minutes and then more slowly until the anesthesia disappears. At all times, however, the concentration here maintains a slightly lower level than that at the site of injection. Samples taken from the cisterna magna in patients in the Fowler position never showed concentration values greater than 0.18 mg. per cubic centimeter and frequently less than 0.02 mg. per cubic centimeter. . . .

"There is no significant difference between the concentration curves of patients in the Fowler and in the Trendelenburg position. This seems to indicate that the factors responsible for the spread of the anesthetic in the subarachnoid space are not noticeably affected by such changes in position as occurred in these experiments. It also indicates that within these limits concentrated solutions of procaine hydrochloride do not settle into dependent portions of the subarachnoid space as do colored solutions in inanimate models." 3 references.

J. C. M. C.

McIVER, M. A., AND WINTER, ELEANOR A.: *Deleterious Effects of Anoxia on the Liver of the Hyperthyroid Animal.* Arch. Surg. 46: 171–185 (Feb.) 1943.

"It has been recognized for some time that persons with thyrotoxicosis and animals in which a state of hyperthyroidism has been artificially produced are particularly sensitive to anoxia. . . . In a survey of the literature no studies were found dealing particularly with the effects of anoxia on the liver during hyperthyroidism. . . . The present paper records our experiments on the effect of anoxia on the liver during artificial hyperthyroidism. . . . The experiments were carried out on male albino rats. . . . Rats given injections of crystalline thyroxin for two to three weeks in doses of 0.1 mg. daily in general remained in good condition, although they showed clinical signs of hyperthyroidism and when they were killed the hepatic glycogen level was found to be low. They showed no degenerative lesions of the liver. On exposure to atmospheres containing low concentrations of oxygen, in 14 of 17 hyperthyroid animals varying degrees of hepatic injury developed. There were 9 deaths among the total of 17 rats. In a group of control normal rats similarly exposed to low concentrations of oxygen hepatic lesions did not develop. There were no deaths in this group. It is suggested that in some instances the acute lesions found in the livers of patients dying of hyperthyroidism may be the result of anoxia." 15 references.

J. C. M. C.

BEECHER, H. K.: *"Shock" and Anesthesia in Transthoracic Gastric Surgery.* Surg., Gynec. & Obst. 76: 331–336 (Mar.) 1943.

"The point of view has persisted generally that only the robust are likely to withstand transpleural surgery. . . . Good material for examination in poor risk patients can be found in the group of patients who have carcinoma of the stomach. This lesion, approached by transabdominal wall route as well as by transpleural route for anatomical reasons, has now been operated on enough times through the latter entrance to permit study and comparison of the shock producing effects of the two approaches. The material considered here is divided as follows: 64 patients with resectable carcinoma of the stomach have been studied; 17 of these have undergone gastric resection through the pleura and 17 by the traditional route; both of these groups were under ether anesthesia, and for comparison 30 patients have had gastric resection under spinal or splanchnic block or local anesthesia through the latter route. From pres-

ent experience it seems clear that the transpleural approach may in fact produce no more shock and perhaps even less than the transabdominal wall approach to the stomach. Thus, in addition to compelling anatomical reasons for approaching certain upper abdominal lesions through the thorax, the surgeon may be supported by a further fact: The excellent operative tolerance of the patient for the transpleural approach. . . .

"Ether anesthesia briefly induced with nitrous oxide is our choice. This is occasionally supplemented with procaine block of the vagus nerve and its pulmonary plexus as well as by frequent block of the phrenic nerve. . . . Intratracheal intubation is essential, for it is only with an intratracheal tube in place that an open airway can be assured at all times. . . . The presence of the intratracheal tube also makes it possible to combat another possible hazard of the transpleural approach: the sudden, acute pulmonary edema which may develop if one lung long remains collapsed. . . . Elderly patients in this group may be prone to develop gross pulmonary edema if one lung is allowed to remain acutely collapsed. In no patient should the lung be allowed to remain collapsed for more than 30 minutes or so at a time. . . . Facilities for rapid bronchial aspiration, as well as positive pressure anesthesia when necessary, are important. A closed gas machine with carbon dioxide absorption and a tight face mask complete the list of essentials. . . . The anesthetist must take the responsibility for protecting the patient from needless strain. He warns against unnecessary heat loss in a too cold operating room; he minimizes harmful vagal reflexes by requesting that the vagus nerve or its branches be blocked with local anesthesia when cardiac and respiratory variations indicate the need, or he diminishes vagal activity by administering atropine; he watches for prodromal signs of shock and when necessary warns the surgeon of their development; he directs the administration of blood or blood substitutes; he guards against oxygen shortage or carbon dioxide excess. . . . Reasons for the patients' excellent tolerance for the transpleural approach to the stomach are found in the fact that in transpleural gastric surgery a far lighter level of anesthesia is possible than is true in the case of the transabdominal wall approach. In the former case the only relaxation needed is that of the diaphragm, obtained by block of the phrenic nerve under direct vision. Furthermore, in the transpleural approach to the stomach disturbance of the other abdominal viscera, well known to cause harmful circulatory effects, can largely be avoided. When the gastric surgery is carried out through the anterior abdominal wall, evidence is presented that the circulatory system tolerates ether anesthesia better than spinal or splanchnic block anesthesia." 5 references.

J. C. M. C.

BATTERMAN, R. C., AND HIMMELSBACH, C. K.: *Demerol—a New Synthetic Analgesic: a Review of Its Present Status and Comparison with Morphine.* J. A. M. A. 122: 222–226 (May 22) 1943.

"The increased need for morphine in time of war and the present threat to our opium supply make it important that appropriate consideration be given to the new analgesic Demerol, for this compound can be prepared synthetically from available chemicals. . . . Demerol (1-methyl 4 phenyl-piperidine 4-carboxylic acid ethyl ester hydrochloride) was synthesized in 1939 by Eisleb and Schaumann. It represents one of a large group of piperidine compounds possessing spasmolytic properties. Its close similarity to atropine can be discerned on inspection of the