AN IMPROVED ELECTRONIC SIMULATOR FOR THE STUDY OF THE DISTRIBUTION OF ANAESTHETIC AGENTS

Sir,—Reference is made to Dr. Mapleson's letter (Brit. J. Anaesth., 41, 310) commenting on our improved simulator (Crane, Yates and Steen, 1968). That an active analogue is better (or, certainly, more flexible) than a passive model is not the question (Ashman, 1969) and was not the general burden of our paper. In making the obvious improvements permitted by active techniques, an analysis of the positive feedback mechanisms involved in venous return was made and its relationship to rebreathing techniques was developed; this apparently requires further amplification.

The exclusion from the model of the path from the mouth via the tracheobronchial tree to the alveolar spaces was omitted because the mixing of the gas carried back to the lungs via the venous return with new gas (or no gas) from the machine input takes place in the lower reaches of the lung which in the model is designated "lung lag". The alveolar membrane appears twice in the model as the gas/blood partition coefficient (essentially an instantaneous equilibration between phases). Venous return passes through the alveolar membrane into the gaseous phase in the lung depths where it is mixed (in a controlled proportion) with new input (which arrives there without lag). The combination is lagged, and passes through the alveolar membrane as concentration in the arterial blood supply.

The model presented is indeed an active analogue, both electronically speaking and as a useful tool for anaesthesia research (Steen, Stein and Crane, 1968; Steen and Crane, 1968; Crane and Steen, 1969).

R. CRANE, M. YATES, S. N. STEEN
New York City

REFERENCES


4th INTERNATIONAL SYMPOSIUM OF ANAESTHESIOLOGY

VARNA, BULGARIA: SEPTEMBER 15–20, 1969

The role of the anaesthetist in the treatment of major accidents

The Eastern European Division of the Bayer Products Company and Balkan Holidays are co-sponsoring a charter flight to attend this Symposium. The tour will consist of return air fare London–Varna–London, 8 days hotel and full accommodation. The cost of the flight will be approximately £79 per person excluding the symposium registration fee. As the normal air fare is £120, the savings are considerable.

Anyone wishing to extend their stay past 8 days or include visits to Turkey or Greece following the Symposium can do so by personal arrangement with Balkan Holidays. The basic tour will leave on September 13 and return on Sunday, September 21.

Any queries concerning this meeting should be made to: G. Lemonofides, Medical Liaison Officer, Eastern European Division, The Winthrop Products Company, Surbiton, Surrey.

Printed in Great Britain by John Sherratt & Son Ltd., Park Road, Altrincham