

Injection of the material in the direction of the blood flow is important, as hemorrhage usually results if the needle is inserted against the flow.

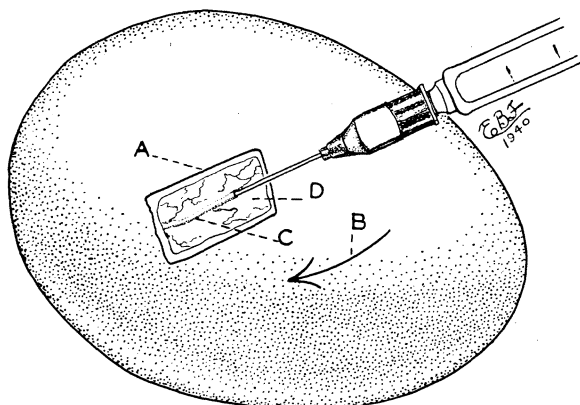


FIG. 1. A. Section of shell removed leaving shell membranes intact. B. Arrow showing direction of blood flow. C. Vein. D. Shell membranes made transparent by oil and adhering chorio-allantoic membrane.

A square of approximately 1 cm is then cut through the shell to the inner shell membrane around the portion of the vein marked on the shell. This is done by means of a high-speed grinder such as the Handee or Moto-tool. If the grinder is clamped to a stand and the egg manipulated, the cutting of the shell is facilitated as more accurate pressure may be applied. Care must be taken not to cut through the outer and inner shell membranes, as the chorio-allantoic membrane will then usually pull away from the outer shell membranes and it will be impossible to expose the vein. The cut section of shell is then lifted away by inserting any fine-pointed instrument in the cut and lifting.

A drop of light, sterile mineral oil is then placed on the membrane, which immediately becomes transparent, exposing the vein, and the egg is ready for injection.

It is advisable to use a $\frac{1}{4}$ cc tuberculin syringe with a 25-27 gauge needle, and the angle of insertion should be as acute as possible using the posterior edge of the cut as a support, while the bevel of the needle is held uppermost. Withdrawal should be extremely slow and caution exercised to prevent possibility of hemorrhage. In this connection it was found that the probability of hemorrhage with veins larger than the diameter of the needle is greater than with those slightly smaller, hence it is preferable to pick out, if possible, a portion of a vein of medium size.

After the needle is withdrawn, the egg is sealed with a 6 per cent. solution of paralodion in ether.

In bleeding the embryo, the same procedure is followed, with the exception that the needle is inserted against the direction of flow.

Quarter cc amounts have been bled from embryos without apparent damage and quantities of blood up to 0.1 cc injected with survival. Allantoic fluid, however, has proved fatal in a few minutes when injected intravenously in 0.01 cc quantities, producing tremendous hemorrhage in the embryo proper.

In conclusion, there have been 32 passages to date from egg to egg in series by this method, while mortality rate due to hemorrhage in faulty manipulation has been approximately 30 per cent., but there is no reason why this can not be considerably reduced with improved technique.

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MOUNTING EMBRYOLOGICAL MUSEUM SPECIMENS WITH GLASS WOOL

By using the following technique a practically transparent, as well as artistic, suspension of specimens may be obtained.

First, pour mounting medium in jar (10 per cent. formalin, or glycerin, etc.). Second, place specimen in jar of medium and encircle it with the least possible amount of loosely meshed, fine, glass wool, enough to hold the object suspended and freely oriented to present the most satisfactory picture.

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BOOKS RECEIVED

- ADDICKS, LAWRENCE, Editor. *Silver in Industry*. Pp. vii + 636. Illustrated. Reinhold. \$10.00.
- CLAUSEN, JENS, DAVID D. KECK and WILLIAM M. HIESEY. *Experimental Studies on the Nature of Species: I, Effect of Varied Environments on Western North American Plants*. Pp. vi + 452. 155 figures. Carnegie Institution of Washington. \$3.50.
- DE HAAS, J. H. and IR. O. MEULEMANS. *Melk in Het Bijzonder Als Zuigelingenvoedsel*. Pp. 104. Drukkerij Smits, Batavia.
- DE VRIES, LOUIS. *French-English Science Dictionary; For Students in Agricultural, Biological and Physical Sciences*. Pp. viii + 546. McGraw-Hill. \$3.50.
- HOGGEN, LANCELOT. *Principles of Animal Biology*. Pp. 415. 147 figures. Norton. \$3.75.
- MARK, H. and G. S. WHITBY, Editors. *Collected Papers of Wallace H. Carothers on Polymerization*. Pp. xix + 459. Illustrated. Interscience Publishers, New York. \$8.50.
- NEEDHAM, JAMES G. *Introducing Insects; For Beginners*. Pp. v + 129. Illustrated. The Jaques Cattell Press, Lancaster, Pa. \$1.50.
- NETTLETON, L. L. *Geophysical Prospecting for Oil*. Pp. xi + 444. 177 figures. McGraw-Hill. \$5.00.
- OSBORN, FREDERICK. *Preface to Eugenics*. Pp. xi + 312. Harper. \$2.75.
- RICHARDSON, E. G. *Sound*. Pp. vii + 339. 118 figures. Longmans, Green. \$5.25.
- WHITEBECK, R. H., FRANK E. WILLIAMS and WILLIAM F. CHRISTIANS. *Economic Geography of South America*. Third edition. Pp. xi + 469. 203 figures. McGraw-Hill. \$3.50.
- WINDLE, WILLIAM F. *Physiology of the Fetus; Origin and Extent of Function in Prenatal Life*. Pp. xiii + 249. 70 figures. Saunders. \$4.50.