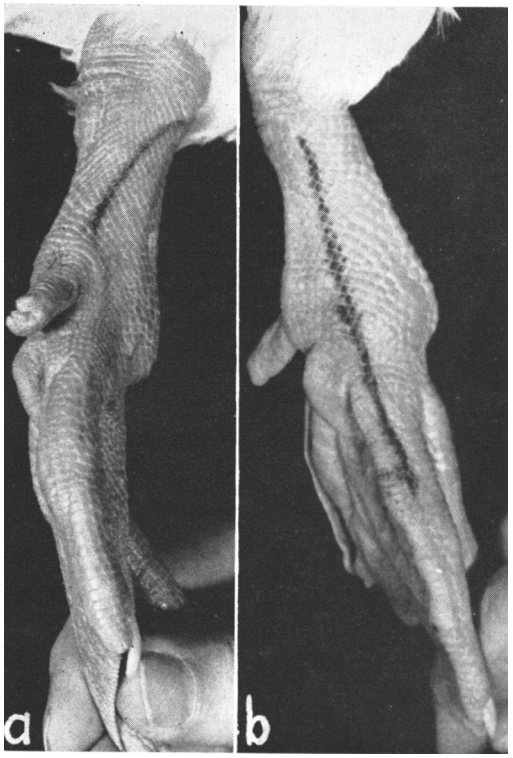

FIG. 1. a. Photograph showing location of vein on the medial aspect of duck's leg. Area over the vein shaded so it will show more clearly. b. Photograph showing location of vein on the lateral aspect of duck's leg. Area over the vein shaded so it will show more clearly.

more difficult to see its outline on the skin, and more awkward to use.

After the desired amount of blood has been obtained, the needle is withdrawn. Bleeding can easily be controlled by applying pressure for a few minutes over the site. Occasionally, the artery alongside the vein may be punctured accidentally, and the blood will squirt out through this puncture wound for a distance of several inches but this too can be easily controlled by pressure.

Since duck blood clots very rapidly it is advisable, when more than one or two ml of blood is needed, to inject the duck with about 2 mg of heparin 15 to 20 minutes before collecting the blood. The syringe should also be rinsed with a solution containing heparin, citrate, or EDTA to further prevent clotting.

If the vein collapses before sufficient blood is withdrawn, one of the veins in the other leg can be used. It is usually advisable to release the duck and allow it to stand for a few minutes which seems to restore circulation to the legs. Ducks can tolerate loss of blood very readily with no apparent ill effect. We have withdrawn at least 30 ml of blood every other week for several weeks before the duck showed any signs of weakness.

Summary. A simplified method is described for obtaining blood from the duck. The veins along the lateral and medial aspect of the shank of the leg are used. Up to 40 ml of blood can be obtained easily by this method. It is much less time-consuming and easier than using the brachial vein in the wing.

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An Improved Light Source for Transilluminating Solid Organs *in vivo*.* (29156)

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The light source may be a limiting factor in viewing and photographing microcirculatory changes in solid parenchymal organs *in vivo*. Knisely(1) has developed a water-cooled hollow quartz rod for this purpose.

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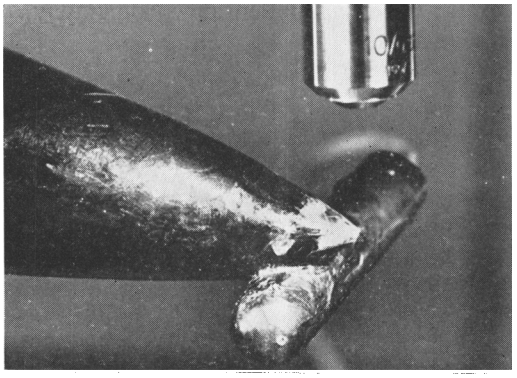

FIG. 1. Photograph of tip of Methacrylate light carrier showing electronic flash tube mounted below.

In this laboratory a 500 watt, blower-cooled, reflector-condenser light source has been used with a water-cooled Methacrylate light carrier; the tip of the light carrier was cooled further with a running stream of physiologic saline(2). A reading of 2000 arbitrary units was observed with a Weston light meter at the end of the carrier, prior to transillumination of the organ. After transillumination of the liver, and passage through a 100-200 power microscope, the light reading at the film plane was about 0.1 unit on the same meter, a light loss factor of 10,000. This light loss in the system required the use of high speed film and, on occasion, forced processing to obtain photographs. This light loss precluded the use of slow speed, high acuity color film. Moreover, the quality of the black and white photographs made with this equipment was not always satisfactory.

It was decided that a light source should have these qualities: high intensity light suitable for use with daylight Kodachrome film; low temperature of the carrier in contact with the tissue edge; and a secondary constant light source for viewing and focusing which also will not overheat the tissues. Electronic flash systems have been employed as the light source for recording biological events (3). The present communication describes a combination of constant light for viewing with an electronic flash mounted at the end of the light carrier for photographic recording (Fig. 1).

