whether clinically useful information can be derived without a knowledge of the 2,3-DPG concentration within the red cells, since it is not possible at present to measure 2,3-DPG concentrations routinely.

The effects of alteration in therapy on blood Po, would be expected to occur within a relatively short period of time. However, changes in the 2,3-DPG concentration take several hours to occur. Thus a calculated change in blood oxygen content as a result of alteration in therapy would be more closely related to a change in blood Po, than to a change which had occurred in the 2,3-DPG concentration and would therefore be a useful value to calculate from the Po,. The equation used in the ABL 2 is less accurate than oxygen content as a result of alteration in therapy would.

Errors in measurement affect the results of any calculation; however, three blood samples are usually measured separately and by using the same blood-gas analyser, the trend of changes should be relatively accurate. The principal virtue of the programmable calculator is its low cost, but with the introduction of microprocessor-based computers which can display text on a screen, entry of data following prompt statements is greatly facilitated. However, these are three to four times as expensive as the calculator and may be outside the budget of some intensive care units. Also they were not readily available in this country when the program was being prepared.

A major advantage of any such system is the ease with which improvements and modifications can be made to the original program. If routine measurement of 2,3-DPG concentration becomes possible, a correction factor can be incorporated into the present program.

I thank Drs Bishko, Johnston and Housmans for pointing out errors which had not been noticed during the presentation of the manuscript. The third point made by Dr Housmans is quite correct in that CcO,new is derived from the calculated CcO,new. This should have been stated in the article, rather than merely implied.

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2-CHLOROPROCaine COMBINED WITH BupIVacaINE

Sir.—Sometimes regional anaesthesia is effected by combining drugs with rapid and slow onsets, for example 2-chloroprocaine and bupivacaine. We do not know if the components of the mixture act independently, additively or synergistically. The writer has determined duration of anaesthesia in rats utilizing bilateral coccygeal nerve blocks with the following mixtures:

I 3% 2-chloroprocaine 0.4 ml + normal saline 0.4 ml
II 3% 2-chloroprocaine 0.4 ml + bupivacaine 0.75% 0.4 ml
III 0.75% bupivacaine 0.4 ml + normal saline 0.4 ml
IV 0.75% bupivacaine 0.4 ml (included for comparison).

The response to repetitive electrical stimulation of the rat's tail indicated the duration of anaesthesia. The results are shown in figure 1. Because a nerve stimulator was used to locate the coccygeal nerves the animals were immobilized briefly under methoxyflurane anaesthesia. Thus onset time of the block could not be determined.

FIG. 1. Duration of anaesthesia in each group.

It is apparent that the combined local anaesthetics act neither additively nor synergistically; the duration for the 2-chloroprocaine-bupivacaine mixture is similar to that of bupivacaine-normal saline. The 2-chloroprocaine does, however, decrease the duration of anaesthesia for bupivacaine, probably diluting the mixture and reducing the concentration of bupivacaine.

The utilization of local anaesthetic mixtures has proved clinically advantageous by reducing the onset time. Nevertheless, it appears to shorten the duration of anaesthesia even if, in most instances, the reduction is not clinically significant.

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HUMIDIFICATION IN ANAESTHESIA

Sir, I would like to comment on the criticism by Dr Chalon (1979) of the Editorial on Humidification (Hayes, 1979). The 12 references quoted by Dr Hayes are taken from eight different publications from five different countries on three continents, yet Dr Chalon makes the accusation of insularity and extends it to include all British anaesthetists. I believe Dr Chalon could find greater parochialism closer to home.

If he feels that the last line of the editorial (asking for further study) has long been answered on many occasions by the 250 or so publications he claims to have read, clearly the authors of these articles are not so easily satisfied as is Dr Chalon that all requiring to be known on the subject is known.

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REFERENCES
