ELECTROENCEPHALOGRAPHIC ACTIVITY DURING VOLUN-
TARY CONTROLLED ALVEOLAR HYPERVENTILATION

Sir,—Some of the points raised by Dr. J. C. Stoddart
(Brit. J. Anaesth. (1967), 39, 2 (January)) were dis-
cussed by Gotoh, Meyer and Takagi (1965), who
demonstrated that when internal jugular Po2 fell to
21.0 mm Hg, e.e.g. slowing always occurred, whereas
Poo, showed no significant relationship with e.e.g.
slowing. They claimed that the Bohr effect was of
importance, being responsible for 27 per cent of the
decrease in jugular Po2, they observed.
Saltzman, Heyman and Sieker (1963) studied the
effects of long-lasting hyperventilation on the e.e.g.
and concluded that the normal subject can compensate
rapidly to low alveolar carbon dioxide levels since few
of their thirteen subjects had any prominent slow
activity in the e.e.g. and those that had lost it before
the end of an hour.
Saltzman, Morein (1965) investigations it has been
recognized that many factors beside carbon dioxide
levels can contribute to the effects of hyperventilation
on the e.e.g. and it appears likely that a further psycho-
logical factor (including, for example, anxiety) is of
importance.
Dr. Stoddart's frequency range for the alpha rhythm,
8–16 c.p.s., is not that usually accepted (8 to 13 or 14
c.p.s.) and is presumably based on Byford's method
of analysis which makes use of successive powers of
2 as the upper limits of each of his bands. So much
confusion has arisen in the past over loose use of the
term "alpha rhythm", and in particular when it is said
to be frontal, that when discussion is purely in terms
of frequency it would seem preferable to give frequency
limits rather than throw overboard a useful definition.
M. V. DRIVER
London

REFERENCES

bral effects of hyperventilation in man. Arch.
Neurol., 12, 410

Morrice, K. K. W. (1956). Slow wave production in the
EEG, with reference to hypopnoea, carbon
dioxide and autonomic balance. Electroenceph.
clin. Neurophysiol., 8, 49.

Correlation of clinical and physiologic manifesta-
tions of sustained hyperventilation. New Engl. J.
Med., 268, 1431.

Dr. Driver's letter was forwarded to Dr. Stoddart,
who replied:
Sir,—Thank you for the opportunity of replying to
Dr. Driver's letter. I am grateful to him for drawing
to my attention the paper of Gotoh, Meyer and Takagi
as it is obviously important and in general our results
are similar. However, since several of the patients in
their series were suffering from cerebral vascular dis-
orders I do not think their results should be accepted
entirely without question. In addition, the work of
Engel and associates (1946) suggested that there could
be a marked difference in the carbon dioxide, oxygen
and hydrogen ion levels of blood drawn from both
jugular bulbs simultaneously, which again makes one
regard with reserve absolute values obtained only from
one side.
I am afraid the relevance to my paper of the others
quoted by Dr. Driver is not very obvious to me. As
to the comments made in the final paragraph, perusal
of my paper will show that I did specify frequency
limits, and that I drew attention to my intention to
use the term "frontal alpha rhythm" in awareness of
its inaccuracy.

J. C. STODDART

REFERENCE

Engel, G. L., Ferris, E. B., Stevens, C. D., Logan, M.,
and Webb, J. P. (1946). The syndrome of hyper-

THE INFLUENCE OF DRUGS USED IN NEUROLEPTANALGESIA
ON CARDIOVASCULAR AND VENTILATORY FUNCTION

Sir,—I have perused with interest the article by Drs.
Prys-Roberts and Kelman on this subject in your
I note their reference to work conducted here
(Rollason and Sutherland, 1963) on page 143, and I
feel that we may have been misquoted. Our conclusion
was that for the age group, dosage range and urological
procedure investigated phenoperidine alone was an
unsuitable analgesic because it revealed an unpredict-
ability of action and a significant incidence of side
effects.

W. N. ROLLASON
Aberdeen

REFERENCES

Rollason, W. N., and Sutherland, J. S. (1963). Phen-
operidine (R 1406): a new analgesic. Anaesthesia,
18, 16.

AN INVAGINATED TUBE

Sir,—I was recently presented with a nylon-
armoured latex endotracheal tube (fig. 1) as being
ready for use, complete with tube connection and
malleable stilette. The part distal to the cuff was com-
pletely invaginated and the lumen grossly reduced.
This seems to have been produced when the brush
used for cleaning the tube was withdrawn and it passed
unnoticed when the tube was sterilized. This only
serves to re-emphasize the fact that all tubes must be
carefully inspected before use. A normal tube of the
same size is shown for comparison.

(Printograph by courtesy of Mr. B. Wilks, Photographic Department, Derbyshire Royal Infirmary.)

W. J. WALTON
Derby