inert atmosphere by providing a cover furnished, say, with a rubber glove finger into which a handle attached to the specimen projects.

A simple device for handling small quantities of tissue is shown in Fig. 3. The 'Perspex' tube (*p*), provided with stoppers, is partly filled with the tissue (*t*) mixed with water or dilute agar solution. After freezing, the remaining portion of the 'Perspex' tube is filled with water and again frozen. The tube is then warmed slightly until the frozen specimen and part of the attached ice-rod (*i*) can be pushed out, as shown in Fig. 3, when it is again reduced to a low temperature and then glazed (*g*) by dipping in ice-cold water. The projecting 'Perspex' tube provides a convenient handle for the specimen, which can be ground down until some of the ice (*i*) has also been ground, so cleaning all tissue from the rotating wheel.

The ability to reduce large quantities of material to a high state of division in a short time and at a low temperature should make this method particularly useful in the biochemical study of labile substances, and for the production of homogenized biological preparations, such as thyroid gland or rabid dog brain, for medical use.

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Cultivation of *Vibrio fœtus*

Vibrio fœtus is non-pathogenic for small laboratory animals. As it can cause abortion in sheep and cattle, and is then found in the embryo, cultivation in incubated chicken eggs was attempted. The organism grows easily in the allantoic fluid of seven-to-nine-day eggs. Three days after inoculation, there is a rich growth of *Vibrio fœtus* in the allantoic fluid. The organism can also develop in dead embryos; but the allantoic fluid is then often so cloudy that it is difficult to detect the organism microscopically. We used two different strains, which had been cultivated on blood agar. We have not as yet had the opportunity of inoculating eggs with material from a sheep- or cow-embryo.

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Contractile Systems of Unstriated Muscle

Unstriated muscle has two cycles for contraction. in one cycle the energy for contraction is derived from chemical stores; in the other cycle, the energy for contraction is derived from that stored in the structure[1,2]. These two cycles operate upon two different contractile mechanisms respectively[3].

If dog's stomach muscle is stimulated with potassium salts at 37–38° C., the relaxation of the contraction produced may be very slow; a tension of 30 gm. may take 2–3 hr. to subside. The initial tension and the subsequent slow relaxation are produced by different contractile mechanisms, the former being produced by the first and the latter by the second system[4]. This is shown by the following experiments: (1) the former is susceptible to asphyxia or cyanide, while the latter is resistant. (2) At 20° C., the second mechanism is inactivated[3] and the slow relaxation does not occur, though the initial tension is increased. (3) If the asphyxial contraction is produced in dog's stomach muscle and its tension destroyed by quick stretching, the slow relaxation is not produced although the initial tension is increased[3]. This shows conclusively that the slow relaxation is due to the second mechanism. (4) If a piece from the pyloric end of dog's stomach, which exhibits alactic tone[5], is put under tension of about 50 gm. and this tension is mechanically destroyed, the process being repeated twice, then the initial tension is increased but the slow relaxation does not occur[6].

One kind of normal tonus of unstriated muscle is identical with the asphyxial contraction; that is, the energy for contraction is derived from the energy previously stored in the structure. If the asphyxial contraction is produced in dog's stomach muscle and its tension destroyed, then the asphyxial contraction does not occur again, though the other contractions which are susceptible to asphyxia can be produced by an electric current, potassium salts and acetylcholine[3]. If a piece of the pyloric end of dog's stomach is put under tension, which is then destroyed mechanically, the asphyxial contraction does not occur, showing the identity of the normal tone of the muscle and the asphyxial contraction[6]. By such procedure, the contraction produced by alternating current in dog's and frog's stomach muscle is not affected; but if a jerk is given to the muscle when such a contraction is occurring, then the twitch contraction is damaged, but not tone[5,6]. The two contractile mechanisms can thus be damaged differentially.

Slow relaxation of unstriated muscle can also be produced by the first system, as shown by its susceptibility to asphyxia or cyanide. It is due to sensitization to ions in the saline[7]. It is akin to the veratrine contracture of striated muscle.

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Hormone Production within the Nervous System of a Crustacean

For some years workers in crustacean endocrinology have suspected that the sinus gland is not the sole source of hormones in crustaceans. The nervous systems of *Crago* and other crustaceans have yielded extracts which, when injected, have concentrated or dispersed pigments within chromatophores[1,2]. Some pigment movements have been shown to continue after removal of the sinus gland[3,4]. The median faces of the tritocerebral connectives and the post-œsophageal commissure have been indicated as possible areas of hormone production, though without histological investigation[5,6]. Recently, I had an opportunity of searching these areas for evidences of secretion in the prawn *Penœus braziliensis*.