

low concentrations of colchicine. In most of these cells the chromosomes were abnormally short and thick (*i.e.*, hypercontracted), and dispersed at random in the cell, there being no indication of any polarization of the chromosomes. It seems likely that these c-mitosis figures are produced, as in the case of colchicine, by disruption or suppression of the mitotic spindle, with the consequence that mitosis is unable to proceed to completion. In some cells the presence of the ski-arrangement effect showed that the chromatids had separated, but without nuclear division. Complete separation of chromosomes was observed, with the consequence that cells with double the normal number of chromosomes were present. Roots exposed to the same concentration of halothane (2 per cent) for periods of eight hours showed not only the same cytological abnormalities but also an evident reduction in number of cells in division in comparison with the controls. Roots subjected to lower concentrations of halothane reacted differently. Treatment with 0.5 per cent halothane for four hours produced very few detectable abnormalities, but exposure to 1 per cent halothane for the same period resulted in a significant proportion of abnormal mitotic figures, but proportionately less in number and generally less extreme in effect than cells exposed to 2 per cent halothane.

**Mechanisms of Ganglionic Transmission during Methoxyflurane and Halothane Anesthesia.** L. O. OVADIA, M.D., TSUNG-HAN LI, M.D., and B. E. ETSTEN, M.D., *Department of Anesthesiology, Tufts University School of Medicine, and New England Medical Center Hospitals, Boston, Mass.* Recent studies indicate that there are several pathways for mediation of cardioregulatory impulses through the stellate ganglion, *i.e.*, cholinergic—via “nicotinic” and “muscarinic” receptors, and adrenergic—via alpha and beta receptors (*Circ. Res.* 20-III: 135, 1967). The present study was undertaken to determine effects of methoxyflurane and halothane upon stellate ganglionic transmission, using direct measurements of evoked postganglionic potentials with simultaneous measurement of myocardial contractile force. *Methods:* Studies

were performed in 4S dogs anesthetized with chloralose and urethane given intravenously. The left upper thoracic sympathetic chain was stimulated by single and tetanic electronic stimulations. The evoked postganglionic potentials and changes in the peak ( $F_m$ ) and the first derivative of myocardial contractile force ( $dF/dt$ ) were recorded simultaneously using the method described previously (*ANESTHESIOLOGY* 29: 444, 1968). Two components of the evoked postganglionic potentials (*i.e.*, a first component,  $PGP_1$ , related to the beta-adrenergic and muscarinic pathways, and a second,  $PGP_2$ , related to the nicotinic pathway) were identified before and during anesthesia. *Results:* Alpha-blocking agents produced augmentation of both  $PGP_1$  and  $PGP_2$ . Methoxyflurane produced a dose-related blocking effect. Halothane, due to its alpha-adrenergic blocking effect, produced facilitation of both components of the evoked postganglionic potential, showing no stellate ganglionic blockade in the presence of a decreased myocardial contractile force. *Summary:* These data indicate that the negative inotropic effect of methoxyflurane may be due to depression of both ganglionic transmission and myocardial contractility. In contrast, the negative inotropism induced by halothane may be due only to a direct action of the agent on the heart and not to ganglionic blockade. (Supported by USPHS Grant HE-01711 from the National Heart Institute.)

**Hazards of Ethylene Oxide Sterilization.** L. RENDELL-BAKER, M.D., and R. B. ROBERTS, M.D., *Department of Anesthesiology, Mount Sinai Hospital, New York, N. Y.* Numerous reports concerning tissue reactions to plastics and rubber after Eto sterilization have appeared recently. Reactions have included hemolysis, either in pump oxygenators or blood administration sets, burns to surgeons' hands from Eto-sterilized rubber gloves, tracheal inflammation and necrosis during prolonged intubation or tracheostomy, and possible thrombophlebitis following the use of intravenous tubing. Toxic stabilizers leaching out of polyvinyl chloride (PVC) plastics, may be one cause of tissue reaction. Hence, only plastics which have passed the U.S.P. Rabbit Muscle Im-