

The Lotmar-Picken Substance: Taurine.* By CAROLYN COHEN. (*From the Biology Department, Massachusetts Institute of Technology, Cambridge, Massachusetts.*)†

The "Lotmar-Picken" x-ray diagram from dried muscle, which had been attributed to crystalline myosin (1, 2), was shown to be due to a water-soluble material whose nature as a small organic molecule was deduced from diffraction evidence (3, 4). The diagram has been reported obtained in separate instances from the following muscles: frog sartorius (5), *Loligo* funnel retractor (3), and *Pecten* adductor (3); it has twice been reported from *Mytilus edulis* adductor (1, 4). The clue to the identity of the Lotmar-Picken substance is its frequent occurrence in mollusks. Muscles of members of this phylum contain very large amounts of taurine ($\text{H}_2\text{NCH}_2\text{CH}_2\text{SO}_3\text{H}$), amounting to as much as 4 to 5 per cent in the *Mytilus edulis* adductor (6). That the diagram is, in fact, due to oriented crystals of taurine is demonstrated in Fig.

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1, which shows the Lotmar-Picken pattern obtained by Bear and Cannan, and below this, a pattern from a frog sartorius muscle which had been washed with water, soaked in a 5 per cent solution of taurine, and air-dried. The spacings on these diagrams agree within an experimental error of 2 per cent. The function of taurine in muscle is not known.

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EXPLANATION OF PLATE 238

FIG. 1. Top half is the Lotmar-Picken x-ray pattern obtained by Bear and Cannan from *Loligo* funnel retractor muscle (3)¹; the bottom half is a diffraction pattern obtained from a frog sartorius muscle which had been soaked in a 5 per cent solution of taurine and air-dried. First equatorial spacing at $\sin \theta/\lambda = 0.076$.

¹ A negative for this pattern was kindly supplied by Professor Richard S. Bear.

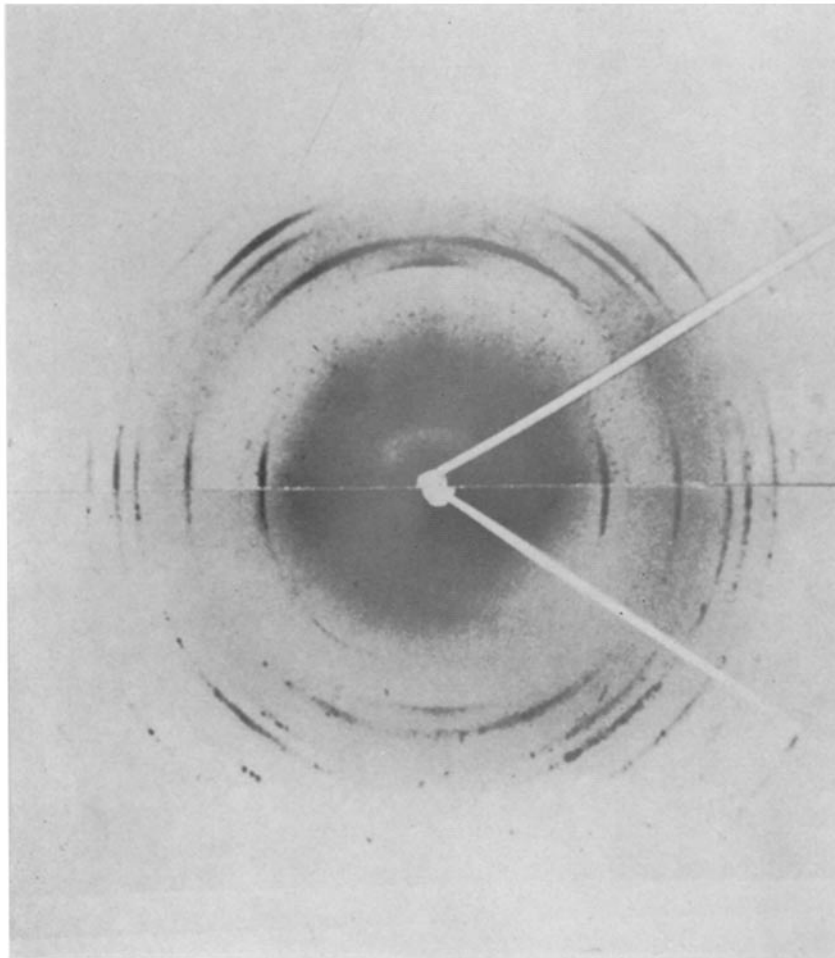


FIG. 1

(Cohen: Lotmar-Picken substance)