observation so far. These fibres (Fig. 1, *p.e.f.*) are not continuations of the longitudinal muscular fibres of the parietes, as might be expected, but after traversing the septa, pass over into the wall of the intestine and actually form part of the longitudinal muscular layer of that organ. As far as I have been able to ascertain, such a continuation of septal muscle-fibres from the parietal musculature to the enteric musculature has not been recorded hitherto. Their disposition, particularly their

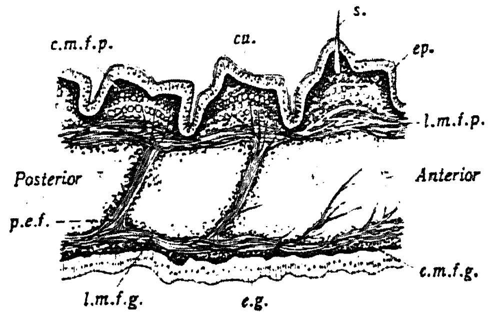

FIG. 1

Longitudinal section through the mid-body of *Pheretima posthuma*, showing the region dorsal to the gut.

c.m.f.g., circular muscle fibres of the gut; *c.m.f.p.*, circular muscle fibres of the parietes; *cu.*, cuticle; *e.g.* epithelium of the gut; *ep.*, epidermis; *l.m.f.g.*, longitudinal muscle fibres of the gut; *l.m.f.p.*, longitudinal muscle fibres of the parietes; *p.e.f.*, parieto-enteric fibres; *s.* seta.

relation to the longitudinal muscular layers of both the body-wall and the gut, indicates a special significance in peristalsis, and one might perhaps justifiably assign to them the role of co-ordinating the muscular contractions of the body-wall with the peristaltic movements of the enteric canal. In view of their peculiar relations, these fibres may be called the *parieto-enteric fibres*.

In this connection one might also mention another relation between the parietal and the enteric longitudinal muscle-fibres which occurs in the anal segment and has not been recorded so far. In this segment (Fig. 2) the longitudinal muscular fibres of the body-wall curve round towards the proctodæum and pass over into the enteric wall as part of its longitudinal layer.

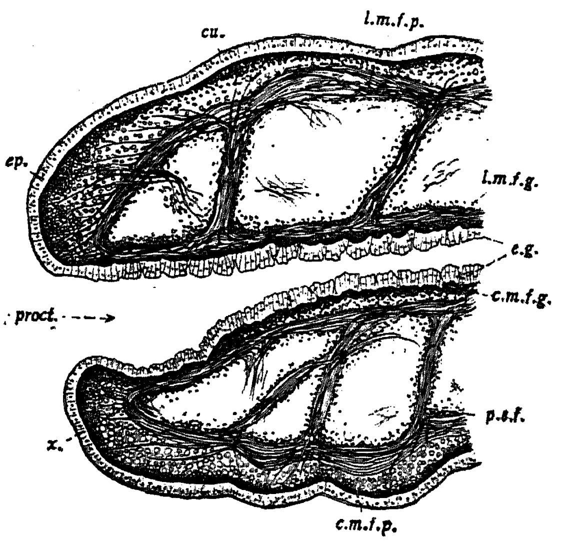

FIG. 2

Longitudinal section of the last three segments of *Pheretima posthuma*.

proct., proctodæum; *x*, the place where the longitudinal muscle fibres of the body-wall curve round to pass on into those of the gut. (Other abbreviations as in Fig. 1.)

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January 25, 1943.

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ON THE THALIACEA OF THE MADRAS PLANKTON

THE only collection of Salps made previously from the different regions of the Bay of Bengal is that by the R.I.M.S. "*Investigator*" Expedition. The collections were mostly from the Burma Coast, Mergui Archipelago, Revello Channel and Nankauri Harbour and comprise twelve species of *Salpa* and four species of *Cyclosalpa* (Bomford, Oka and Sewell). The German Deep Sea "*Valdivia*" Expedition, while passing from Sumatra to Colombo, collected six species of *Salpa*, three species of *Cyclosalpa* (Apstein), five species of *Doliolum* and Nurse Forms (Neumann). Herdman has also recorded three species of *Salpa*, *Doliolum* sp. and Nurse Forms in the Ceylon waters.

Thetys vagina, *Salpa fusiformis* and *Ritteriella hexagona* were collected from the Madras Coast by the "*Investigator*" Expedition during the months of January and February 1894, from depths ranging from 133 to 250 fathoms. As a result of intensive study of the Plankton collections made in this Laboratory, a large number of forms previously unrecorded from this Coast have been brought to light and it is very likely that these forms will be found to have a wider distribution though it is disconcerting to note that the three species mentioned above do not find a place in this collection. The following forms have been obtained from the Madras Plankton:—

HEMIMYARIA—

1. *Cyclosalpa pinnata* var. *sewelli* Metcalf. (Solitary.)
2. *Cyclosalpa pinnata* var. *polæ* (Sigl). (Solitary and Aggregate.)
3. *Brooksia rostrata* (Traustedt). (Solitary.)
4. *Ritteriella amboinensis* (Apstein). (Solitary.)
5. *Salpa maxima* Forskål. (Aggregate.)
6. *Salpa maxima* var. *tuberculata* Metcalf. (Aggregate.)
7. *Salpa cylindrica* Cuvier. (Solitary and Aggregate.)

