комыхъ и червей, Warschau 1885), daß sie entodermalen Ursprungs, polnisch (Struna i struna Leydiga u owadów, Kosmos, Lemberg 1886), daß dieselbe ento-mesodermalen, französisch (L'embryologie d'*Oniscus murarius*), daß sie mesodermalen Ursprungs sei. Wir hatten noch keine Gelegenheit uns zu erkundigen, welchen Ursprungs sie englisch ist [The Embryonic Development of the Cockroach, in: The structure and life-history of the Cockroach (*Periplaneta orientalis*). An introduction to the study of Insects, by L. C. Miall and Alfred Denny, 1886]. Wir wissen jedoch, daß sie nach den neuen Untersuchungen von A. Korotneff (Die Embryologie der *Gryllotalpa*, Zeitschrift f. wissensch. Zool. 41. Bd. p. 570) ectodermalen Ursprungs ist, und deshalb keineswegs mit der Chorda dorsalis der Vertebraten homologisirt werden kann.

Im Interesse unserer Wissenschaft liegt es, daß Herr Nusbaum endlich mit seiner Ansicht über diese beiden Gegenstände öffentlich auftrete und auf zwei Fragen bestimmt antworte: 1) Ist das Mesoderm bei *Oniscus murarius* Mesenchym oder Mesoblast und das Coelom Schizo- oder Enterocoel? 2) Welchen Ursprungs ist die sog. Chorda der Arthropoden? Ich hoffe, daß Herr Nusbaum, wenn er »die Wahrheit in der Wissenschaft — wie er mir in seinem Briefe versichert — hoch preist, ehrt und liebt«, recht bald seine Antwort darüber mittheilen wird. Giebt aber Herr Nusbaum keine bestimmte Antwort, die endlich alle Mißverständnisse der betreffenden Thatsachen wegschieben wird, so werde ich, und ich glaube, auch Jeder, der nur gewissenhafte Darstellung der Thatsachen in der Wissenschaft sucht, die einander widersprechenden Arbeiten Herrn Nusbaum's als Erzeugnisse seiner eigenen Phantasie betrachten.

Warschau, 30. December 1886.

4. Osphradium in Crepidula.

Henry Leslie Osborn, Ph.D.

eingeg. 4. Januar 1887.

The researches of Spengel[1] have shown that the so called rudimentary gill or accessory gill is not the aborted left gill as taught by Keferstein[2], but a special sense organ of smell. This organ has been noted and figured in many forms of the ctenobranchs. It lies upon the mantle wall to the left of the gill and extends longitudinally parallel wich it. It consists of a central axis crossed at regular intervals by transverse leaves or plates fewer than the gill plates but roughly resembling them in external appearance, whence the idea that they were ab-

[1] Geruchsorgan der Mollusken. Zeitschr. f. w. Zool. 35. Bd. p. 333.

[2] Bronn, Klassen u. Ordn. Mollusken.

orted gills. The central axis is traversed lengthways by a nerve trunk and branches from the trunk pass out into each one of the lateral plates. This may be readily seen in sections.

In none of the figures or descriptions of *Crepidula* to which I have had access is the *osphradium* noticed. Examination of the creature proves however that the organ is present though in by no means the usual form. My specimens were all of the species *Cr. fornicata* Lam. The gill in this species[3] has been described in a former paper as a series of long blade shaped filaments which stretch across a low broad mantle cavity. It occupies so much of the mantle cavity that but little space remains upon the roof of the cavity. It is in the space remaining which lies upon the left of the gill-ridge from which the filaments arise that the *osphradium* is situated. There stand here 18 or 20 papillae in a longitudinal row upon a low ridge parallel with the gill but much shorten. Each papilla presents a globular expanded head supported upon a short narrowed peduncle. It is light colored except upon the side turned toward the gill where it is occupied by a large very dark spot. The papillae stand somewhat further apart than the gill filaments.

Examination by means of sections showed that the central ridge or longitudinal axis of the organ is traversed by a nerve trunk and that this sends a branch into each papilla. The papilla itself is covered with epithelium which is columnar upon the sides and stands upon a well defined basement membrane. Upon the side looking toward the gill the cells are deeply pigmented. Upon the summit of the papilla the epithelium cells are taller and broader and with a very indefinite outline Furthermore there is no distinct basement membrane upon the summit as on the sides of the papilla the lower ends of the cells being apparently very irregular. The free ends of the cells further are apparently ciliated; there is very little doubt of them being ciliated; the condition of my specimen made satisfactory determination of this point impossible. There seems to be but little room for doubt that these terminal cells are those which are especially sensory.

There is besides this organ an area of peculiarly modified epithelium which runs along the ridge from which the gill filaments arise and of which no mention has been made hitherto. It forms the covering of the side of the ridge which is turned toward the *osphradium* and runs its whole length. It consists of very tall cells which are entirely unlike any other cells upon the mantle and are so set as to form what appears to be a specialized organ.

Purdue University, Lafayette Indiana, 21. December 1886.

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[3] Studies Biol. Lab. Johns Hopkins Univ. Vol. III. p. 42.