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## Simplified Method for Efficient Intravascular Inoculation of Chicken Embryos

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The simple syringe-stabilizer unit described in this note provides a means for rapid intravascular inoculation of embryonated chicken eggs with minimal embryonic death from vascular trauma.

Intravascular inoculation of chicken embryos is an efficient means of cultivation of certain viruses. Goldsmit and Barzilai (4) reported that a thousand times greater amount of bluetongue virus was needed when the yolk sac inoculation method was used than when the intravenous method was employed. The same workers (5) later reported that bluetongue virus could be isolated from sheep blood with a saving of 6 weeks when the intravenous technique was used. Later, intravascular inoculation of embryonated chicken eggs was found to be equivalent to sheep inoculation for isolation of bluetongue virus from sheep blood (3).

Traditional methods of intravascular inoculation of chicken embryos have been laborious

and usually result in high embryonic mortality from vascular trauma (2). Improved methods require elaborate and costly instrumentation (2, 6) or two operators (2). The syringe-stabilizer unit described herein can be easily assembled from items readily available to all laboratories at minimal cost. An operator working alone using this unit can efficiently inoculate embryonated eggs with minimal vascular trauma.

**Fabrication procedure.** The syringe-stabilizer was assembled by mounting a 50-ml glass syringe in an inverted position on a ring stand at a 30° angle using two three-prong grip clamps (Fig. 1). Two wooden clothespins were taped to the glass syringe plunger. The clothes-

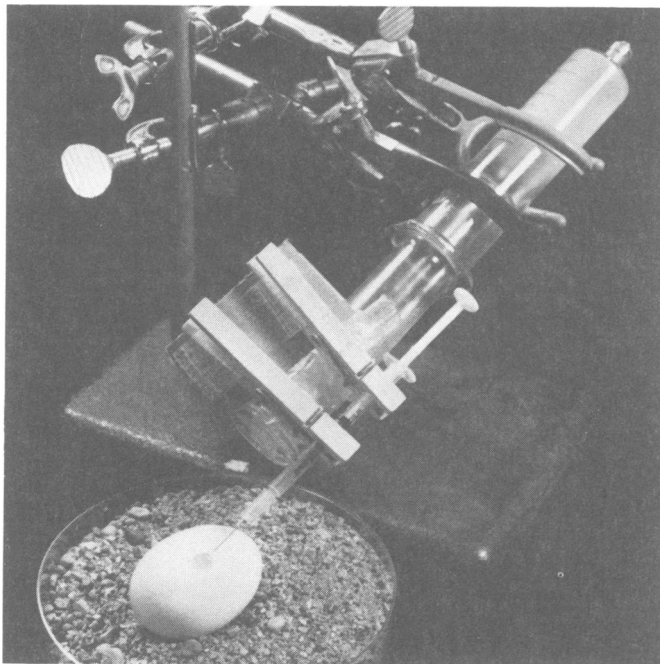


FIG. 1. Easily constructed syringe-stabilizer that simplifies the intravascular inoculation of embryonated chicken eggs.

pins were used to clamp a 1.0-ml tuberculin syringe with a 0.5-inch (ca. 1.3 cm), 27-gauge needle for the intravenous inoculation. A piece of cardboard (4 by 7 cm) was taped to the clothespins to facilitate their operation. Silicone lubricant was applied to the glass syringe plunger to prevent slippage.

**Operation.** Embryonic veins were located and marked with the aid of an egg candler (Speed King, The Speed King Co., Chicago, Ill.). Round windows (0.5 cm) were cut through the egg shells by using a diamond-impregnated, straight handpiece, shank, inverted-cone dental instrument (model KC-1B, Densco, Incorporated, Denver, Colo.) (7). A drop of mineral oil was used to produce a translucent membrane to reveal the vein to be used for inoculation. The egg was stabilized on washed gravel in a petri dish (6) and was positioned under the stabilized tuberculin syringe, which contained the inoculum. The inoculation site was illuminated with a brilliant light source. The tuberculin syringe was positioned laterally by sliding the glass syringe plunger in or out and was positioned vertically by rotating the glass sy-

ringe plunger in the syringe barrel. The silicone lubricant on the glass syringe plunger held the tuberculin syringe in stationery position after penetration of the vein and while the inoculum (0.2 ml) was delivered. Use of a bench-type, illuminated magnifier lamp facilitated venipuncture and minimized eye strain.

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