Hinton, Claude W. University of Georgia, Athens, Georgia. Meiosis in Drosophila ananassae males.

Reports of crossing over in D. ananassae males have stimulated observations on their meiosis. Most of the material was obtained from a structurally homozygous stock by saline dissection, acetic alcohol fixation, very light acetic orcein staining, polyvinyl pyrolidone mounting and phase contrast observation. Histological organization of the testis is similar to that of D. melanogaster; cell counts in intact cysts as well as cell size aided identification of spermatogenic stages. The large nuclei of early primary spermatocytes contain a prominent nucleolus which gradually diminishes in size as prophase progresses. Chromosomes are first visible as fine dispersed strands not readily equated with standard descriptions of leptonema-zygonema; heterochromatic blocks, probably representing portions of the Y and fourth chromosomes, are intimately associated with the nucleolar surface at this time. The two large autosomes develop into pachytene bivalents (like those seen in Tipula caesia by Bauer and Beerman) which are at least five times their gonial metaphase length. These bivalents then progress, by contraction, through diplonema, diakinesis and metaphase; in many cases it is clear that the arms are not associated through chiasmata and in no case has positive identification of chiasmata been made. Whether or not these cytological features are causally related to genetically detected crossovers remains to be seen. The X, Y and fourth chromosomes are usually observed as a tangled multivalent; this association is not maintained through the nucleolus but rather it appears in occasional figures to be based on pairing at restricted points. The remainder of the meiotic sequence in males of D. ananassae does not differ significantly from that of D. melanogaster as described by Cooper.
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King, R. C. Northwestern University, Evanston, Ill. Wide spread occurrence of a symbiont in Drosophila.

Cytoplasmic symbionts (A bodies) which presumably are Rickettsias or Mycoplasmas were first observed in our laboratory in electron micrographs of adult ovarian tissues from D. melanogaster females of a variety of genotypes. Photographs of such symbionts may be seen in Growth 22: 323, 26: 241, 28: 320, and J. Morph. 119: 291 and 121: 63. We have subsequently seen the organisms in a variety of other tissues in adult and pre-adult Drosophila. In fact we have never failed to encounter them in any tissue subjected to a thorough electron microscopic investigation. It seems worth-while to provide the following catalogue to document the wide spread nature of the phenomenon. A bodies have been seen in Oregon S, wild type, adult females in the cytoplasm of oogonia, cystocytes, pro-oocytes, pro-nurse cells, oocytes at both pre-yolk and vitellogenic stages, in the ovarian follicle cells, the cells of the esophageal epithelium, in the cells making up the aorta, in pericardial cells, corpus allatum cells, in the cortical cells of the corpus cardiacum, and in hemocytes adhering to the corpus cardiacum. A bodies are seen in the axoplasm of the axons making up the efferent nerves which pass through the corpus cardiacum. Since such axons have their cell bodies in the protocerebrum, the symbionts probably reside in the brain as well. A bodies are also present in the sheath cells covering these nerves. In Oregon S, second and third instar larvae, prepupae and pupae, A bodies occur in cells of the prothoracic gland. In Oregon S pupal females, they are found in nurse cells, oocytes, cystocytes and in the amoeboid cells which populate the extraovariolar and ovariolar cavities. The symbionts have been seen in adult ovarian tissues from females of genotype y g^2 ty (from stock y g^2 ty/ClB), fu (from fu/ClB), su^2 Hw sbd^2 (from su^2 Hw sbd^2/TM1), and from the Chicago + strain. They occur in the corpus allatum of ap^4 adult females (from ap^4/SM5), and in the corpus allatum and prothoracic glands from e larvae and lgl cn bw larvae (from lgl cn bw/SM5). Finally, A bodies are not restricted to D. melanogaster, since they have been observed in the ovaries of adult females from the Barbados 3 strain of Drosophila willistoni. It is is obvious that if "cytoplasmic DNA" is reported for Drosophila, both A bodies and mitochondria should be considered as sources.