Book reviews

PROGRESS IN NUCLEAR MEDICINE: Vol. 1—Neuro-
Nuclear Medicine By E. J. Potchen and V. R.
McCready. (Pp. 430; illustrated; £13.10.) Karger:

The book begins with a long chapter on the imaging
process employing radioisotopes and the factors
governing the choice of an instrument for brain
scanning. This chapter has obviously been written
with the specialist in view and will not be understood
readily by readers not totally involved in scinti-
graphic investigations. However, for the specialist it
does provide an up to date review of current thinking
concerning the assessment of the performance of
rectilinear scanners and scinticameras. In a book at
this level, one would have hoped that the use of the
word ‘scanning’ to describe the scinticamera process
would have been strongly discouraged. The word
‘scintiphotography’ first used by Anger would seem
an adequate description.

The next chapter outlines mainly a statistical
method for analysing scans with reference to a
pattern of uptake based on averaging counts from
several normal lateral views and by comparing counts
in symmetrically placed areas in the anterior and
posterior views. The results presented are for 197
Mercury-chloromerodrin scans and it is inferred that
similar results might be obtained with 99m Technet-
ium scans which are now more commonly carried
out. The author of the chapter claims that this type
of analysis would be advantageous with equivocal
scans which form about 10% of the total of investiga-
tions carried out.

A useful description of the biological behaviour of
99m Tc is included and this is followed by an excel-
 lent chapter on the anatomy of the normal brain
scan. The presentation of this chapter is very good
and provides a wealth of information in an easily
digestible form.

The anatomy and physiology of the blood/brain
barrier is briefly described and the authors of the
chapter on brain scan anatomy have written another
excellent account of the principles involved in brain
scan interpretation.

A chapter on the clinical utility of brain scanning
suggests that only the area beneath the detector to a
depth of 5 in. or so is examined. With many scanning
detectors, the plane of best focus is 5 in. from the
detector, but radiation is detected from areas nearer
and further away from this focal plane. For example,
it is not uncommon, when the plane of best focus is
set on the mid-line of the brain and one lateral is
performed, to see ‘shine through’ from a lesion be-
yond the focal plane in the contralateral hemisphere.
The acceptance of the idea of a depth threshold in
this manner could be very misleading. In addition, it
is difficult to appreciate the argument that, since it is
advantageous to view skull radiographs of a patient
who has had a brain scan, that it is necessary to
integrate brain scanning with the neuroradiological
service of a hospital. Indeed, as with many other
hospital problems, this would seem to suggest that a
multi-disciplinary approach would provide a better
solution.

Two chapters on the cerebrospinal fluid discuss,
in a concise manner, the present understanding
concerning fluid formation and circulation and the radi-
isotope techniques used in the assessment of path-
ways.

The final chapter deals with the measurement of
cerebral blood flow using radioisotopes. It outlines
neatly the problems and inaccuracies associated with
non-invasive methods. However, it perhaps skims
too lightly over the problems of applying the intra-
carotid injection technique in general clinical practice
and fails to make a comparison between the informa-
tion that can be useful clinically and that which is
required for academic research purposes. Some non-
invasive techniques such as the Xenon inhalation
method have not been adequately assessed in routine
clinical practice. Comparison of Xenon inhalation
results with the often used intracarotid injection
initial slope flows will depend on the accuracy of the
deconvolution procedure. The argument concerning
the place of the gamma camera in cerebral blood
flow studies is confusing. The authors admit that the
use of 32 and 35 detectors is in excess of what is
necessary, but later in the chapter criticize the use of
the Anger camera because, due to dead time limita-
tions, it cannot resolve 35 brain regions adequately.
Many workers do not consider it necessary for their
purposes to investigate more than 12 to 16 regions.

This is a first class book for the specialist in radio-
isotope techniques applied to neurology and neuro-
surgery as it brings together in one volume the views
held currently in a wide spectrum of topics.

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