Leach[4] claimed that this resulted in a tenfold increase in sensitivity. We used plasma-injected hypophysectomized rats as controls and we obtained the accompanying results (Table 1).

Gonadotrophin *A* was assayed in intact immature mice by the method of Klinefelter, Albright and Griswold[5]; 10 mgm. caused a sixfold increase in the weight of the uteri.

These results demonstrate that our method of chromatography has removed luteinizing hormone from gonadotrophin *A*. Further results on the gonadotrophin *B* fraction will be published in due course.

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Electrical Method of determining the Sex of Sea Urchins

The sex of sea urchins cannot, with very few exceptions, be ascertained by any external morphological character. A very simple method of distinguishing male and female is to pass an alternating electric current of 10 volts through the animal, and it will at once shed its sperm or eggs. Ordinary 60-cycle alternating current can be used, with the 110-voltage reduced to 10 volts by a household bell transformer or a 'Variac'. Lead electrodes have been found best as they are non-toxic and are easily made from lead tubing (3 mm. bore) sealed over copper wire, or from heavy lead wire. The electrodes are placed at any two points on the shell of the animal which lies, aboral side up, covered with sea water. Almost immediately after the current is passed, the eggs or sperm will exude from each of the five gonopores, the sperm in a thin white thread, and the eggs in a thicker red (in *Arbacia*) thread, later tending to clump. When the current is stopped, the shedding ceases; but it begins again when the current is allowed to pass. In this way, the sex of the animal can be quickly determined, and a few eggs or a little sperm obtained without harming the animal; and the same animal can be used repeatedly. The eggs, if removed at once, fertilize perfectly and develop normally. The method is of great value in places where sea urchins have become scarce.

The rapid response of the sea urchin is due to the presence in the walls of the ovary and testis of a layer of smooth muscle cells which are stimulated by the electric current, causing the walls to contract and force out the eggs or sperm.

A much more elaborate electrical method was described three years ago by Iwata[1] for *Mytilus* and for a Japanese species of sea urchin, *Heliocidaris crassispina*. The simple method described above has also been used successfully on the sand dollar, and several species of annelids.

Sea urchins containing only immature eggs do not respond. In some species a higher voltage may be required.

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The Caval Sphincter in *Phoca vitulina* L.

Examination of dissections and casts of the venous system of twenty-five specimens of the common seal has confirmed, in the main, the findings of previous workers[1]. In addition, the casts revealed the existence of a large vein lying in the spinal canal external to the dura mater. In the lumbar and thoracic regions this extradural vein is single and lies dorsal to the cord; it receives three major tributaries from each renal plexus, and also communicates with almost every segmental vein of the trunk and with the vena azygos. In the cervical region it divides into two smaller veins which lie one on each side of the cord, with numerous anastomosing channels passing between them. These two veins unite deep to the posterior arch of the atlas, and the sinus thus formed communicates with the intracranial sinuses by two veins, each of which passes through the corresponding condylar canal.

It had been desired to investigate the effects of raised external pressure on the animal's circulation, in an attempt to simulate the conditions during diving. Two live pups were satisfactorily and easily anæsthetized by Finer's method[2]. Attempts were made to place the anæsthetized animal on its back into water in a pressure tank. However deep the anæsthesia, even as deep as the stage of respiratory depression, the animal righted itself and rhythmic swimming movements occurred. As soon as the pup was removed from the water, the movements ceased, and the animal appeared still to be deeply anæsthetized.

The thorax and abdomen were opened under anæsthesia; the phrenic nerves and the sphincter on the inferior vena cava were found. An opening was made into the hepatic sinus through which a finger could be inserted into the inferior vena cava within the sphincter. Stimulation of first the left, and then the right, phrenic nerve by square-wave current pulses of 2 m.sec. duration and 4–5 m.amp. intensity at 50 pulses per sec. caused the diaphragm to contract and the sphincter to close tightly around the

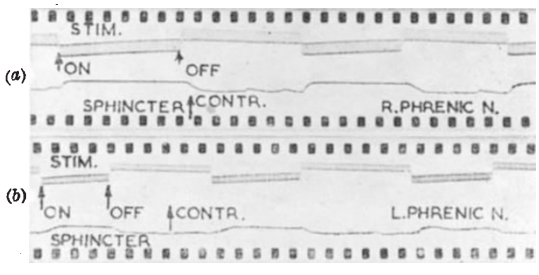

Fig. 1. Contraction of the sphincter on the inferior vena cava of the common seal when (*a*) the right, and (*b*) the left phrenic nerve is stimulated