HUNTER, A. R.: *New Technique of Spinal Anaesthesia.* Lancet 1: 82–83 (Jan. 20) 1945.

"By an experimental method Bieter and his colleagues . . . have worked out the concentrations of various agents required to produce anaesthesia of the exposed spinal nerves of the rabbit. I have worked out by a process of trial and error the corresponding concentrations for the intact human subject. . . . The volume of the solutions of the various drugs employed will of course depend on the capacity of the spinal canal up to the level to which it is desired to produce anaesthesia. The published work on this subject proved rather contradictory, but again by trial and error it was found that 4 c.cm. of solution would produce anaesthesia to dermatome L1; 8 c.cm. to D10; and 12 c.cm. to D6. These levels correspond approximately to Poupart's ligament, the umbilicus, and the xiphisternum. . . . On the basis of these volumes and concentrations a dosage table was elaborated. . . . The drug of choice is amethocaine hydrochloride. . . . Onset of anaesthesia is rapid, taking rather less than 5 minutes. The duration of the anaesthesia is sufficient for nearly all major surgical procedures, amounting to some 3 hours. With 'Nupercaine' the onset of anaesthesia is rather slower and the prolongation obtained by using this agent is not of much significance since there are few operations which cannot be completed under amethocaine. When procaine is employed there is a significant lengthening of the period of anaesthesia from the usual 30–40 minutes to about 70 minutes. . . . Both volume and quantity of drug may be increased by up to 20% in tall or broad patients. When very high anaesthesia is required, as for gastrectomy or cholecystectomy, the volume should be increased to at least 14 c.cm. and the dose of amethocaine to 14 mg. and of nupercaine to 10 mg. The volume of solution required for this technique is attained by drawing up the dose of amethocaine to be employed into a 10 or 20 c.cm. syringe and then aspirating cerebrospinal fluid into the syringe to the required volume. Only hyperbaric solutions are used and consequently the diluted solutions will also be hyperbaric; in the case of low blocks this factor will limit spread. . . . Ephedrine should be injected as with any other type of spinal anaesthesia. This technique has been used for some 200 spinal anaesthetics. The results have been in every way satisfactory." 3 references.

J. C. M. C.

AIKENHEAD, D. C.: *Sequelae Following Spinal Anaesthetic.* Canad. M. A. J. 52: 162–165 (Feb.) 1945.

"Headache . . . is not a serious factor in spinal anaesthesia today. First one must avoid spinal anaesthesia in patients who are subject to violent headache, migraine, etc. . . . Individuals who are fond of reading seem more prone to headaches. . . . The incidence of headache following operations with continuous spinal is no higher than operations following a single tap. . . Aseptic meningitis . . . causes considerable worry for from 3 to 7 days but there is no record of any permanent neurological changes. . . . Hayman mentions paralysis of the sixth cranial nerve for some months with eventual recovery. This nerve is not a robust structure; it passes from under the lower border of the pons as it emerges from the brain to occupy the inner wall of the cavernous sinus, then continues through the sphenoidal fissure to supply the two heads of the external rectus muscle. During its course the nerve would be subject to any disturbance of cerebral dynamics. The paralysis of other cranial nerves must be rare. . . . I have followed appendec-

tomies, herniotomies, and haemorrhoidectomies under inhalation and spinal anaesthesia and could never persuade myself that the incidence of catheterization postoperatively was higher with spinal anaesthetic than inhalation. . . . I know of three instances where a latent brain tumour was brought to operation following operation under spinal anaesthesia. . . .

"We have never had an infection of the soft tissue or subarachnoid space amongst some 8,000 spinal anaesthetics. . . . It is a good rule to follow that patients with 'sore backs' . . . be given some other than spinal anaesthetic for their surgery. . . . Paralysis of the rectum and bladder . . . is extremely rare. . . . Anyone who does considerable spinal anaesthesia will get a 'bloody tap' occasionally, which looks disconcerting but does not apparently cause after trouble. . . . I have given a number of spinal anaesthetics following a subarachnoid haemorrhage; the latter condition was at least six months past. There is no evidence that the spinal anaesthetic changed the condition. . . . Statistically, the use of novocaine or procaine has less recorded complications than drugs that have a longer anaesthetic action." 8 references.

J. C. M. C.

SHORTZ, GERALD: *The Management of the "First Priority" Surgical Casualty from the Anesthetic Viewpoint.* J. Indiana M. A. 38: 37–40 (Feb.) 1945.

"The management of the 'first priority' surgical casualty from the anesthetist's viewpoint presents one of the most difficult problems in war medicine. This type of casualty is defined as a seriously wounded individual who cannot be safely evacuated further to the rear than the 'first priority' hospital without surgery. . . . There is so little recorded information on the management of these casualties by anesthesiologists who have cared for them that it appears worth while to record some of our experiences which have been gained as anesthetists on a general surgical team of an auxiliary surgical group functioning in medical installations of the Fifth Army. The great majority of patients accepted for 'first priority' surgery in the most forward installations are in the state of severe shock. Obviously, it is necessary to direct primary attention toward correction of the shocked state. . . . The problem of replacement therapy has been a much-discussed subject in this theater. In the past few months we have been fortunate in having the opportunity to work with a mobile laboratory engaged in clinical investigation of these problems and equipped to give accurate and valuable information concerning the status of the elements of the circulatory system both preoperatively and postoperatively. With few exceptions the severely-shocked patient, in which hemorrhage has been the predominant agent in production of shock, has had a decreased plasma volume, hematocrit, hemoglobin, and total blood volume. Prior to this information we were working on a basis of one unit of plasma to 500 cc. of citrated whole blood. During the last series of 200 cases we have been using whole blood liberally, averaging between 1,500 to 2,000 cc., and three units of dried plasma per patient. . . . If evidence of dehydration was present, 5 per cent glucose in physiological saline solution was administered after the blood pressure was stabilized within approximately normal limits. The conventional practice of hemorrhage control, splinting, heat, minimal handling of the patient, and placing the patient in the shock position (providing the injury permitted) was carried out. In addition to preoperative shock therapy, we routinely evacuate the gastric