

The new Western Electric 6167 cold cathode counting tube is the subject of an article in the *Bell Laboratories Record* of April 1953. The tube, operated in a simple circuit and requiring only one to three milliamperes, "counts" from one to ten, each electrode maintaining a signal until another input pulse transfers a glow discharge to the next electrode. An auxiliary anode may be used to provide an extra pulse when the tenth electrode is reached, although this reduces its normal 12,000 cycles per second frequency response to about 2000 cycles per second.

The January issue of *Reviews of Modern Physics* is devoted in its entirety to the papers and discussions presented at the Washington Conference on Magnetism held in September 1952 at the University of Maryland. Sixty-six papers on a variety of subjects in experimental and theoretical magnetism and related topics are included, covering much of the most recent work in the field.

Several special symposia were presented at the Boston meeting of the Optical Society held in October, 1952, where such topics as optics and nuclear theory, spectroscopy, physiological optics, computer applications, and unusual observations in the earth's atmosphere were discussed. Fifteen of the twenty-two symposia papers have been published in the April 1953 issue of the *Journal of the Optical Society of America* with contributions by Norbert Wiener, J. A. Hynek, Francis Bitter, and others included.

Instrumentation for Geophysical Exploration is the title of an extensive review article in the April 1953 issue of *The Review of Scientific Instruments*. Written by seven members of the Field Research Laboratories of the Magnolia Petroleum Company, the article is principally concerned with prospecting for commercial oil deposits. Seismic instruments, the gravity meter, electrical and radioactive well logging, and magnetic instruments are covered in some detail.

Liquid-metal heat exchangers and steam generators for use in nuclear power plants are discussed quantitatively in an article in the May issue of *Mechanical Engineering*. The authors, R. D. Brooks and A. L. Rosenblatt of the Knolls Atomic Power Laboratory, find that liquid sodium and NaK are suitable for such use to temperatures as high as 1500 F with proper precautions, with heat fluxes up to 150,000 Btu/hr/sq ft possible. A number of specific recommendations in the design of nuclear power plants making use of liquid-metal heat-exchange equipment are presented.

The "strong-focusing" method for increasing the energies of particle accelerators, publicly proposed in detail last year by a group of Brookhaven scientists (Courant, Livingston, and Snyder, *Phys. Rev.*, **88**, 1190, and J. P. Blewett, *Phys. Rev.*, **88**, 1197), had actually been suggested more than two years earlier by N. Christophiles in an unpublished manuscript prepared early in 1950, according to a letter by the Brookhaven group in the July 1st issue of *The Physical Review*. Noting that the Christophiles manuscript had been

called to their attention after their papers were published, the Brookhaven scientists said that Christophiles had proposed an accelerator incorporating strong focusing and using a sinusoidal variation of the field gradient with azimuth rather than the stepwise variation considered at Brookhaven.

Equipment

Topsy just grew and Godiva is unclad, according to a Los Alamos description of two remote-control devices currently being used in assembling critical masses with various configurations of fissionable materials. Topsy, a vertical hydraulic ram designed to bring one piece of shielded material together with another in an overhead housing, is equipped with paraphernalia to permit operation with a just self-sustaining chain reaction and to provide for the insertion of neutron sources. Godiva, designed to measure the amount of unshielded material constituting a bare critical mass, brings three pieces of fissionable material together into a critical configuration. A TV system permits remote-control operation from a safe distance.

A new 100-kilovolt electron microscope made by the North American Philips Co. was demonstrated at the International Petroleum Exposition held at Tulsa, Oklahoma, in May. Entirely self-contained, the dimensions of the instrument are 5 x 3 x 4 feet and its weight is 1220 pounds. Screen magnification is continuously variable from 1000x to 60,000x, and a resolution of 50 angstroms or better is claimed. Information is available from the Research and Control Instruments Division, North American Philips Co., 750 South Fulton Avenue, Mt. Vernon, New York.

An interferometer that uses electron beams to produce interference fringes in much the same way as conventional optical interferometers use light beams has resulted from research on the wave properties of electrons at the National Bureau of Standards. The electron-beam interferometer, developed by L. Marton, J. Arol Simpson, and J. A. Suddeth, employs diffraction from an extremely thin crystal as a means for splitting and recombining an electron beam and uses an electron optical system for viewing the resulting interference phenomena. The instrument, which greatly extends the range of light interferometers used in the direct measurement of length, can be employed to measure gradients of magnetic and electrostatic fields (analogous to refractive indices in optical interferometry) and provides a means for obtaining additional information on the wave nature of the electron. Other suggested applications include studies of the energy levels in solids and an absolute determination of Planck's constant.

Grants and Fellowships

The National Research Council of Canada has granted 226 scholarships in science and engineering for 1953-54, twenty-four of which are for study abroad. Included are two scholarships for Canadian students at the University of North Carolina and one each at the