

levels. The final position of *A* (*A'*) is nearly half-way between *B* and *C*, in agreement with the fact that *d*-alanylglycine alone is split by the enzyme.

Fig. 2 (Curve I) shows graphically the results of this experiment. The chemical change (appearance of amino groups) during the enzymatic reaction was measured simultaneously in larger samples of the same reaction mixture and calculated as milligrams of amino nitrogen liberated per 0.1 c.mm. (Curve II). Finally, Fig. 3 shows the linear connexion between

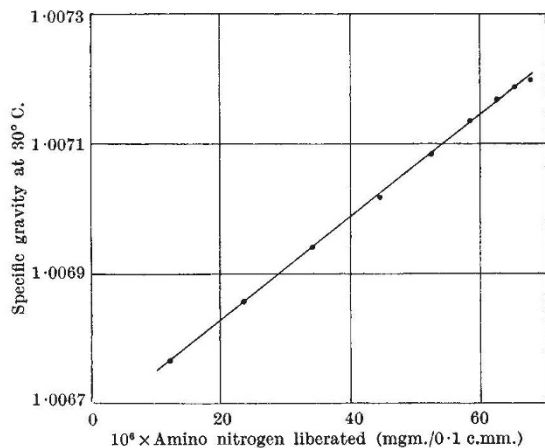


Fig. 3.

volume change and liberation of amino-nitrogen, 0.74 c.mm. disappearing per mgm. amino nitrogen formed. This agrees as regards order of magnitude with the volume changes found by Sreenivasaya, Sastri and Sreerangachar⁶ for other proteolytic processes.

The method is being further developed and extended to include other enzymatic processes.

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A Presumptive Culicine Host of the Human Malaria Parasites

IN controlled experiments with *Culex biteniorhynchus* carried out during the past seventeen months, we have observed what we are unable to distinguish from the complete cycle of development of the parasites of benign and sub-tertian (malignant) malaria in laboratory-bred females fed on gametocytes of *Plasmodium falciparum* and *P. vivax* respectively. Presumptive sporozoites accompanied by a stomach cyst were also observed in an insect which was fed on gametocytes of *P. malariae*, the parasites of quartan fever, those of sub-tertian being also present in much smaller numbers. Ross's black spores were found associated with sporozoites and cysts in several

sub-tertian infected, and in one benign tertian infected, insect. These appearances were absent in laboratory-bred controls which had had no blood meals.

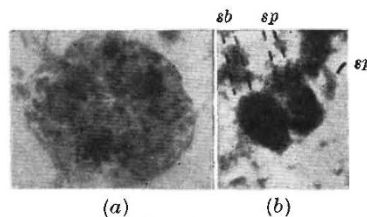


FIG. 1.

PRESUMPTIVE PLASMODIAL FORMS IN LABORATORY INFECTED *C. biteniorhynchus*

- (a). UNSTAINED SEMI-CHITINIZED-BLACK PIGMENTED CYST: S.T. INFECTION.
 (b). BLACK SPORES: B.T. INFECTION, UNSTAINED.

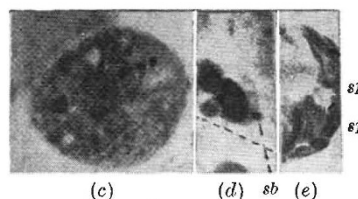


Fig. 2.

CORRESPONDING PHASES IN PLASMODIALLY INFECTED ANOPHELE

- (c). STAINED CYST (Q. OR S.T.). AFTER WALCH.
 (d). UNSTAINED CHITINIZED SPOROZOITES AND 'SPOROBLAST'. AFTER WALCH.
 (e). BLACK SPORES. AFTER WALCH.
 sp = CHITINIZED SPOROZOITES. sb = CHITINIZED 'SPOROBLASTS'.

Apart from the fact that culicine mosquitoes have up to the present been held to be inhospitable to human malaria parasites, the interest of these observations is biochemical. Some years ago, one of us pre-indicated *C. biteniorhynchus* as a possible malaria carrier¹ because it breeds in pure water among *Spirogyra*² (on which it also feeds), it being pointed out¹ that some of the most virulent anopheline vectors are likewise found in uncontaminated sources, a fact later confirmed by Covell's tables³. The practical, as well as the theoretical, implications of significant correlation between larval environment and power to transmit malaria are of great interest, but since they call for further discussion than is here possible, this together with details of our observations must await publication elsewhere.

We wish to express our obligations to successive Senior Health Officers, Penang, for opportunity to carry out our work, and further, especially to Dr. J. W. Scharff for his critical interest in it.

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