cent. In this instance, an increase of more than 100 percent is required to account for the hyperpolarization. In no case could the rise in intracellular potassium account alone for the observed increase in resting membrane potential, and the average increase at the end of 1 hour's exposure to insulin was less than half that theoretically required to cause the hyperpolarization.

These data, with earlier data on the effect of insulin on aldolase efflux, are interpreted to indicate that insulin can act by its association with muscle membrane and that the insulin-membrane complex results in spatial changes in the barrier to diffusion, increasing membrane permeability and simultaneously increasing the potential difference across the membrane. In response to increased potential difference across the membrane, potassium moves into muscle toward a new equilibrium ratio of concentrations.

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Balanus Fouling of Shrimp

Fouling of commercial crabs (*Callinectes sapidus*) and lobsters (*Homarus americanus*) by various species of barnacles (*Balanus*) is a common occurrence (*1*) but the presence of maturing sessile barnacles on shrimp is noteworthy. This report is based on observation of four *Balanus*-fouled white shrimp (*Penaeus setiferus*) taken from the inshore waters of Mississippi and South Carolina during the winter of 1957.

The single Mississippi specimen (*2*) was collected at the mouth of Ocean Springs Harbor, Biloxi Bay, on 17 February. This was a 90-mm male carrying five small (less than 2-mm basal diameter) unidentified *Balanus*. The barnacles were attached along the mid-dorsal line of the fourth, fifth, and sixth abdominal segments.

The South Carolina specimens were taken from the Edisto River system on 2, 11, and 25 March. These shrimp, two males (125 mm and 150 mm) and one female (119 mm) each carried a single barnacle. The female (Fig. 1) and smaller male were each fouled with a 4-mm (basal diameter) *Balanus amphitrite niveus* Darwin on the first abdominal segment. The barnacle on the female was located 1 mm to the right of the mid-dorsal line, whereas the attachment site on the male was 2 mm to the left. The remaining shrimp carried a 9-mm *Balanus improvisus* Darwin dorsolaterally on the fifth abdominal segment with the left edge of its base on the mid-dorsal line (*3*).

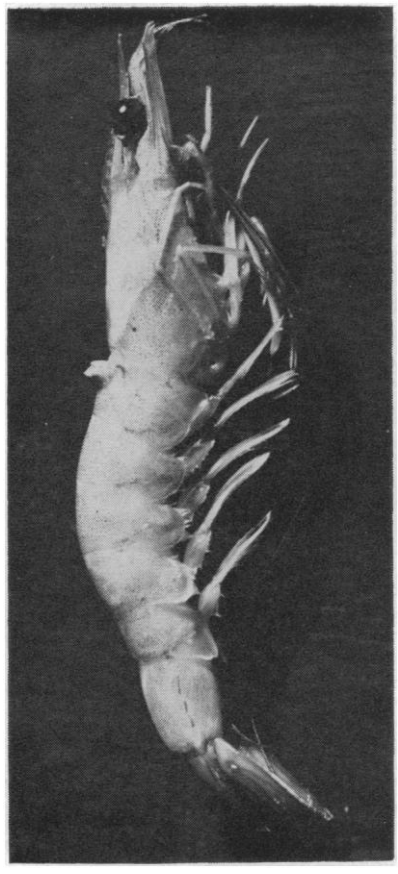

Fig. 1. *Penaeus setiferus* (119-mm female) with 4-mm *Balanus amphitrite niveus* attached to the first abdominal segment.

Smith (*4*) showed that, at Miami, *B. amphitrite niveus* attained a size of 4 mm in 13 days during February, and McDougall (*5*) indicated that some individuals of *B. improvisus* attain, in December and January, a size of 13 mm in 42 days at Beaufort, N.C. Gunter and Geyer (*6*) gave data showing a minimal winter growth rate for *B. improvisus* of 0.13 mm per day off the Louisiana coast. No data are available on the winter growth of *Balanus* in South Carolina, but it is reasonable to assess minimal growth periods of 10 and 25 days for the 4 mm and 9 mm *Balanus* found on local shrimp. The age of the Mississippi barnacles is estimated at about 2 weeks.

Since fouling can become established only during interecdysal periods, the balanoids developed between the previous molt and time of capture. None of the shrimp showed signs of imminent shedding. Winter growth of shrimp is minimal (*7*), and fouling by maturing barnacles is probably confined to this period of reduced molting frequency.

The capture of four fouled shrimp from the Atlantic and Gulf coasts within a short space of time suggests that careful observation of winter shrimp catches may reveal numerous instances of this association between *Balanus* and *Penaeus*. Analysis of the growth of attached *Balanus* might yield information on winter molting frequencies of individual shrimp.

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Enzyme-Inhibitor Complex in a Tryptophan-Requiring Mutant of Neurospora crassa

Numerous reports indicate that gene mutations can cause the loss of specific enzymatic activities (*1*). It is important, from both a genetic and a biochemical standpoint, to know whether such mutant cells continue to synthesize enzymatically inactive molecules structurally related to the enzyme. The presence of a serologically active protein closely related to the enzyme tryptophan synthetase has been demonstrated in a number of allelic tryptophan-requiring mutants of *Neurospora crassa* which lack the enzyme (*2–4*). Similar results have also been found in *Escherichia coli* (*5*).

The present study (*6*), in which a temperature-sensitive, tryptophan-requiring mutant of *Neurospora crassa* (*7–9*) was employed, indicates that highly active preparations of tryptophan synthetase can be obtained from *inactive* crude extracts of this mutant when the crude extracts are purified by using protamine