hydrops alone obviously cannot account for the musical hallucinations.

(2) To support his hypothesis, Gordon criticises the diagnosis of mild "presbyacusis" in our patient as "overused" and suggests an incipient Meniere's disease. Due to restrictions in space, we were unable to present all the detailed results of the examination of our patient but the findings were summarised by the ear, nose, and throat consultant as reflecting a mild impairment in pancochlear perception. There was no evidence for vestibular dysfunction or Meniere's disease. Moreover, our patient exhibited a progressive hearing loss and a mild tinnitus without any fluctuations and without any improvement after disappearance of musical hallucinosis with successful treatment of electrolyte imbalance.

(3) At admission our patient exhibited bradydysdiadochokinesia, reduced coordination of fine movements of upper and lower limbs with dysmetria, and mild gait ataxia without signs of polyneuropathy or spinal ataxia. We summarised these symptoms as "cerebellar ataxia", as a relevant vestibular contribution to these symptoms could be excluded (see Wodarz *et al*[2]).

(4) References regarding musical hallucinations associated with brainstem lesions were not included due to the limit of five references per letter.[3 4]

Gordon claims that our case does not "qualify" for a neurological as opposed to epileptic or otological causes for musical hallucinations. His claim is based on his opinion that musical hallucinations are of a peripheral aetiology and might be the result of an endolymphatic hydrops. His postulated criteria are:[1] (a) There should be no application of drugs; however, despite the continuation and even addition of drugs in our patient, the musical hallucinosis disappeared. (b) There should be no peripheral "deafness"; however, even Gordon stated that "hearing loss itself is not a sufficient factor" for the otogenic cause of musical hallucinations. He claims the need of an "extra factor", which might be . . . (c) the presence of Meniere's symptoms, caused by an endolymphatic hydrops. Therefore, he tries to support his hypothesis by suggesting that the cerebellar symptoms in our patient might be of vestibular origin. This must be rejected as discussed above (see Cascino and Adams[3]).

Finally, we point out that we did not attribute the musical hallucinosis in our patient to basal ganglia calcifications alone. Rather, we hypothesised that the extensive calcifications could have constituted a "locus minoris resistentiae" which, in combination with electrolyte imbalance, might well have brought forth the musical hallucinosis, as well as the symptoms of cerebellar dysfunction.

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4 Cambier J, Decroix JP, Masson C. Auditory hallucinations in lesions of the brain stem. *Rev Neurol Paris* 1987;**143**:255–62.

BOOK REVIEWS

All titles reviewed here are available from the BMJ Bookshop, PO Box 295, London WC1H 9TE. Prices include postage in the United Kingdom and for members of the British Forces Overseas, but overseas customers should add £2 per item for postage and packing. Payment can be made by cheque in sterling drawn on a United Kingdom bank, or by credit card (Mastercard, Visa or American Express) stating card number, expiry date, and your full name.

The Shunt Book. Edited by JAMES M DRAKE and CHRISTIAN SAINTE-ROSE. (Pp 228 £19.50). Published by Blackwell Science, Oxford 1995. ISBN 0-865-42220-6.

This easily read paperback book provides the neurosurgeon with an excellent background to the myriad of shunt components currently available. The opening chapter provides an interesting background to the history of surgery for hydrocephalus. This is followed by three very informative chapters. The principles of applied hydrodynamics are discussed emphasising the relationships between pressure, flow, and resistance. This provides the platform upon which the different types of valve system are introduced. The discussion of problems encountered during shunt manufacture, and the application of mechanical and computer simulation models, lends credence to the cost of shunt components. The multiplicity of valves detailed in chapter 4, with accompanying pressure-flow graphs, catalogues components according to their mechanism of action. Although written in a dry, formal style, this well illustrated chapter does help the surgeon to understand the wide range of systems available. The penultimate chapter provides a well-referenced account of the many complications of shunt surgery. Emphasis is given to the problems of overdrainage and infection. The final chapter reminds the surgeon to consider the alternatives to CSF diversion. A discussion regarding the principles of shunt component selection follows. A proved method of shunt insertion is then described with some useful intraoperative photographs. Whilst recognising the controversy, the authors advise that the ideal place to locate the tip of the ventricular catheter is probably "the place that remains larger after ventricular decompression drainage, this varying from one patient to another".

In summary, this book is recommended to neurosurgeons of all grades. I doubt that the contents will appeal to a more general readership.

PETER WHITFIELD

Handbook of Olfaction and Gustation. Edited by RICHARD L DOTY. (Pp 904 $225). Published by Marcel Dekker, New York 1994. ISBN 0-8247-9252-1.

Smell and taste have been studiously ignored by most clinical neurologists. Hopefully their attitude will change, and this "handbook" will restore these two important modalities to the clinic. "Handbook" is an understatement, for this text stretches to 881 pages, and 38 chapters. The work is scholarly from the word "go". Olfaction is elaborated in great, but appropriate, detail, from the laboratory to the bedside. The only aspects not covered in depth are perhaps the mechanism of olfactory coding, and the knotty question of specific nasal olfactory receptor cells. I found no mention of Walter Freeman's "gamma" wave.

There is an excellent chapter on the vomeronasal organ—something forgotten by most clinicians. I was persuaded that it does exist, and probably has some pheromone-like function. Evidence is presented for another overlooked entity—the nervus terminalis. It was discovered after the classic 12 cranial nerves were identified, and was once called the zeroeth cranial nerve, as it lies medial to the olfactory tract. Its function in utero is to allow the migration of LHRH neurons from nose to brain. In the adult its role is less clear, but it does provide a non-synaptic link between the nose and septal/preoptic areas, which would create a route for entry of therapeutic or toxic substances into the brain.

The section on taste is slightly shorter and less detailed, but the approach is similar to the olfactory section. I was disappointed to find just one short paragraph dealing with congenital insensitivity to phenylthiocarbamide. Every chapter was readable and well illustrated. This is an authoritative source of reference for all those interested in smell and taste.

CHRIS HAWKES

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