Oogenesis of *Clibanarious olivaceus* (Henderson) with special reference to a seasonal variation in the various Cytoplasmic Inclusions.

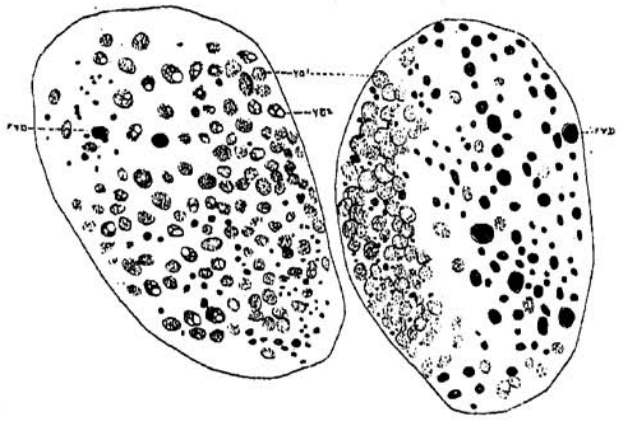
ALMOST all modern work on cytoplasmic inclusions has been done without any reference to environment and no two workers on the same animal have come to identical conclusions. In the case of Patella, Ludford states that the breeding season is in *autumn* and Brambell who studied the eggs of the same animal during the *winter months* has noticed some differences in the chemical composition of the various inclusions, though in the main his results corroborate those of Ludford. Hence, thinking that a study of the cytoplasmic inclusions in Clibanarious from oocytes collected during two different seasons, by all modern cytological methods such as Da Fano, Champy, Bensley-Cowdry, Nassonov, and Mann Kopsch and treatment of eggs in the fresh condition with neutral red, Janus Green. B, Sudan III, Scharlach. R and 2% Osmic acid, was well worth attention, such a study was made during two periods January-February and April-June 1933. A study of the physico-chemical factors, such as, Temperature, Excess Base, pH, Salinity and Chlorine content of the medium was also made.

The Golgi apparatus occurring as an irregular mass in both sets of preparations was seen to break up and give rise to granules which exhibited three different kinds of behaviour. (1) Some of them enlarged into vacuoles and secreted fatty yolk inside their interiors. (2) Some others enlarged into clear vacuoles with chromophilic rims, which by rupture gave rise to Golgi batonettes. (3) Lastly, in April-June preparations some of the Golgi grains metamorphosed into albuminous yolk.

The albuminous yolk consists of two kinds and from the nature of their origin they can be termed Golgi-mitochondrial and Golgi-Golgi albuminous yolk grains.

The former is seen in both sets of preparations. The initial mitochondrial cloud resolves itself into discrete granules which form a concentration at one pole of the egg. Masses of mitochondria clump together and in association with Golgi batonettes give rise to Golgi-mitochondrial albuminous yolk grains.

2. Apr.—June. **1.** Jan.—Feb.



Nassonov. × 110. Mann Kopsch.

FYD. = Fatty Yolk Droplet.
YG^1. = Golgi Mitochondrial alb. yolk.
YG^2. = Golgi-Golgi alb. yolk.

In April-June when fatty yolk droplets are smaller in size and few in number the

unmodified Golgi form a concentration below the mitochondrial polar concentration. These granules also clump together—each being constituted by 6-12 grains—and later become metamorphosed into albuminous yolk. The Golgi batonette which attaches itself retains its identity and condenses in addition nucleolar matter dissolved in the cytoplasm.

A seasonal change in the metabolism of the oocyte was observed and it was found that when the bar was open, with consequent increase in salinity, fatty yolk droplets occurred in large numbers (Fig. 1 FYD) and in April-June when the bar was closed—the salinity becoming correspondingly low—a very large amount of albuminous yolk—Fig. 2 Yg^2Yg—was observed.

