

these fluids are voided while the ticks feed, and it has been suggested that the infection is transmitted by the flowing of the fluids into the wounds made by the mouth-parts of the ticks in feeding. Spirochætes had not been seen in these fluids and it was suggested that they existed there in a coccoid form.

On several occasions, coxal and anal fluids, excreted by infected ticks, coming from Uganda and British Central Africa, have been examined. In every instance the fluid was taken while the ticks fed upon an uninfected animal. The fluid collected was free from blood and, in two instances, coxal fluid was collected apparently free from anal excretion. On six occasions, after the fluid had been centrifugalized, spirochætes were found in it; their morphology is not distinct from that of *Spirochæta duttoni*. Spirochætes were found in the fluid that apparently contained no anal excretion.

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Experimentally fused larvæ.

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When the eggs of *Toxopneustes variegatus* were subjected to a 5/8 molecular NaCl, after the removal of the fertilization membrane, considerable numbers were subsequently fused together. I have counted as many as forty per centum, in the optimum solutions, of agglutinated and fused pairs, triplets, etc. Few of these reached the pluteus stage of development due to the early death of all fusions of more than three eggs, and to the large mortality of even the double embryos.

The plutei contain at least three characteristic tissues, namely, body wall, archenteron, skeleton. The first two of these behaved essentially as described by Driesch in various European species, and by the writer in the American species *Arbacia punctulata*; *i. e.*, the body walls or the archentera of plutei derived from separate eggs were united either incompletely or so completely as to give little or no evidence of the original dual character of the larvæ.

It was supposed that the skeletal structures united in the same manner as the archentera. The evidence furnished by *Toxopneustes* however clearly shows that in this species at least no fusion of the skeletal parts occurred. Instead some very interesting changes took place which may be stated briefly as follows: One of the pair of fused larvæ developed normally in every detail, the other developed in nearly every instance, incompletely. An almost perfect series of fused larvæ were obtained in which the incomplete pluteus lacked more and more of the characteristic parts that constitute the perfect larval skeleton; and the order of their disappearance was in the reverse order of their appearance in ontogeny.

The union of the two larvæ involved the approximation of their branched and complex skeletons, whose parts frequently overlapped but never fused.

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Metabolism studies in a case of myotonia atrophica.

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In a thirteen day metabolism study on an individual suffering from myotonia atrophica, we have studied the nitrogen metabolism, and urinary nitrogen partition, the sulphur metabolism and urinary sulphur partition, and the calcium, magnesium, phosphorous, chlorine and fat metabolism. The creatinine excretion was normal. The only striking metabolic anomaly noted in this study was the marked loss of calcium.

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Sugar from lactic acid in human diabetes.

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The evidence presented by experimental diabetes seems to indicate that in the transformation of amino-acids into glucose lactic acid is an intermediary step. It has also been suggested