwei, ein großes und ziemlich breites erstes, und ein sehr borstiges zweites Glied; doch kann ganz wohl zwischen dem ersten und der Schiene noch ein ganz kleines eingeschoben sein.

Die Länge des Thieres beträgt 3,8 mm.

In der Beborstung des Körpers fallen noch 2 nach hinten convergierende Reihen von kurzen stachelartigen Borsten auf, welche die beiden Wülste auf dem Kopf begleiten, die auch Waterhouse bei *P. spasmae* zeichnet; ferner jederseits 4 lange nach hinten weisende Borsten, welche auf der Oberseite des Thorax nahe den Vorderwinkeln in zwei schrägen von vorn innen nach außen hinten verlaufenden Linien angeordnet sind.

Beide angegebene Borstensysteme finden sich auch auf der beigegebenen Abbildung, auf welcher ich im Übrigen alles Störende, als z. B. die feinere Beborstung, die beiden hinteren Beinpaare und das beiläufig auch hier neungliedrige Abdomen weggelassen habe, um die typischen Charactere um so deutlicher hervortreten zu lassen. Auf der Unterseite des Kopfes trägt vorliegende Art denselben geschwungenen Stachelkamm wie *P. spasmae*.

Die Originalexemplare befinden sich in Göttingen.

2. Notes on Asterid development. A criticism of Seitaro Goto's work on Asterias pallida.

By E. W. McBride, McGill Univ. Montreal.

eingeg. 4. November 1898.

The recent paper of Mr. Seitaro Goto on the development of *Asterias pallida*[1] whilst it contains many gratifying confirmations of points described by me[2] in the development of *Asterina gibbosa* yet discloses also some very disappointing differences in the results obtained by a study of the two developments.

Some might be inclined to attribute these differences to the fact that in the one case a pelagic and in the other a creeping larva was studied. — The account however which Mr. Goto gives of these points is so essentially similar to what one would easily conceive to be the

[1] The Metamorphosis of *Asterias pallida* with special reference to the fate of the body cavities, by Seitaro Goto. Journal of the College of Science. Imperial University Tokio Vol. V.

[2] The development of *Asterina gibbosa* by E. W. McBride. Quart. Journ. Micr. Sc. 1896.

case with the larva of *Asterina gibbosa*, had one insufficient material, and if consequently many stages were missed out, that I cannot imagine this explanation to be the true one. It is very improbable that a creeping larva should have a more circuitous development than a pelagic one.

The points to which I wish to draw special attention are as follow.

Mr. Goto asserts a) that the sac denominated by me the right hydrocoele, is merely a portion of the axial sinus separated comparatively late and originating on the left side of the larva,

b) that the radial perihaemal canals with the outer perihaemal canal which connects them are formed by the hollowing out of solid masses of mesenchyme and have no genetic connection with the body cavity or coelom.

Now with regard to a) the earliest stage which Mr. Goto describes corresponds to a late one of the organ described by me in *Asterina gibbosa*. I traced the organ back to the young larva and found it there originating as a bud on the right side of the anterior coelom: I further gave what seemed to me to be most decisive evidence as to its real nature by describing a number of cases where it had undergone a more or less similar development to the left hydrocoele. After a re-examination of my preparations, I am fully convinced of the truth of every word I published in 1896. One of the best of my preparations on this point was shown at the meeting of the International Zoological Conference in Cambridge 1898. After once separating from the anterior coelom, the right hydrocoele never has any further connection with it. Mr. Goto's statement that the right hydrocoele is a part of the axial sinus is easily explicable by the method of preservation which he employed. He preserved his larvae in corrosive sublimate and glycerine and embedded them in paraffin. When commencing my studies on *Asterina gibbosa* I had material preserved by similar methods and I also embedded in paraffin. But I got no reliable results until I used material drenched with osmic acid and embedded in celloidin. I was several times tempted to state that the right hydrocoele had a connection with the axial sinus and also with the general coelom, but with better methods the entire isolation of the cavity after its first inception could be clearly seen.

With regard to b) also Mr. Goto has in my opinion entirely missed the first stages in the development of the structures in question. In *Asterina gibbosa* the first stages are found in stages *E* and *F* when the metamorphosis is just beginning and then the connection with the coelom is clear and unmistakeable. I found it in every larva of the proper age examined. Mr. Goto found the rudiments of the perihae-

mal cavities only when the metamorphosis was nearly complete, a stage when in *Asterina gibbosa* the coelomic connection has long disappeared.

Montreal, Oct. 22th 1898.

3. Contribution à l'étude du développement et de la maturation des oeufs chez l'Hydatina senta. 1.

Par le Dr. Lenssen, Institut anatomique à Bonn.

eingeg. 5. November 1898.

Nous distinguons dans l'évolution des oeufs de l'Hydatine trois stades successifs:

1° le stade de formation se prolongeant jusqu'à ce que le jeune ovaire renferme le nombre définitif d'ovules.

2° le stade de développement commençant dès que les ovules se déplacent à la surface de l'organe vitellin pour se porter vers l'uterus, développement a) lent d'abord, b) rapide dès que l'oeuf se met en communication directe avec l'organe vitellin.

3° le stade de maturation commençant dès que se prépare la formation du fuseau de maturation.

Stade de formation.

Avant d'exposer les variations qui s'observent dans l'ovaire et les organes voisins pendant les stades successifs du développement nous avons voulu par les figures 1 et 2 donner au lecteur une idée de la disposition générale de ces parties de l'animal.

Fig. 1.

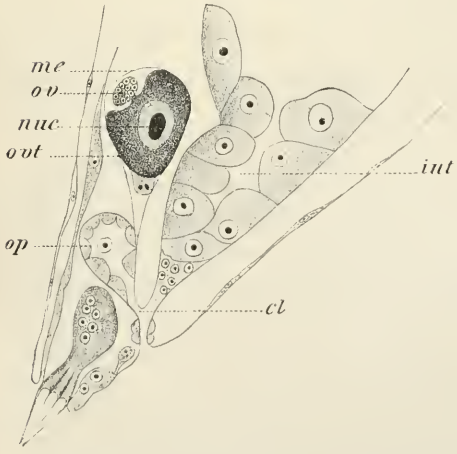

Fig. 2.

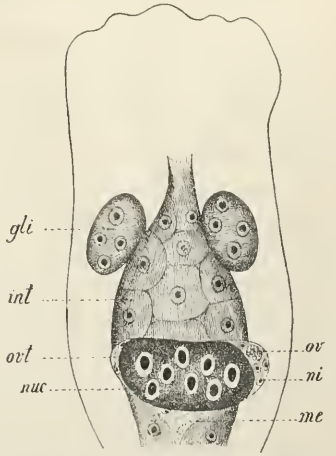

Fig. 1 et 2. *int*, Intestin; *gli*, glande intestinale; *op*, organe pulsatile; *cl*, cloaque; *oc*, ovaire; *ovt*, organe vitellin; *nuc*, nucléole de l'organe vitellin; *ni*, noyau intercalaire; *me*, membrane enveloppante.