culating blood include disturbance of the cell-plasma ratio and fluctuation of the level of nitrogenous substances in the blood. Certain other effects, apparently reflex responses to the stimulus of distention, are much less familiar. Among these is the marked respiratory response elicited by the stimulus of excessive distention rapidly induced in the small intestine. A search of the literature has revealed little dealing with this phenomenon. It is the purpose of this communication to present observations obtained in an experimental investigation of this particular effect, namely, the changes produced in the character and the volume of respiration by excessive distention rapidly induced in the small intestine. . . .

"Dogs were the experimental animals employed; 30 were used in the course of the experiments . . . with the animal under anesthesia produced by intravenous and intraperitoneal injections of soluble pentobarbital. . . . Marked respiratory changes, reflex in character, invariably follow excessive distention rapidly induced at any level of the small intestine of the anesthetized dog. These changes are of a characteristic pattern and are accompanied by synchronous fluctuations in the blood pressure. They are apparently initiated by afferent impulses arising from the stimulus of distention and mediated by fibers of the splanchnic nerve radicals to the distended bowel segment and subsequently by pathways in the spinal cord, since they are eliminated by complete section of either of these structures. The vagus nerves and the adrenal glands are not involved in the production of the respiratory and the blood pressure effects since these continue to appear after transection of the former and total extirpation of the latter. Drugs inhibiting the action of the efferent components of the autonomic nervous system, both adrenergic and cholinergic, exert little or no action on the respiratory alteration appearing on distention. Drugs depressing the visceral afferent impulses from the distended bowel segment lessen the respiratory and blood pressure phenomena and, if given in sufficient doses, abolish them entirely." 8 references.

J. C. M. C.

CAMPBELL, S. M., AND GORDON, R. A.: *Post-anaesthetic Complications in a Military Hospital.* Canad. M. A. J. 46: 347–351 (Apr.) 1942.

"This report is based on an analysis of 2,094 anaesthetic records. These cases include all those patients anaesthetized during one year on all the services of a military hospital. We have tabulated pre-anaesthetic respiratory complications in three groups. (1) Active respiratory infection at the time of operation. (2) Recent respiratory infection: those patients who give a definite history of a respiratory infection within two weeks of operation. (3) Cough: those with a cough at the time of operation, but no other evidence of respiratory infection. Post-anaesthetic pulmonary complications have likewise been divided into three groups, which we have designated as: (1) atelectasis; (2) cough and sputum; (3) pneumonia. . . . To these three groups we might add a fourth, to include cases of pulmonary embolism. In this series of cases we have experienced only two cases of embolism, both of them minor, with the patients surviving. . . . The presence of a respiratory infection or cough, or the history of a recent respiratory infection may lead one to expect a higher proportion of post-anaesthetic pulmonary complications, no matter what agent or technique is used. The increase is more marked with spinal anaesthesia than with cyclopropane anaesthesia. . . .

"There is a very great increase in pulmonary complications following

upper abdominal procedures. Comparison of patients who had endotracheal intubation with those who were not intubated shows a smaller percentage of post-anaesthetic complications in the intubated group than in the others. Comparison of post-anaesthetic complications following use of spinal agents and cyclopropane for the repair of inguinal hernia demonstrates no significant difference in the presence of respiratory infection (active or recent). In cases where no history of respiratory infection exists the complication for cyclopropane anaesthesia is much less than that for the spinal agents. The effect of adding a supplemental inhalation agent to spinal anaesthesia is studied. In this series the incidence of post-anaesthetic pulmonary complications is slightly greater in the supplemented group than in those not supplemented."

J. C. M. C.

HAYMAN, I. R., AND WOOD, P. M.: *Abducens Nerve (VI) Paralysis Following Spinal Anesthesia.* Ann. Surg. 115: 864–868 (May) 1942.

"At the turn of the present century spinal anesthesia became recognized as a well-accredited procedure with such men as Bier, Furster and Jonnesco, in Europe, and Babcock, in this country, as its stauncehest supporters. Each one of these writers alluded to ocular palsies as a rare complication. . . . Statistics, as presented by some authors, point to the incidence of paralysis of the abducens nerve as high as 1 per cent of all spinal anesthetics (Terrien). Cantonnet and Francois speak of it as occurring once in every 250 cases. Why is it that during the past ten years only occasional cases are reported? It can be explained in any one of three ways: First, that our present technic and drugs have practically eradicated this rather disturbing complication; second, that these paralyses do occur but are not being recognized; and, third, that these cases do occur, are recognized, but are not being reported. . . . The etiology of abducens nerve paralysis is still not clearly understood. . . . However, it appears that there are three general points to be considered in the pathogenesis, viz.: (1) Frequency of paralysis of the abducens over other cranial nerves. (2) Immediate etiologic factors. (3) The rôle played by preexisting diseases. . . .

"Paralysis of the abducens nerve is usually preceded by a period of headache, dizziness, nausea, stiff neck and photophobia, following which diplopia appears. The paralysis occurs from three to 21 days after the administration of the spinal anesthetic. . . . Women are definitely more prone to develop this complication than men. The ratio of unilateral to bilateral lesions is 3:1. The duration of the above paralysis is shown as follows: 4 weeks, 54 per cent, 5–8 weeks, 26 per cent, 9–12 weeks, 10 per cent, 3–12 months, 10 per cent. The prognosis is usually favorable, with gradual subsidence of subjective complaints and clinical findings. . . . There is no specific therapy for paralysis of the abducens nerve following spinal anesthesia. The treatment is entirely palliative and usually aids in making the patient more comfortable. A spinal tap should be performed and if the fluid is under increased pressure (manometric readings) then a sufficient amount should be removed in order to obtain a normal reading—5–15 cm. of water. The paralyzed eye should be covered in order to remove the distressing diplopia. This, however, should be limited to the shortest possible time because of the fact that exclusion of the fusion tendency prevents a compensatory innervation, and aids in the development of secondary contracture. Galvanic treatment, although much employed, is helpful only as a psychotherapeutic measure. Because of the danger of injuring the retina, the cur-