

ingestive cells, and the cavity thus arising, i. e. the coelom, is the seat of the monocytic digestive processes.

Thus, just as in monoblastic forms, the single ingestive cells wandering inwards represent the first stage in the evolution of an internal enteric cavity, so in diploblastic forms such as Porifera the ingestive cells wandering into the mesogloea represent the first stage in the evolution of mesoblastic coelomic cavities (Fig. 2 a).

(Fortsetzung folgt.)

II. Mittheilungen aus Museen, Instituten etc.

1. The Term »Syzygy« in the Description of Crinoids.

Letter to the Editor.

eingeg. 28. März 1896.

With reference to the note on this subject that you kindly published for me in *Zoologischen Anzeiger*, 19. Bd. p. 57—61. Febr. 3, 1896, I have received many favourable expressions of opinion. It will advance the cause of reform if you will kindly permit me to quote two of the most influential.

Mr. P. de Loriol Le Fort, who has written more on both recent and fossil Crinoids than any author now living, says: »J'ai toujours compris comme vous le terme de Syzygie, c'est à dire en l'envisageant comme une mode d'union de deux articles, chacun des deux étant une unite. On ne peut pas dire d'une syzygie qu'elle est un mode d'articulation, une articulation indiquant toujours un mouvement possible«.

Mr. Frank Springer, who after the lamented death of Charles Wachs-muth, remains the leading authority on fossil Crinoids in America, writes: »I have read with much satisfaction your paper on , Syzygy ', and I endorse your proposed reform in every particular. I shall follow your plan in this respect in whatever I may do hereafter«.

It is not too much to hope that a general agreement may now be arrived at on this point.

F. A. Bather.

British Museum (Nat. Hist.) 26 March, 1896.

2. New York Academy of Sciences, Biological Section.

March 9th, 1896. — Mr. F. B. Sumner read a paper on »The Descent Tree of the Variations of a Land Snail from the Philippines«, illustrated by a lantern slide. Mr. Sumner described the range in variation in size and markings in the shell, and arranged the varieties in the form of a tree of three branches diverging from the most generalized type. It was shown that these several varieties occupy the same geographical region and Mr. Sumner was of the opinion that their occurrence could not be explained by natural selection since if the colorations were supposed to be protective it would be impossible to explain the evolution of these three types. Prof. Osborn, in discussion, was inclined to take the same view. Dr. Dyar however, thought the explanation by natural selection not necessarily excluded, since the variations seemed analogous to the dimorphism in *Sphinx* larvae, which has been shown by Poulton to be probably due to this factor. — The other paper was by Dr. Arnold Graf on »The Problem of the Transmission of Acquired Characters«. — Dr. Graf discussed the views of the modern schools of evolutionists and adopted the view that the trans-

mission of acquired characters must be admitted to occur. He cited several examples which seemed to support this view, and especially discussed the sucker in leeches as an adaptation to parasitism and the evolution of the chambered shell in a series of fossil Cephalopods. — Professor Osborn remarked in criticism of Dr. Graf's paper that this statement does not appear to recognize the distinction between ontogenic and phylogenic variation, or that the adult form of any organism is an exponent of the stirp, or constitution. The Environment. If the environment is normal the adult would be normal, but if the environment (which includes all the atmospheric, chemical, nutritive, motor and psychical circumstances under which the animal is reared) were to change, the adult would change correspondingly; and these changes would be so profound that in many cases it would appear as if the constitution, or stirp, had also changed. Illustrations might be given of changes of the most profound character induced by changes in either of the above factors of the environment, and in the case of the motor factor or animal motion, the habits of the animal might, in the course of a life time, profoundly modify its structure. For example, if the human infant were brought up in the branches of a tree as an arboreal type instead of as a terrestrial, bi-pedal type, there is little doubt that some of the well known early adaptations to arboreal habit (such as the turning in of the soles of the feet, and the grasping of the hands) might be retained and cultivated, thus a profoundly different type of man would be produced. Similar changes in the action of environment are constantly in progress in nature since there is no doubt that the changes of environment and the new habits which it so brings about far outstrip all changes in constitution. This fact which has not been sufficiently emphasized before, offers an explanation of the evidence advanced by Cope and other writers that change in the forms of the skeletons of the vertebrates first appears in ontogeny and subsequently in phylogeny. During the enormously long period of time in which habits induced ontogenic variations it is possible for natural selection to work very slowly and gradually upon predispositions to useful correlated variations, and thus what are primarily ontogenic variations become slowly apparent as phylogenic variations or congenital characters of the race. Man, for instance, has been upon the earth perhaps seventy thousand years; natural selection has been slowly operating upon certain of these predispositions, but has not yet eliminated those traces of the human arboreal habits, nor completely adapted the human frame to the upright position. This is as much an expression of habit and ontogenic variation as it is a constitutional character. Very similar views were expressed to the speaker in a conversation recently held with Professor Lloyd Morgan, and it appears as if a similar conclusion had been arrived at independently. Professor Morgan believed that this explanation could be applied to all cases of adaptive modification, but it is evident that this cannot be so because the teeth here undergo the same progressively adaptive evolution along determinate lines as the skeleton and yet it is well known that they do not improve by use, but rather deteriorate. Thus the explanation is not one which satisfies all cases but it does seem to meet, and to a certain extent undermine, the special cases of evidence of the inheritance of acquired characters, collected by Professor Cope in his well known papers upon this subject. — C. L. Bristol, Secretary.

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