. . . The spinal needle eminently suitable is that devised by Howard Jones, which is 9 cm. long and 1.2 mm. in diameter. The important point about it is that the end is a 45 deg. bevel. Spinal needles are made of stainless steel, and also of nickel, the latter type are malleable and do not break but bend very easily. Pannett's needle is also an excellent type, as is also Hasler's needle. This latter really consists of a guiding needle down which travels the spinal puncture needle proper, which is of very fine gauge.

"Sterilization of needles and syringes is best done by boiling in distilled water. . . . Headache is a distressing complication of spinal analgesia, and may be very severe. . . . The way to prevent headache is to raise the foot of the bed on 6 in. blocks, and to prevent the patient from lifting his head from the pillow for twelve hours. After this time the blocks are removed from the bed and some two or three hours later he is allowed a second pillow, and so on. Treatment of headache varies with its severity. . . . Retention of urine sometimes occurs but is usually overcome by an injection of moryl. It is important not to let the bladder be overdistended. Squint due to paralysis of the sixth cranial nerve, with non-contraction of the rectus externus muscle of the eye, is sometimes seen, though is fortunately rare. It clears up slowly. Burns from hot water bottles are to be guarded against. With low spinal analgesia, it must be remembered that there is analgesia of the soles of the feet as well as the perineum." 4 references.

J. C. M. C.

KOSTER, H.: *Concentration of Procaine in the Cerebrospinal Fluid of the Human Being after Subarachnoid Injection: third report.* Arch. Surg. 46: 301–306 (Feb.) 1943.

"Elsewhere my associates and I have reported on the concentration of procaine in the subarachnoid space during spinal anesthesia in patients in the Trendelenburg position. . . . It was then deemed advisable to repeat the experiment with patients in the Fowler position to determine whether the concentration curves would be significantly changed by the change in posture. . . . One hundred and twenty-eight adult patients received an injection of procaine hydrochloride dissolved in 3.5 cc. of cerebrospinal fluid at the interspace between the second and the third lumbar vertebra. The patients were then placed in the Fowler position at angles of 10 degrees. At different intervals after the injection, samples of 1 cc. of cerebrospinal fluid were withdrawn from various patients. From a group of 55 patients samples were withdrawn from the site of injection. From another group of 56 patients, samples were withdrawn three interspaces cephalad. From a third group of 17 patients, samples were withdrawn from the cisterna magna. The concentration of procaine in these samples was determined in most cases in duplicate or triplicate by the micromethod . . . with an error not over 10 per cent. . . .

At the moment of injection the maximum concentration at the site of the injection is that of the injected solution (43 mg. per cubic centimeter). This falls rapidly, so that at the end of ten minutes the level of concentration is in the neighborhood of 2 mg. per cubic centimeter. The level of concentration falls slowly thereafter until the anesthesia wears off. At the moment of injection the level of concentration three interspaces above the site of injection is 0, but it then mounts rapidly in the first five minutes to the level of 4 mg. per cubic centimeter. After reaching a peak it falls rapidly for approximately four or five minutes to the level of 4 mg. per cubic centimeter. After reaching a peak it falls rapidly for approximately four or five

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-