Audiovisual reviews

In this issue tapes on respiratory physiology are reviewed and a concluding overall assessment is provided. Readers are reminded that the McMaster tapes are not available from the M.R.S.F. and both addresses are provided at the foot of the page.

Lung Mechanics
By E.J.M. Campbell, McMaster University Medical Centre. Ref. CT356. 40 min 33 slides (1975).

This tapeslide 'show' (Dr Campbell's word) covers the properties of the elements that go into the study of lung mechanics, the balloon, the rigid tube and the Starling resistor. Thereafter it assembles these elements to show how a model lung performs mechanically and introduces pressure-volume and pressure-flow diagrams and applies them to such a thing as the forced expiration. The 'show' does not deal with chest wall mechanics nor the methods of studying lung mechanics. The presentation is at all times clear, although the pace is somewhat brisk. However, Dr Campbell's booklet accompanying the programme suggests various approaches for students who are unfamiliar with the material. This programme might prove difficult going for someone who had no knowledge of lung mechanics but, using the approach suggested by Dr Campbell in the booklet, is an extremely valuable introduction to the subject.

W.G. ANDERSON

By C.J. Dickinson, University College, London. M.R.S.F. Ref. 72/72, 72/73, 72/74. 14 slides. 14 slides. 13 slides. 25 min. 27 min. 27 min (1972).

In the first programme Dr Dickinson starts by considering the control of respiration, then passes to the mechanics of ventilation, gas transfer and the matching of ventilation to perfusion. It provides a useful introduction although it cannot be regarded as a complete cover of the subject.

The second programme first considers life threatening disorders of pulmonary function and associated underlying disturbances. It provides an easily understood clinical approach to the topic with valuable advice on such aspects as the management of oxygen therapy in Cor Pulmonale. Other practical tips are provided and this programme will be found particularly useful by candidates preparing for the final FFARCS examination.

The third and final programme concerns tests to assess the adequacy of gas exchange and transport including the use of the oxygen and carbon dioxide electrodes with marked emphasis on the Astrup technique. A shortcoming was the absence of photographs of devices or equipment used for measurement which could, with examples of results of respiratory function tests, relate the programme to clinical practice. The use of some colour slides might have done more justice to the author's obvious expertise in this field.

The instructions for slide change on these programmes were in the form of 'slide on' and 'next slide please' and reference to the slide numbers may be safer to ensure the correct order is maintained. On a few occasions it was difficult to relate the commentary to the illustration on view. The introduction of a 'blank' slide could have assisted the viewer.

In conclusion, while these programmes do not give detail of individual facets of the topic, they do provide a good overall view of the physiology and pathology of respiration, and though providing a useful introduction to the subject may not be regarded as complete cover of the subject.

J.A. THORNTON
P.J.R. JEBSON

The Sub-editor of the Audiovisual Review section is Geoffrey D. Parbrook, MD, FFARCS, Senior Lecturer, Department of Anaesthesia, Royal Infirmary, Glasgow G4 0SF.

MRSF = Medical Recording Service Foundation, P.O. Box 99, Chelmsford CM1 5HL.
McMaster University Medical Centre, Room 1G8, Hamilton, Ontario, Canada L8S 4J9.
The Regulation of Respiration
By G. Sweeney, McMaster University Medical Centre. Ref. CT461. 24 min. 49 slides (1972).

This presentation is unhappily marred by extremely poor quality of recording. The content commences with the briefest review of the muscles of respiration, their innervation and location of the principal respiratory centres in the brain stem. Thereafter there is a general account of a negative feedback loop as a homeostatic device using, as an example, control of temperature in a domestic refrigerator. Having introduced the elements in such a loop, they are then applied to the chemoreceptors involved in the control of arterial blood gases. The programme then proceeds to a discussion of central and peripheral chemoreceptors and their behaviour in the regulation of respiration. The material is in general lucid and well presented in a conversational manner with frequent questions put to the user to encourage involvement in the programme. Although the material does not cover the entire field of regulation of respiration, it forms an excellent introduction to the subject.

W.G. Anderson

Regulation of Respiration. Parts 1 & 2

In the first part the speaker considers principally the integration of respiratory control in the brain, the effector system via the respiratory muscles and the receptors concerned with the volume and depth of respiration. This part is an excellent introduction to the subject, spoken with great clarity. In the second part Dr Purves considers the chemical stimulus to ventilation, how it is formed, recognised and transmitted and how the respiratory system responds to it. Both parts are well suited to anaesthetists and others working for higher degrees and the information provided is at a very advanced level.

The diction of the tape commentary is clear and the rate of speech well suited for easy listening. A slide with the title of the programme was not included and would have helped the viewer orientate himself. This would have particularly helped with the second tape in this series where the opening is rather abrupt, and this, together with a short description of the contents of Part 1, would maintain continuity. The instructions for slide change are not always absolutely clear to the viewer. It does however help where the author puts the illustration off for some time to allow full concentration on his commentary. It will be found that the tapes are recorded on both sides to accommodate the 47 minute commentary and so consequently they are unsuited for use with synchronised equipment. Consideration could be given to dividing each programme into two halves at a suitable point.