M. K. SUBRAMANIAM.

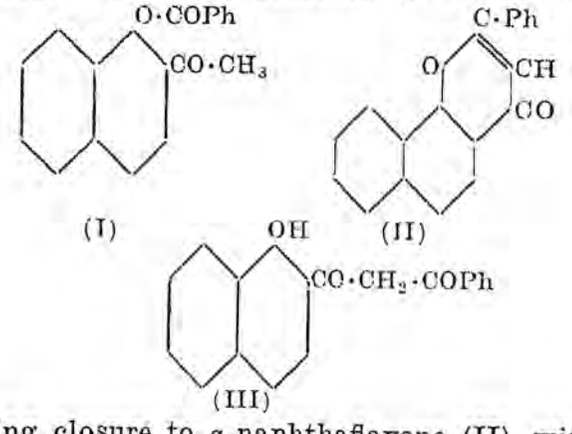
University Zoological
Laboratory,
Madras,
December 1933.

Ludford, Reginald James, "Contributions to the Study of the Oogenesis of Patella," *Jour. Roy. Micr. Soc.*, 1921.

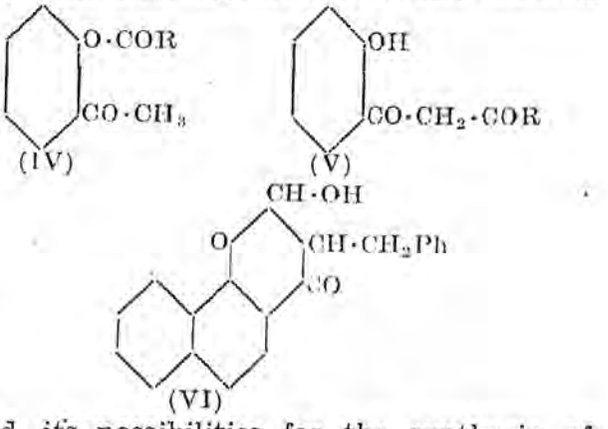
Brambell, F. W. R., "Origin of Yolk," *Brit. Jour. Expl. Biol.*, **1**, 1924.

A Synthesis of Flavones at Room Temperature.

DURING an investigation[1] of the action of acid anhydrides on phenolic ketones Chadha and one of us[2] attempted to convert 2-acetyl-1-naphthyl benzoate (I) by direct

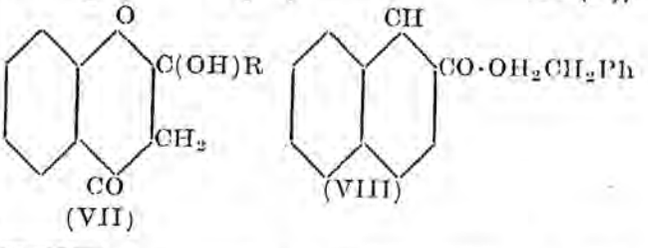


ring closure to α-naphthaflavone (II) with the two-fold object of testing the commonly assumed mechanism[3] of the Robinson reaction and of evolving a method of chromone synthesis which would preclude 3-acylation[4]. The action of sodamide on (I) in either solution has now led to ω-benzoyl-2-acetyl-1-naphthol (III); the mixture was left to stand overnight at room temperature (below 16° throughout), the bulky precipitate being then collected, washed with ether and decomposed with aqueous acetic acid. Treatment of (III) with cold concentrated sulphuric acid in the usual manner gave α-naphthaflavone (II). A smooth synthesis of a flavone has been accomplished below 16°; and the phytochemical significance of this reaction



and its possibilities for the synthesis of natural colouring matters of the flavone group are obvious.

A complete theory of the mechanism of the acid anhydride method of chromone synthesis has been advanced by Baker[5], who has achieved the transformation of *o*-acyloxyacetophenones (IV) to the dibenzoylmethanes (V) by means of potassium carbonate in toluene at the temperature of the steam-bath during a few hours in yields of 20—40% of the theoretical or at 35° in a yield of 24% after fourteen days. A compound (VI) similar to the 2-hydroxyflavanone (VII), postulated by Baker as the stage through which (IV) is converted into (V),



[1] Venkataraman, *J. Indian Chem. Soc.*, *Ray no.*, page 27.

[2] Chadha and Venkataraman, *J. Chem. Soc.*, **143**, 1073, 1933.

[3] Wittig, Baugert and Richter, *Ann.*, **446**, 155, 1925.

[4] Bhullar and Venkataraman, *J. Chem. Soc.*, **139**, 1165, 1931.

[5] Baker, *J. Chem. Soc.*, **143**, 1381, 1933.