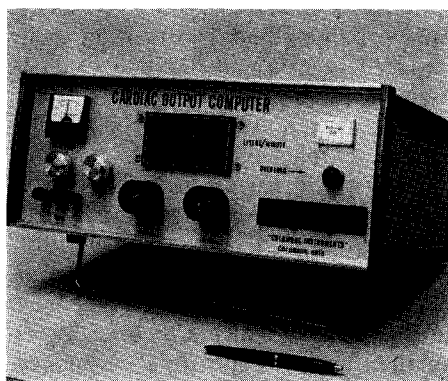


Hemodynamics . . .

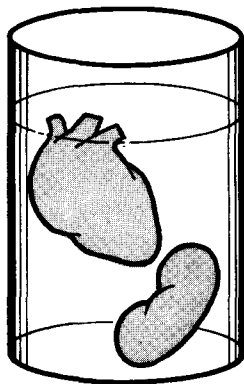
readings to what they would be if the measurements were made at 37 degrees C. In applications where the sample temperature at the electrode site is not 37 deg. C. (in hypothermia studies or where the thermal loss in the extra-corporeal loop is significant), corrections must be applied to the values obtained to give the corresponding values at 37 deg. C. There is not universal agreement on what the correction factors for blood should be and if they are the same in both directions from 37 deg. C. The values obtained and recorded by the BCM are valid at the sample temperature."

"To overcome the temperature conversion problem, we are developing a blood pre-warmer which heats the blood entering the electrode block and maintains the sample in the electrode area at some preselected value, which is typically set for 37 deg. C. This is accomplished by circulating the blood through a short coil of Teflon tubing immersed in a small water bath. Preliminary tests have shown that this does an adequate job of preheating the blood over a flow range from 5 to 30 ml./min. This will eliminate the need for temperature correction and also the need to correct the electrode readings for changes in sensitivity associated with changes in the sample temperature."



A recent communique from Columbus Instruments, 1166 Chesapeake Ave., Columbus, Ohio 43212, introduces their Cardiac Output Computer. Featuring a direct read-out in liters per minute, the computer can be used with a) thermal dilution, b) X-ray contrast dilution, or c) dye dilution measuring methods utilizing bolus injection of indicator with accuracies to the order of plus or minus 1%. Simplified operation is an outstanding feature of the computer since minimal training and experience with the equipment is required. A detailed brochure is available from the manufacturer.

RS-8



Tissue & Organ Preservation

The segment of the Technology represented in this specialty section is still in its infancy with its greatest strides yet to be taken. In the offing are live organ banks of animals pre-treated to accept human hosts; long-term preservation of viable organs and tissues for transplantation; pre-packaged, pre-sized, sterile, freeze-dried heart valve homografts; improved prosthetic heart valves; portable "wearable" dialyzers; artificial hearts with portable or implantable power supplies; other artificial replacement organs; electronic equipment to stimulate and control errant but basically healthy organs (heart pacemakers and nerve/muscle stimulators are already fact); and support equipment to assist or rest organs recovering from disease.

Is the involvement of technologically oriented personnel necessary to all phases of the research, development, and application of these achievements? Will technologists be necessary to assist in the preparation, testing, and organ retrieval from the proposed heterograft banks; in the retrieval of organs from human donors; in the processing of these organs for storage and utilization; in the processing, storage, and utilization of homograft tissues such as heart valves, arteries, and the like; in the application and maintenance of "wearable" or implantable artificial organs; or in the application, utilization, and maintenance of electro-mechanical organ support equipment? Since an organ unit or electro-mechanical unit is the direct concern of the technician while the patient is his more indirect concern (but is the primary concern of the doctor), do the factors involved differ greatly from situations in which the patient is the direct concern of the technologist? If so, how?

What responsibilities or areas of liability involve the technologist? At what

point is the technologist delegated his responsibility? What does this responsibility entail? For example, is the technologist solely responsible for an organ from the time the removing surgeon hands it to him until the implanting surgeon receives it? Or does the doctor or institution remain as the principal agent? Who is responsible for that organ?

What training must a technologist have (or must one learn to become such a technologist) to handle organs and tissues for transplantation; to handle equipment and prosthetics in the application and maintenance of implanted or wearable artificial organs; to handle equipment and/or prosthetics in the application and maintenance of organ control or support equipment?

In the diverse areas of interest encompassed by this department, the variations in the needs for technological and support personnel could possibly be infinite. Could "adaptability" of the individual technologist be the keystone to changing projects or areas of technological application? Is the technological task force the key to continued progress in these areas?

* * *

Mr. Paul Palubniak, Vice-President of the LPT Corporation (101 Boston Avenue, Bridgeport, Connecticut 06610), recently presented a new hyperbaric, hypothermic kidney storage and perfusion system for maintaining the kidney until transplantation. The unit features equipment to store one kidney within a temperature range of -15 degrees to +50 degrees centigrade (plus or minus 0.2 degrees) and under a pressure of up to four atmospheres of pressure. The system will also permit the contained kidney to be perfused with an oxygenated fluid.