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**Development of Elastic Fibers in Cultures of Embryonic Heart Muscle.**

WILLIAM BLOOM.

*From the Department of Anatomy, University of Chicago.*

Because of the close association of elastic fibers with contractile tissues throughout the body, cultures of embryonic heart muscle were tested for the presence of elastic fibers. I have been unable to find a report of such an experiment. Portions of the heart of an 8 cm. guinea pig embryo and a 4 cm. rabbit embryo were cultured in homogenous embryonic extract and plasma. The cultures were made on round coverslips by Maximow's method and in Carrel flasks so that in no case was it necessary to cut them for transplantation. They were fixed after 10-17 days with one or more transplantations in Zenker-formol, embedded in colloidin and serially sectioned. They were stained with Weigert's resorcin-fuchsin method for elastic fibers and counter-stained with azo-carmin. Some of the sections were stained by Foot's method for reticulum fibrils.

Typical elastic fibers develop regularly in those cultures in which the muscle was contracting up to the time of fixation. They appear in the zone of migrating newly formed cells outside the explanted bits of heart muscle. They are thin, blue-black lines which are fairly straight and parallel to the long axis of the migrating spindle shaped cells. The fibers branch occasionally and seem to be definitely intercellular. In some places they are curled and twisted and form bizarre figures of many shapes. In a few areas the newly formed fibers interlace and form a wide or narrow meshed network. Control sections of the hearts from which these cultures were made show that the only elastic fibers in them are in the walls of the relatively small cardiac vessels.

In these experiments, elastic fibers have been produced for the first time in tissue culture. These fibers stain electively with Weigert's resorcin fuchsin method; they do not stain with Foot's method for reticulum fibers and, as they occur between the newly formed cells of the culture, there can be no question of the fact that they have developed *in vitro*.