intact animal. Such a study was made by the authors. Two types of experiments were made on dogs previously fasted twenty-four hours. In the first group Maehl's technic was followed. Charcoal (10 cc. of 10 per cent suspension in 10 per cent gum acacia) was given by stomach tube. The anesthetic agent was administered five minutes later. Ten animals were used for each of the anesthetic agents studied. Thirty minutes after intubation the animal still under the effect of the anesthetic was killed by cardiac puncture. The distance traversed by the charcoal mixture was measured in the small intestine.

In the second group the animal was first anesthetized, and abdominal incision was made over the region of the duodenum. The duodenum was exposed and 15 cc. of the charcoal mixture was introduced by means of a hypodermic syringe. Care was taken to handle the intestine as little as possible and the abdominal incision was closed. Six dogs each were used for each of the anesthetic agents studied except with ether. Ten animals were used for ether studies. After thirty minutes these animals were sacrificed and the distance traversed by the charcoal mixture was studied. The anesthetics used for the studies were: chloroform, cyclopropane, ethylene, ether, nitrous oxide, nembutal (35 mg./Kg.), pentothal (30 mg./Kg.), amytal (60 mg./Kg.) and barbital (300 mg./Kg.).

With the first group of dogs the agents depressed the propulsive motility of the small intestine in the following order: chloroform, nitrous oxide, cyclopropane, ethylene, ether, pentothal and nembutal. In the second group the order of depressive action was: barbital, ether, amytal, nembutal, chloroform, pentothal, ethylene, cyclopropane and nitrous oxide. It is difficult to evaluate certain of the results such as those obtained with nitrous oxide. In one series nitrous oxide caused the greatest, and in the other the least depression. No adequate explanation for this finding is apparent. It has been shown in other experiments that anoxic anoxia has no appreciable effect on the propulsive motility of the small intestine in dogs. It may be concluded, therefore, that whatever effect nitrous oxide had on the propulsive motility of the small intestine the concomitant anoxic anoxia presumably was not an important factor.

The clinical significance of these studies lies in their relation to common postoperative complications such as nausea, vomiting, distention and gas pains. It would appear from these and other studies that the depressing effect of anesthetic agents on gastrointestinal musculature is probably not the decisive factor in postoperative complications. The type and duration of operation as well as the care in handling of the intestines are all presumably important factors. 18 references.

F. A. M.


Unlike most transthoracic operations the lung need only be partially collapsed for transthoracic gastrectomy. Relaxation of the abdominal muscles is of major importance as tension of those muscles may force the abdominal contents up into the thorax. This may cause inconvenience to the surgeon, especially during closure of the diaphragm. Quiet breathing in addition to relaxation is necessary. This may be accomplished by the anesthetist controlling the respiration for the patient. Should the pleura of the opposite side be opened the respirations must be carried on entirely by the anesthetist. The use of cyclopropane
or of ether vapor precludes the use of cauterity or diathermy in transthoracic gastrectomy. Pentothal, curare and nitrous oxide-oxygen have been used. An amazingly small amount of sodium pentothal is required and the patient is ready to wake up at the end of the operative procedure. The anesthetist must watch the operation closely in order to conduct the anesthesia and manage the physiology of the patient. At the end of the operation the patient's lungs must be filled with helium or nitrogen and adequate oxygen, and kept expanded during closure of the chest. This final expansion is one means of avoiding atelectasis.

F. A. M.


The use of coca by the Incas was widespread. The plant held an important place in their civilization and religion. Although the origin of the Incas is unknown it is possible that coca was brought into their civilization by one of the races which they conquered. Coca, like all other things which were thought to be capable of giving life, was an object of worship. Coca was incorporated into the religious ceremonies and was reserved for priests and a few others such as soldiers. After being conquered by the Spaniards the Indians were forced to work in mines on meagre rations. They chewed coca leaves to relieve their fatigue and satiate their appetites. The Spaniards soon recognized the need of the Indian for coca and its value as a source of revenue.

In modern times the Indians of the Bolivian plateau throw coca into the air to propitiate the gods. The porters traveling all day at a rapid rate with heavy loads chew coca leaves constantly or pause every forty minutes to take a fresh supply. The leaves and an alkaline substance are kept in the cheek. These Indians may live to be a hundred years old and their endurance to fatigue is phenomenal. They often go for three or four days without hunger or fatigue while working constantly and may go eight or ten days without sleep as long as they have coca. Other uses to which coca is put are, chewing with tobacco to produce intoxication, as a gift at death ceremonies, as a dessert at reunions and as a carminative and treatment of diarrhea.

Coca culture was developed to a high state during the Inean age. It is now grown on the Eastern slope of the Andes. The amount of alkaloid in the leaves increases with the age of the plant, reaching the peak when the plants are ten years old. Three to five harvests are made each year. The leaves are dried, baled and transported to coastal towns for shipment. The Spaniards studied the drug but early investigators considered it to be either inert or a mild stimulant like tea.

After Niemann, in 1860, isolated an alkaloid which he called cocaine, Schroff and Demarle observed that it produced analgesia of the tongue. Karl Koller, working with Freud in Vienna, in 1884, confirmed the numbing effect of cocaine on the tongue. He reasoned that if it was capable of paralyzing nerve-endings in the tongue cocaine could also be expected to paralyze the nerves in the cornea and conjunctiva. He conducted experiments which corroborated his theory and prepared a paper relative to the subject for presentation and publication. The use of cocaine soon became universal. 41 references.

F. A. M.


In a series of cases of bone graft operations a common feature was the