8. *Jasis zonaria* (Pallas). (Solitary and Aggregate.)
9. *Thalia democratica* (Forskål). (Solitary and Aggregate.)
10. *Pegea confœderata* (Forskål). (Solitary and Aggregate.)
11. *Traustedtia multitentaculata* (Quoy and Gaimard). (Solitary.)

CYCLOMYARIA—

1. *Doliolum denticulatum* Quoy and Gaimard.
2. *Dolioletta gegenbauri* Uljanin.
3. Two kinds of Nurse Forms.

A detailed account of the forms mentioned above together with information regarding their periodicity, as seen from their occurrence in townet collections made during the last five years, will be given when publication facilities become normal.

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EFFECT OF STORAGE TEMPERATURES UPON THE VISCOSITY BEHAVIOUR OF POTATO STARCH

THE viscosity of 1 per cent. potato starch-paste varies from season to season. This is a great handicap in the sizing of fabrics as the amount of size taken up depends upon the viscosity of the size.

In Fig. 1 the viscosity behaviour of a high grade potato starch together with some commercial samples of potato starches is shown.

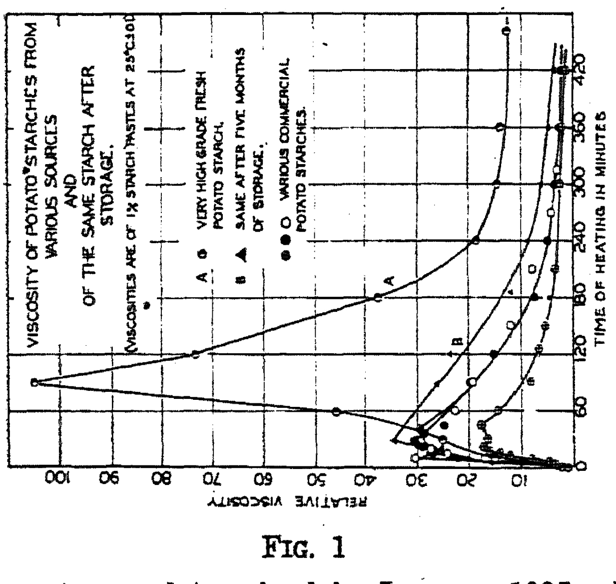

FIG. 1

Curve A was determined in January 1935 while Curve B was obtained for the same starch after five months of storage. The other curves are of several commercial starches obtained from various places during July of 1935.

It will be seen from Curves A and B of Fig. 1 that enormous differences exist in the viscosity behaviour of the same sample of starch during winter and summer. It was thought that the temperatures of storage might have been the cause of this wide variation.

A fresh sample of potato starch was obtained from the Presque Isle Mills of the New England Starch Company through the late Dr. J. R. Katz (in whose laboratory this work was carried out at Cambridge, Mass., U.S.A.) in the first week of July 1935 and its viscosity determined. This sample showed the lowest viscosity that the author has observed in potato starches. On July 11th, 1935, 25-gram samples of this starch were hermetically sealed in Pyrex glass tubes to avoid any differences due to moisture changes during the period of storage. One sample was kept in a refrigerator at 4° C., another in a room where the temperature during day remained around 21° C., and a third at a temperature of 30° C. The tubes were cut open during the last week of September 1935 and the viscosity of 1 per cent. pastes determined in the usual manner.[1] The results are shown graphically in Fig. 2.

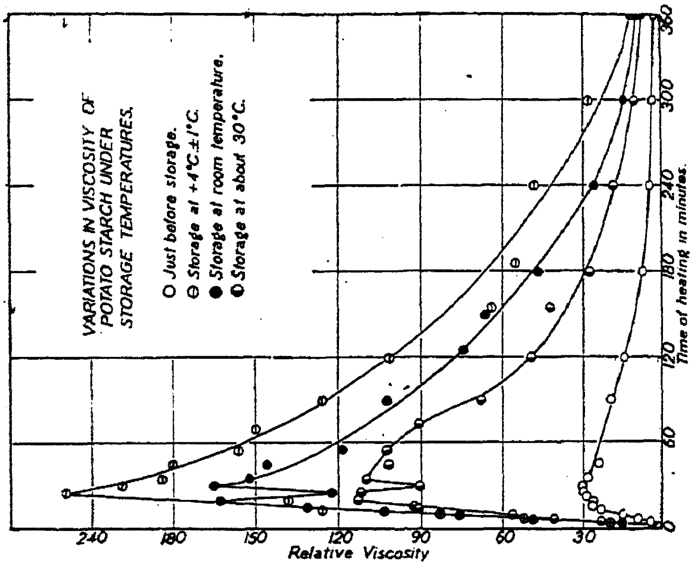

FIG. 2

It will be seen that the temperature of storage has greatly affected the viscosity behaviour of starch. The sample stored at 4° C., records the highest viscosity. The lower the storage temperature. the higher will be the maximum viscosity attained. The results seem to indicate a reversible reaction of the type

$$\text{High viscosity starch} \underset{\text{Low temperature of storage}}{\overset{\text{High temperature of storage}}{\rightleftharpoons}} \text{Low viscosity starch}$$

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