The illustrations are 'black and white' and consist of diagrams, histograms and some anatomical drawings. The first slide of Part 2, which concerns ventilation and perfusion, does not employ Pappenheimer's symbols and is rather difficult to tie in immediately with the current description. The reviewers consider colour would have relieved viewing and certainly would have helped the anatomical illustrations.

The material in these programmes is a very valuable presentation and is strongly recommended for anaesthetists studying for higher qualifications.

J.A. Thornton
P.J.R. Jebson

Regulation of Air Flow
By J.F. Cade, McMaster University Medical Centre. Ref. CT453. 20 min. 35 slides (1976).

This programme seeks to give an introduction to those factors determining air flow and distribution of ventilation within the lungs. It is divided into three parts; general principles governing flow in airways, airway reactivity and the biological control of airway calibre, and effects of airway branching on distribution of ventilation within the lung. The level of the presentation is singularly uneven. The first section is composed almost entirely of fairly straightforward basic material but suddenly, without adequate preparation, the concept of the equal pressure point during maximal forced expiration is introduced. It is then dropped again without the full significance of the idea being described, save perhaps to introduce the idea of diffuse small airway disease which is taken up in a later section of the programme.

The second section is devoted to the straightforward, not to say banal proposition that airway calibre is a product of bronchial reactivity and the intensity of the applied stimuli. This section contains a great deal of factual assertion with no evidence cited, e.g. that bronchial tone is entirely due to airway disease which is taken up in a later section of the programme.

The third section of the programme on distribution of ventilation within the lung introduces the idea of time constant as a product of resistance and compliance in individual lung units. It goes on to show how, at high respiratory rates, lung units of long time constant will be effectively unventilated and then tantalisingly, states clearly that this phenomenon is the basis for the 'most accurate and elegant test of small airway disease, namely frequency dependence of compliance'. Unfortunately, the programme does not pursue the matter further.

The overall impression of the programme is one
of gross unevenness in the standard of the material presented. Many of the passages are of extreme simplicity yet there are several peaks where difficult material is presented without adequate explanation or follow-up. The material in the simpler passages is available from a variety of sources and that of the more difficult ideas in this programme is so scantily presented as to be of little value to the anaesthetist. The author appears to wish to 'have his cake and eat it', e.g. 'bronchial reactivity should be regarded as a broad concept' is followed shortly by 'bronchial reactivity . . . . is quite stable and bears no relationship to . . . . diseased states or therapeutic measures'. Twenty minutes is fairly short for a programme and a further five to seven minutes could have been added with profit to bring out more detail of some of the more difficult topics covered and greatly enhance the value of the complete work.

W.G. ANDERSON

The Pleural Space
By P. COCKSHOTT, McMaster University Medical Centre. Ref. CT416. 29 min. 52 slides (1972).

This presentation begins with an ingenious account of the formation of pleural fluid from the parietal pleura and its absorption by the visceral pleura. The explanation is unfortunately not developed to explain the formation of pleural effusions. Instead the lecture goes on to an account of the effects of intrapleural fluid and intrapleural air on the lung and the associated radiological appearances. The material is of a high standard and there are excellent slides with radiographs to illustrate the various points and this programme could be recommended to anyone who needs to report a chest radiograph. The principal criticism is that the voice of the reader is not particularly clear in its enunciation and one sometimes loses some of the meaning, also the quality of the sound recording is not particularly high.

W.G. ANDERSON

Foetal and Neonatal Respiration

This is a short account of some aspects of fetal lung function. It begins with a discussion of fetal lung liquid, its source, composition and fate at birth, and relates this to the surface tension of alveoli and the role of surfactant in effecting an area-dependent reduction of surface tension, maximal at lower surface area, i.e. at low lung volumes. This is followed by consideration of pulmonary vascular behaviour in the foetus and at birth. The lecture seeks to 'summarise the present view' and since the material was prepared in 1969, it is now somewhat dated.

In 26 minutes there are only 7 slides and frequent jumping back and forth among the slides is needed. For an automated programme, where slides are referred to at different points, they should be duplicated. The quality of the sound is not high and some of the slides are taken straight from journals and text books, a technique which is not always successful. The content of this programme does not live up to the title which does not indicate the limited nature of the topics covered, but with these strictures it is a clear and coherent account of the material.

W.G. ANDERSON

Overall Assessment

The programmes vary widely in content and in the level at which they are aimed. Thus, of the two programmes on Regulation of Respiration, that by Dr Sweeney provides a good short introduction suitable for someone beginning study of the subject while that of Dr Purves provides a lengthy and detailed presentation more appropriate for study at a later stage.

There are also contrasts in the approach of the programmes; Dr Cockshott considers the clinical element in detail with specific case examples and chest radiographs whereas Dr Dickinson gives a general overall view of his subject. The programme by Dr E.J.M. Campbell on Lung Mechanics is particularly outstanding and the effort of negotiating its purchase from Canada should not be regretted.

G.D. PARBROOK