Methods. A General Electric flash tube, model FT-30 operating at 15 watt-seconds input was encased in a plastic test tube and sealed in silicone rubber (General Electric LTV-602) to insulate the polyethylene coated connecting wires. The enclosed bulb was mounted at the end of the light carrier. This permitted the incandescent light source to be operated continuously for viewing and

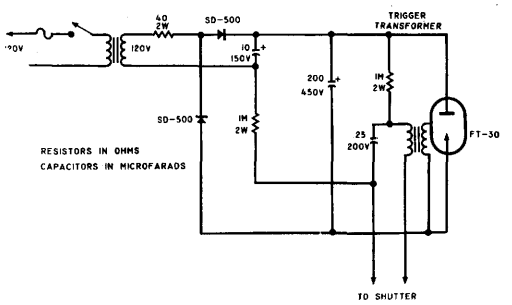

FIG. 2. Schematic diagram of electronic power supply.

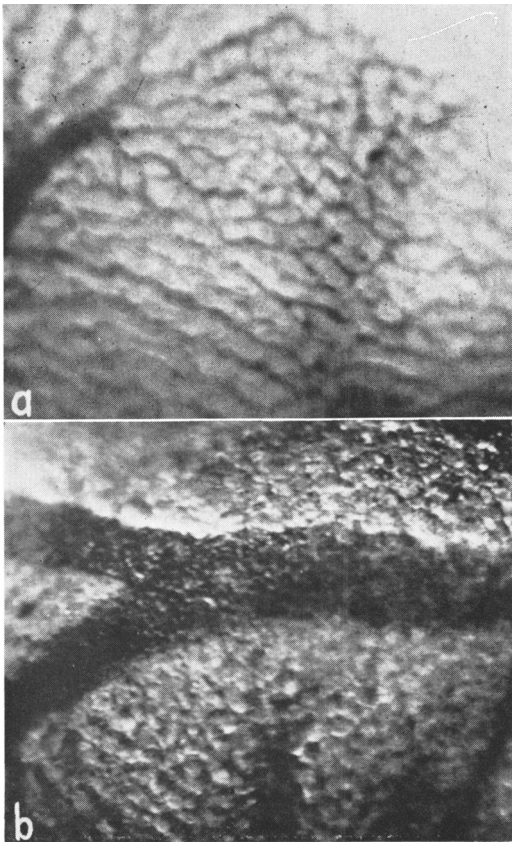

FIG. 3. a. Transilluminated rat liver showing central vein in left portion of field and hepatic sinusoids. Magnification: × 90. b. Large branching hepatic vein in central portion of field with hepatic sinusoids. Magnification: × 90.

focusing. Fig. 2 is a schematic diagram of the power supply used to operate the flash tube. Synchronization was achieved with the E. Leitz photomicrographic equipment.

Using Kodachrome 1 or 2 daylight film, normally exposed photographs of microcirculatory events were obtained. The shutter was set at 1/125 second, during which the electronic flash was fired, emitting a daylight quality, high intensity light for about 1/1000 second. The high shutter speed and slow film rating prevented exposure of the film from the viewing light, so that the exposure was the result of the electronic flash alone. It is estimated that the light from the flash tube is 500 times more efficient than the incandescent source previously employed. An example of the hepatic microcirculation *in vivo* is shown in Fig. 3.

Summary. An electronic light source for *in vivo* transillumination and photography of microcirculatory events within solid organs is described. This high intensity light source was balanced for daylight color film and was placed directly below the organ in the direct optical path of the microscope. To minimize detrimental effects of normal organ function, the temperature of the light carrier and flash tube at its tip did not exceed normal body temperature. This optical system was combined with a constant light source for viewing and focusing.

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Cultivation of Mouse Thymus in Organ Culture.* (29157)

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Recent discoveries regarding the role of the thymus gland in immunologic phenomena and leukemogenesis suggest the need for a method of *in vitro* cultivation of this organ that allows preservation of its architecture and cytology.

Trowell(1) placed thymus tissue of adult mice and rats on lens paper suspended by a tantalum wire grid over synthetic medium and observed, in some instances, survival of tissue for as long as 6 days. Ball and Auerbach(2) used a plexiglas-millipore filter assembly to cultivate epithelial thymus rudiments of 12-day old mouse embryos. They demonstrated development of lymphoidal thymuses from these rudiments over periods of 14 to 20 days.

In this publication is described the morphology of intact thymus of 2-week old mice cultivated for prolonged periods by a modification of an organ culture technique described previously(3).

Materials and methods. Fourteen-day-old Balb/C mice were anesthetized by intraperitoneal administration of sodium pentobarbital, their thymus glands were removed aseptically with care not to break their capsules, and the paired glands were separated with minimal trauma in a dish containing growth medium.

Five tetrafluorethylene (Teflon®) rings, described previously(3), were placed in each sterile Petri dish and 5.5 ml of growth medium was added to each dish. The medium consisted of 90% Eagle's minimum essential medium(4) as modified by Goldstein(5) and 10% horse serum with antibiotics at concentrations of 100 units penicillin, 50 μg streptomycin, and 2 μg amphotericin per ml. Each

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