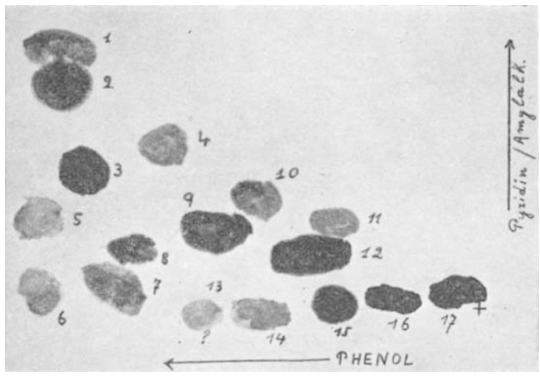

Fig. 2. Chromatogram of the purple pigment. 1, Tryptophane; 2, leucine; 3, valine; 4, tyrosine; 5, proline 6, arginine; 7, lysine; 8, histidine; 9, alanine; 10, threonine; 11, serine; 12, glycine; 13, unknown; 14, hydroxylysine?; 15, glutamic acid; 16, aspartic acid; 17, cysteic acid

The main pigment seems to belong to the group of the chromoproteins; but it might be a very intimate mixture with a protein. Further investigations are necessary.

Chromatography on filter paper shows the protein to contain the following amino-acids: cysteic, aspartic and glutamic acid, valine, alanine, histidine, threonine, serine, lysine, arginine, proline, tyrosine, tryptophane, hydroxylysine, and a further unidentified acid, together with tetramethylammonium-hydroxide (tetramin). The first three acids named are preponderant.

Fuller details of this work will be published in the *Bulletin of the Academy of Sciences, Athens.*

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A Further Analysis of the Polymorphism of *Drosophila polymorpha*

THE tropical species of *Drosophila*, *D. polymorpha*, is polymorphic with regard to the pattern of pigmented abdominal bands. The polymorphism is a case of balanced polymorphism, as shown in a previous paper[1]. The types are inherited as if caused by two alleles of a single autosomic gene. The dark and the light types are the homozygotes and the intermediate type is the heterozygote. The heterozygote has an adaptive value higher than that of the homozygotes. The heterosis of the intermediate type ensures the maintenance of the two alleles in the populations. The probability that the pigmentation pattern is by itself an adaptive character is very small. Another possibility to be considered is that the two main genes responsible for the pigmentation are associated with other genes through an inversion. The differences in adaptive value could, then, be due to the genes carried in the inversion as a whole.

Using a combination of over-feeding the larvæ and a low temperature, it was possible to study the chromosomes in the salivary glands of *D. polymorpha*. A total of six inversions, three autosomic and three in the *X*-chromosome, was detected. In a total of 461 individuals from three different places, 119 were inversion heterozygotes.

No correlation was found, however, between the inversions and the pigmentation. The three pattern types may be homozygous as well as heterozygous for every one of the inversions.

The two possible explanations left for the differences in adaptive value of the three types are: (*a*) pleiotropic effects of the two genes; (*b*) genes very closely linked to the pigmentation genes. In either case, this is the first instance in the genus *Drosophila* of polymorphism not connected with chromosomal aberrations.

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[1] da Cunha, A. B., *Evolution*, **3**, 239 (1949).

Behaviour of Spider Crabs in the Presence of Octopuses

AT La Rocque, in Jersey, the spring tides go out about two miles leaving many large lagoons with sandy bottoms and depths of from two to four feet of water. Here we often spear flat-fish, plaice, soles, etc., sometimes getting as many as twenty in a tide; here also may be found spider crabs (*Maia squinado*), which are often taken in Jersey for food, but which are considered out of season in the autumn.

In September last, the catches of flat-fish were down to about half a dozen, owing to the number of octopuses that continually disturbed the bottom and kept the fish moving. The spider crabs had collected into large heaps, about two feet high and three feet in diameter, with their legs so entangled as to make it difficult to separate a crab from the heap. The octopuses captured some from the outside of the masses, but the greater number survived, and day after day the heaps remained. None of the fishermen to whom I have spoken of this behaviour on the part of spider crabs had ever noticed it previously.

The octopuses have now (October) moved to deeper water, and the crabs too have disappeared to their winter quarters.

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Tertiary Ocean Bottom Temperatures

DURING the past few years, a method has been developed for determining palæotemperatures by measuring the ratio of oxygen-18 to oxygen-16 in the calcium carbonate of fossil shells[1,2].

This method is based on the fact that the relative rates of deposition of the oxygen isotopes in the calcium carbonate are a function of temperature. The temperature of deposition is thus determinable from a suitably accurate measurement of the relative abundances of the oxygen isotopes in a shell. To attain the required accuracy, mass spectrometers are employed in which carbon dioxide from the shell carbonate can be alternated at intervals of two minutes with a standard carbon dioxide gas. In this way only the difference δ in oxygen-18 concentration is measured, and an accuracy of $\pm 0{\cdot}1$ parts per thousand is attained. Experiments with shells grown at known temperatures in water of known isotopic composition[1,3] have shown that:

$$t = 16{\cdot}5 - 4{\cdot}3\,\delta + 0{\cdot}14\,\delta^2,$$