sentation of nerves from specific neurologic segments.

Noxious impulses initiated by trauma of surgery are conducted centrally over two distinct sets of afferent sensory nerve fibers, somatic and visceral. This review has outlined the transit of afferent pain conducting fibers from the somatic and visceral regions into the medulla oblongata, where they come into proximity with the respiratory center resulting in reflex activation of the respiratory mechanism. Alterations in respiration induced by surgical pain impulses initiated either in somatic or visceral regions represent, undoubtedly, reflex phenomena produced by complex circuits between the center and peripheral areas. These reflexes must be based on rather complex circuits to account for the variable responses.

Pneumographic studies of respiration during surgical procedures on the human in all portions of the body are presented to demonstrate the essential character of the response. The pattern can be rationally integrated with the existing bodies of anatomic, physiologic and clinical facts. Its importance is that it constitutes essentially the physiology of surgical anesthesia.

M. F. P.


Several variations of the original Lempert endaural incision have been tried at Wesley Memorial Hospital, Chicago, on the 1300 fenestrations which have been done during the past five years. The technic of injecting local anesthetics has also been modified to permit a slighter, safer and less depressing premedication as well as to obtain more perfect local anesthesia. Venous congestion and increased oozing which result from the use of general anesthetics are avoided by the use of local anesthetics.

"Three hours preoperatively, pentoobarbital sodium, 0.2 Gm. (3 grains), is given orally. One-half hour preoperatively, pentoobarbital sodium, 0.2 Gm. (3 grains), is given orally, and morphine sulfate, 16 mg. (¼ grain), subcutaneously. . . .

"Anesthesia is obtained by nerve block and local infiltration with a solution of 'nupercaine hydrochloride' 1:1,500 to which has been added 0.5 cc. of epinephrine hydrochloride 1:1,000 per 30 cc. Satisfactory anesthesia should be obtained with a total injection of 25 to 30 cc. of the 'nupercaine' solution. Small doses of sulfonamide compounds are used preoperatively and postoperatively to reduce the incidence of infection. Woods, in 1940, pointed out that procaine has a delayed inhibitory effect on the action of sulfanilamide. It is for this reason that a local anesthetic which does not contain para-aminobenzoic acid should be used. . . . To obtain local block anesthesia of the ear for the endaural incision, the injection is performed in the following 4 steps. The first step begins with the injection of about 2 cc. of the 'nupercaine' solution into the skin and subcutaneous tissues of the anterior wall of the canal at the junction of the bony and cartilaginous portions. This site may require reinsertion if the duration of the operation is prolonged prior to the cutting of the skin flap in the fenestration operation. This injection anesthetizes the branches of the auriculotemporal nerve, one of which supplies the skin of the mental wall down to the tympanic membrane and causes pain and discomfort to the patient during the preparation of the tympanomeatal skin flap. In the second step one infiltrates endaurally the skin, subcutaneous tissue and periosti-
teum of the inferior, posterior and superior edges of the bony rim of the meatus. This step anesthetizes the auricular branch of the vagus nerve. In the third step one infiltrates in front of the helix, about 3 cm. above the external auditory canal, first under the skin and then down to the peristeum. This injection anesthetizes the upper branches of the auriculotemporal nerve. In the fourth or last step the auricle is bent forward and the subcutaneous tissue at the junction of the auricle and the skull is infiltrated by a series of block injections along the entire length of the skin fold. This injection anesthetizes the great auricular nerve and the lesser occipital nerve. The great auricular nerve sends a branch through the auricular cartilage. It is this branch that supplies the skin of the lower and posterior part of the concha, and this area becomes quite painful if not anesthetized properly.

"Mistakes that have been observed in obtaining local anesthesia: 1. Failure to make injections into the anterior wall of the canal at the proper level. This does not place the anesthetic at the edge of the bony rim where the auriculotemporal nerve enters. 2. Injecting too deeply into the anterior wall. This may place the anesthetic in the posterior joint space or in the synovial cavity of the temporomandibular joint. 3. Failure to infiltrate first under the skin and then down to the peristeum." 4 references.

F. A. M.


Both conduction and general anesthesia have been used to control and to obliterate the impulses of pain. When the pain is obliterated by anesthesia there are altered functions of glands and viscera, blood vessels and heart, lungs, and skin. These by-products of pain control with anesthesia present a new horizon in therapeutics.

Since 1943, eighty-five patients with cardiac disease have been managed with continuous caudal and continuous spinal analgesia. There were no maternal deaths in this series.

Emergencies may arise directly as a result of the recovery period of spinal anesthesia. The angiospastic mechanism of the sympathetocimetic nerve impulses may again predominate. This has been observed in more than a score of cases in which, following spinal and caudal analgesia, the blood pressure rose to levels of more than 200 mm. of mercury systolic, headache developed, and increased venous pressure initiated a secondary collapse of the peripheral veins. This mechanism might prove fatal to a patient with heart failure.

Therapeutic nerve block has been utilized to overcome the immobility of paralytic ileus. In several cases peristalsis immediately followed but in the recovery period the sympathetocimetic mechanism predominated with a more alarming degree of ileus than had been first observed. This would account for the cases of paralytic ileus which develop postoperatively after spinal anesthesia. These conditions should not be condemnation of nerve block, but rather an indication for the continued controlled application of the block for as long into the recovery period as necessary.

Thirty-five seriously ill and premoribund patients have been treated with caudal or spinal blocks. One patient was treated for ten days and six hours with continuous spinal therapeutic block anesthesia. During this