the case, and the amounts of kemithal required for the production of surgical anaesthesia are about double those of thiopentone required in similar circumstances. We have used kemithal in four ways: for induction before cyclopropane anaesthesia; as the primary anaesthetic in combination with nitrous oxide and oxygen; as the sole anaesthetic, with or without oxygen; and to produce hypnosis in association with regional anaesthesia. Two methods have been used for administration. For induction before cyclopropane anaesthesia the drug was injected with a syringe in 5 per cent or 10 per cent solution. Intermittent injection in the same concentrations was used for a few short minor procedures. In most cases where it was used as the primary anaesthetic it was administered by a continuous intravenous drip technique in 1 per cent solution in normal saline. In all cases patients received ‘Omnopon’ gr. ½ and scopolamine gr. ½, an hour and a half before operation.

"Induction with the 5 per cent or 10 per cent solution was smooth in practically all and rapid in most cases. The course of cyclopropane anaesthesia after induction with kemithal was uneventful, and no abnormalities developed which could be attributed to the drug. In all cases there was a slight initial fall in both systolic and diastolic blood-pressure, with a small decrease in pulse pressure. In 3 cases there was an elevation of blood-pressure above the pre-induction level after the initial drop. All cases demonstrated some increase in pulse-rate on induction, coincident with the decrease in blood-pressure and returning towards normal pre-induction rates as the blood-pressure returned towards normal. There was no case of cardiac irregularity in this series. There has been no complaint from any patient of pain at the site of injection of the kemithal solution or in the vein into which it was injected. No embolism developed. Accidental injection of kemithal in 10 per cent solution into a superficial ulnar artery produced pain and vasospastic phenomena in the hand and arm, relieved immediately by brachial-plexus block. The vasospasm recurred three hours after induction of the brachial-plexus block and was again relieved by procaine block of the stellate ganglion of the same side. There was no recurrence, and the patient recovered without further incident. Respiratory depression developed in 5 patients. The absence of protracted postoperative depression and excitement during recovery is an outstanding feature of our experience with this series of 208 cases. Postoperative recovery has been rapid and devoid of complications. Postanaesthetic depression and excitement have each been encountered in one case in this series. Major postoperative complications appear to have been related to the site of operation or to the original disease rather than to the use of kemithal. Kemithal is a satisfactory anaesthetic agent, which has particular advantages when anaesthesia must be maintained for a long time."

J. C. M. C.


“In the past three months we have given more than 600 spinal anaesthetics for surgical procedures of various degrees of severity. It irked us to use a spinal anaesthetic for the incision of an ischio-rectal abscess, for example, but we had no other supplies. This anaesthesia was not supported by preoperative sedatives of any kind and it had to be sufficient for the job. As might be expected, amputation of the thigh subjects an anaesthetic to a se-
vere test, and even under general anaesthesia there are striking cardio-respiratory reflexes when the sciatic nerve is sectioned. In using pereaine we attempted to prevent this severe discomfort by using as much as we dared, the maximum dose being 16 mgm. in 10 c.c. of spinal fluid. In spite of this dosage the patients usually winced when the nerve was sectioned. In five cases we encountered dangerous collapse with this dosage.

"We have had similar but less alarming collapses in four other cases, each of which promptly recovered when the lower limbs were elevated. We quickly found that direct insufflation of air succeeded best when the patient was unable to breathe. Otherwise his own respiratory rhythm failed to synchronize with ours. At this point we would emphasize the Hering-Breuer reflex which states that when air is blown into the lung there is a reflex expiratory effort to expel it. The sensory arc of the reflex not only involves the lung tissue but also the thoracic cage. For direct insufflation to succeed best, therefore, the anaesthesia must be sufficiently high to involve the thoracic cage and diaphragm. On theoretical and practical grounds therefore it appears to be the method of choice in patients who have had an overdose of spinal anaesthesia. The vascular collapse during spinal anaesthesia is of course due to the sectioning of all the thoracic autonomic vasoconstrictor fibres that leave the cord between the second thoracic and second lumbar segments.

"The relatively slow pulse of a patient who is collapsed under spinal anaesthesia is noteworthy. According to Marcy's Law the pulse rate rapidly accelerates as the blood pressure falls. This is a reflex originating in the carotid sinus and the arch of the aorta, the effector arc being the stellate ganglia and the cardiac plexus of the thoracic sympathetic chain. It is gener-

ally supposed that this involves the upper six thoracic nerves. In spinal anaesthesia with collapse one would expect, therefore, that the pulse would fail to accelerate only when the anaesthesia reached above the nipples. This is not the case and there is no scientific explanation for the fact unless one believes that the adrenals play a part in Marcy's Law."

J. C. M. C.


"The transitory effect of drugs applied to the organism has, repeatedly, been the cause for experiments in order to obtain prolongation of action of these drugs. . . . The first and the best known is of adding adrenaline. . . . The duration of effect has, however, been insufficiently lengthened. Research on the prolongation of the local anesthesia above 2-3 hours has revealed, that only if the drug is dissolved in oil a 'depot-action' of the anesthetic can be achieved. . . . More than eight years ago I cooperated with Dr. H. Waelsch . . . on the problem of depot-action of drugs. Extensive experimental and clinical studies were made. Not only were we concerned with the extension of anesthetic effects, but also with avertin, nitroglycerin, strychnin and salicyl. The theoretical basis of these 'depot-experiments' rests on the following rules: all these drugs, applied in a solvent which is only slowly resorbed, develop a long continued action on the assumption that the drugs dissolve better in the solvent than in water. As a solvent we used various types of oil. . . . We had extensive experience with the novocaine-oil depot. . . . On my suggestion Dr. F. Rappaport, Tel-Aviv, has worked on the problem of depot-action of local