Laboratory and the M. D. Anderson Hospital in Houston. Such experiments may lead to the use of an internal isotopic source in cancer therapy, and this could prove to be a major advancement in the treatment of this disease.

Among the persistent and unsolved problems confronting physicians today are those concerning management of leukemia. At the Brookhaven National Laboratory solutions are being sought by a new and unorthodox technique of intermittent irradiation of blood in an exteriorized shunt (extracorporeal irradiation). Results so far indicate that certain forms of leukemia may be favorably influenced by this treatment. By means of surgical connections to a plastic tube, blood is made to flow in a temporary external circuit from an artery to a vein. The external circuit is made sufficiently long to include passage through a high-intensity field of beta or gamma radiation. Thus only exteriorized blood and plastic tubing is irradiated, and the rest of the body remains untreated. The results obtained from this procedure are similar to those seen when certain drugs are used to treat leukemia, with one significant exception. The drugs have potential and actual toxic side effects on other tissues of the body, whereas in the irradiation of exteriorized blood only the cells in the blood are affected. A commercial extracorporeal blood irradiator using strontium-90 as a source of beta radiation is now being marketed.

In addition to its application in the treatment of certain leukemias, extracorporeal irradiation of blood for suppression of the immune response is being used to prepare recipient patients for kidney transplants and to help patients in whom the rejection of a transplanted kidney is threatened. One of the latest innovations in this type of irradiation is the use by an ambulatory patient of a bracelet containing a radiation source. This bracelet, under investigation at the Medical College of Virginia, is a plastic coil containing a radioisotope of phosphorus with a half-life of 14 days. As the patient's blood is shunted through this bracelet, from an artery to a vein, it is irradiated to selectively destroy white blood cells responsible for rejection of the organ transplant.

An entirely different method of irradiation therapy being investigated is that employed in the Low Dose Rate Facility. The Medical Division of Oak Ridge Associated Universities has constructed such a facility to allow prolonged total body irradiation treatment of patients. The new facility will make possible a reevaluation of the effectiveness of