who are acutely ill and toxic, thereby very likely lessening the number of convulsions during anesthesia. In the literature, the incidence of convulsions associated with spinal anesthesia is negligible compared to that with inhalation anesthetics. It is worth while to consider the use of spinal anesthesia in these toxic patients.

The authors recommend the prompt use of sodium pentothal as advocated by Lundy. Heretofore, the mortality in patients having convulsions during anesthesia was extremely high. With sodium pentothal at hand, this figure should be lower. There was only one death among the six patients herein presented and this was attributable, not to the convulsion but to hepatorenal failure on the fifth postoperative day.

M. F. P.

BURSTEIN, C. L.: *Misuse of Adrenalin and Coramine; Altered Drug Effects During Anesthesia.* Am. J. Surg. **73**: 102–103 (Jan.) 1947.

"As regards resuscitative drug therapy during general anesthesia, it has been pointed out that adrenalin and coramine have been greatly misused. Their efficacy in the unanesthetized subject is not contested, but in the anesthetized subject they may become detrimental. The cardiac conducting mechanism becomes sensitized during general anesthesia; and with certain agents, particularly chloroform and cyclopropane, this sensitization is so great that sub-therapeutic doses of adrenalin injected into the circulation may cause death following the production of ventricular fibrillation. Adrenalin injected into the heart during anesthesia in cases of cardiovascular collapse has proved to be fatal in every report encountered by the author.

"Adrenalin used locally in the operative field to aid hemostasis, because of its vasoconstrictor action, is another serious misuse of the drug during general anesthesia. . . .

"Coramine also shows varied effects depending upon whether it is used in the unanesthetized or anesthetized subject. In the subject anesthetized with a barbituric acid derivative, it has been shown experimentally that the administration of coramine will aggravate rather than diminish respiration and circulatory depression. The same untoward effect may occur clinically and was, in fact, observed during a study of clinical experiences with various analeptics.

". . . During general anesthesia, which entails some depression of the central nervous system, the intravenous injection of procaine is less apt to produce central nervous system stimulating effects. Its influence in reducing cardiac irritability can then be employed advantageously as has been demonstrated during certain intrathoracic procedures. . . .

". . . The intracardiac injection of adrenalin in a patient during general anesthesia should be avoided. Resuscitative measures are best confined to artificial respiration with oxygen through an endotracheal tube connected with carbon dioxide absorption. The resulting bellows action on the lungs by rhythmic, graded, manual pressure on the breathing bag is also beneficial as a form of cardiac massage. Manual cardiac massage is a definite worthwhile procedure to be used wherever applicable." 14 references.

E. L. S.

HANDLEY, CARROLL A., AND TELFORD, JANE: *The Effect of Digitalis on the Fluid Distribution on the Body.* J. Pharmacol. & Exper. Therap. **89**: 97–100 (Jan.) 1947.

The purpose of this study was to determine the peripheral effect of digitalis. In the method used, the plasma

volume was determined with T1824 and the extracellular fluid, with sodium thiocyanate. Anesthesia under light pentobarbital had no apparent effect on the fluid distribution. Light anesthesia did prevent vomiting that occurs in most dogs following digitalis administration. The drug used was tincture of digitalis which contained 1 U.S.P. XII digitalis unit per cubic centimeter. The dosage was 0.3–0.6 cc. per Kg. diluted with saline and given intravenously.

Two groups of dogs were used; one anesthetized and the other unanesthetized. The results were essentially the same in both groups. After administration of digitalis, there was a gradual rise in the hematocrit and at the end of several hours most animals showed considerable hemoconcentration. At this time most animals showed a significant reduction in plasma volume and an increase in extracellular fluid as measured by the above method. These changes have been found to persist for three to four days following a single dose of digitalis. The maximum effect seems to occur in 4–8 hours. In many experiments, digitalis caused an augmentation of 50–60 cc. per Kg. This amounts to 500–800 cc. per dog increase in extracellular fluid. The greater proportion of this fluid must come from the cells.

J. M. B.

McCLURE, F. J., AND KORNBERG, ARTHUR: *Blood Hemoglobin and Hematocrit Results on Rats Ingesting Sodium Fluoride.* J. Pharmacol. & Exper. Therap. **89**: 77–80 (Jan.) 1947.

Ginn and Volker found that 50 ppm. of fluorine as sodium fluoride in the drinking water of animals caused a reduction in the hemoglobin. Valjavec injected 1.0 per cent solution of sodium fluoride intravenously so as to provide 10 to 30 mg. of fluorine per kilogram body weight; he found there was a slight reduction in the hemoglobin and the red blood count. Greenwood, Hewitt and Nelson found no change in the hemoglobin and blood coagulation resulting from sodium fluoride in milk given to young dogs. Roholm observed in human cases exposed to the fluorine mineral, cryolite, that there was a slight reduction in the red blood count but not in the hemoglobin.

The relation of fluorine exposure to blood hemoglobin and hematocrit values in rats was studied in several strains of the species, using several diets and for different experimental periods. There were no differences between control and test animals to indicate any effect of fluorine on the hemoglobin and hematocrit values for these rats' blood.

J. M. B.

BAILEY, H.: *Impending Death Under Anesthesia.* Lancet. **1**: 5–9 (Jan. 4) 1947.

Experience has taught that cardiac arrest can occur in any patient, with any anesthetic agent, and with any anesthetist. For obvious reasons, a general emergency surgeon is more often confronted with impending death under anesthesia than is the surgeon engaged in special branches.

Two fundamental conditions are segregated; blue asphyxia (primarily respiratory) and white asphyxia (primarily cardiac). The latter is far more serious. After twenty years' observation, the author has now abandoned expending time in performing artificial respiration and injecting adrenalin into the ventricle. He recommends immediate cardiac massage when the heart stops. The current plan of action includes intermittent compression of the ventricles through the diaphragm within one and one-half minutes after the stoppage occurs. It appears that the early anxieties and