

body weight) than larger snakes, such as *Natrix cyclopion floridana* Goff (1.0 cc per 30 grams of body weight). The former are fully anesthetized in from five to ten minutes and recover in six to twelve hours; the latter require one to two hours for complete anesthesia and recover in twenty-four to forty-eight hours. In approximately one hundred operations on snakes of a variety of Colubrid genera, both oviparous and ovoviviparous, no fatality has resulted from the anesthetic.

This rather striking and successful use of nembatal with cold-blooded vertebrates deserves special note. Although this anesthetic has been extensively used during the past several years both on humans and lower mammals, there is, to my knowledge, no record of its application to vertebrates below the mammals. The ill effects which sometimes accompany the use of respiratory anesthetics, such as ether and chloroform, were not apparent in snakes treated with nembatal. This observation should be of interest to workers in fields other than embryology.

The operation consists of the exposure of the oviduct by a short longitudinal abdominal slit slightly lateral to the mid-line and near the position of the most cranial embryo. The oviduct is then opened, and one or more embryos removed, the rest being left to continue development. It is not necessary to suture the oviduct and peritoneum, but the abdominal incision is closed by appressing the fleshy surfaces and securing them by a stitch of white linen thread at the base of each scute. On some ovoviviparous forms the process was repeated at intervals of three days; however, there is no reason to believe that a shorter interval would not be feasible. At each new operation, slits were made in progression posteriorly until all the embryos had been removed. I have had no opportunity to observe the effect of repeated operation on oviparous forms.

Removal of some embryos interferes in no way with the development of those remaining. Only one snake, *Thamnophis sirtalis sirtalis* (L.), was allowed to give birth to young after operation; from this specimen fourteen embryos had been removed in five weekly operations. The remaining two young were delivered at the expected time and were normal in every respect. During the summer of 1936 it was further observed that the rate of development was precisely the same in both operated and unoperated snakes which had been kept under the same laboratory conditions.

By this method it has been possible to secure embryonic material in series; it seems that this could have been accomplished in no other practical way.

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## PHOTOGRAPHY IN THE BIOLOGY CLASSROOM

NOTE-TAKING by means of the newer types of small cameras is a classroom technique being employed successfully by several students in my biology classes. Photomicrographs of the various slides being used in laboratory can easily be taken by using a photomicrographic collar attachment set at infinity, with an exposure of from 3 to 10 seconds on Super-Pan film. The microscope may be focused in the usual way, using light from an ordinary table microscope lamp. These photographs, when mounted and supplemented with descriptive sketches and labels, make a most attractive and useful notebook record of laboratory work. One student, using an f.2 shutter and 1 second exposure on Super-X film, has regularly been photographing lantern slides as they are thrown on the screen during lectures and then using them to advantage as addenda to his written lecture notes. Several men on our teaching staff have also found that photographs of laboratory dissections and photomicrographs of slides and tissue preparations when properly enlarged, labeled and covered with Cellophane, may be successfully used as demonstrations for short practical laboratory quizzes on occasions when circumstances do not permit the preparation of actual specimens for large numbers of students.

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