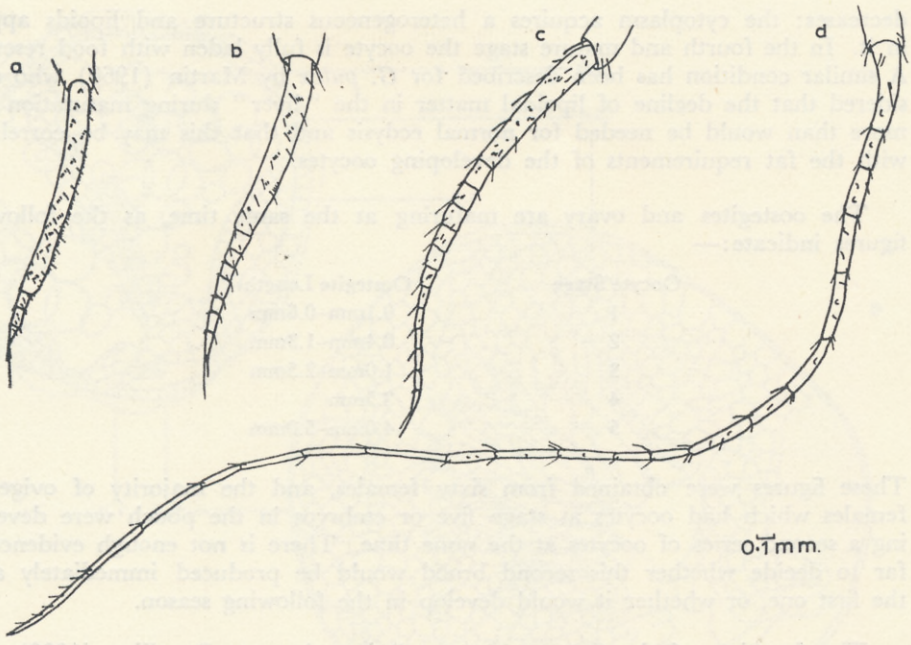

FIG. 7.—Development of the second antenna in the male. (a) Four segments formed; length of flagellum = 1.56mm. (b) Eight segments formed; length of flagellum = 1.8mm. (c) Thirteen segments formed; length of flagellum = 2.4mm. (d) Twenty-one segments formed; length of flagellum = 7.2mm.

RESULTS AND DISCUSSION

As yet it has not been possible to determine the number of moults that occur during the development of these secondary sexual characters, but it is hoped that further work will make this possible. Meanwhile the following points can be made. In neither sex does the development of the secondary sexual characters seem to depend on the size of the animal. Thus animals of 16.0mm in length may be mature or immature; some females may be found considerably longer than this with oostegites of only 0.5mm long. From the data available for females there seem to be two ways of explaining why immature animals may be much larger than mature ones. The simple explanation would be that maturation can take place over a wide size range and is influenced by environmental factors such as temperature or amount of food available. However, many mature animals which have a full brood-pouch also have a second series of oocytes (see below), and this suggests that these animals will become immature for a period after shedding their first brood. During this period they will increase in size, develop another pouch, and produce another brood of young before dying.

During maturation of the oocytes there is a sudden increase in their volume, which is due to an uptake of lipoidal matter. Bisson (1950) working on *Gammarus pulex* L. also mentions this increase in volume of the oocytes. He has divided the development of the ovary into four stages according to the oocyte diameters 20μ, 60μ, 100μ–150μ, and 200μ–320μ. In the first stage the nucleus is large and the cytoplasm strongly basophilic; in the second stage the nucleus is still large and there is abundant cytoplasm. It is in the third stage that the volume of cytoplasm increases considerably and the ratio of nucleus to cytoplasm