Book reviews

THE DYSRAPHIC STATES FROM SYRINGOMYELIA TO ANENCEPHALY By W. James Gardner. (Pp. 201; illustrated; Dfl. 68.) Elsevier Excerpta Medica North Holland: Amsterdam. 1973.

In the early 1940s, B. W. Lichtenstein was writing about 'spinal dysraphism', the Arnold-Chiari syndrome, and syringomyelia. In the 1950s, W. J. Gardner of Cleveland confirmed the findings of Chiari and other 19th century authors that hydromyelia was closely associated with the Chiari malformation. In a series of papers he argued that this type of hydromyelia did not differ from syringomyelia, considered by most authorities to be a distinct 'degenerative condition'. His paper in this Journal (1965) 28, 247-259, made his hydrodynamic theory of the development of syringomyelia familiar to neurologists. There can be no doubt that most cases of syringomyelia have associated abnormalities such as the Chiari or the Dandy-Walker malformation. Indeed, many textbooks now teach the Gardner hypothesis as fact, though prepared to debate the mechanism by which partial or complete obstruction at the foramen of Magendie leads to cystic dilatation of the central canal of the spinal cord or a ramifying diverticulum. In Gardner's view, cogently argued in this splendidly illustrated and well-documented monograph, the distension is caused by a water hammer effect of arterial pulse waves on the CSF (Bering effect—the index disagrees on spelling). Bernard Williams considers that the distending force is related to venous distension in the spinal canal and cranium and hence related to Valsalva and postural manoeuvres. Accepting that hydromyelia is the common type of syrinx and that there are other types associated with trauma, arachnoiditis, and tumours, the question remains—is there also an 'idiopathic type' though rarer than previously supposed? Dr Gardner, unfortunately, does not provide the material for a devil's advocate. Perhaps it would be unreasonable to expect him to do so. His book develops the theme that all dysraphic states 'from syringomyelia to anencephaly' may be explained by a single factor—inadequate escape of CSF at various stages of embryonal and fetal development. The argument is impressive and the author clearly realizes that by believing too firmly in his own ideas he may have set aside observations which might tend to refute them. Nonetheless, as a rationale for effective surgery, no practising neurologist can afford to be ignorant of this work.

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SYRINGOMYELIA By H. J. M. Barnett, J. B. Foster, and P. Hudgson. (Pp. 318; illustrated; £6.) Saunders: London. 1973.

Gardner's hydrodynamic theory of syringomyelia, with its surgical implications, has stimulated a reappraisal of the dysraphic syndromes and the time is ripe for a monograph. Nevertheless, the British and Canadian authors of this excellent book, Volume I in the series *Major Problems in Neurology* disagree in certain aspects of their field of study. Foster and Hudgson of Newcastle-upon-Tyne are responsible for the first section on 'communicating syringomyelia' associated with diminished or absent patency of the foramen of Magendie from developmental causes or in association with basal arachnoiditis. While it is clear that they are supporters of the hydrodynamic theory (and in particular of Gardner's version) they 'do not dispute that "pure" syringomyelia (as described by Greenfield) may occur without evidence of an underlying cause' though rarely. They clearly consider that most examples of 'non-communicating' syringomyelia are associated with tumours, traumatic paraplegias, 'or some degenerative conditions'. The 'non-communicating' types are dealt with by Barnett, Ball, Jousse, and Rewcastle of Ontario who consider that the Gardner hypothesis for common syringomyelia remains without convincing substantiating pathological data. They draw attention to a number of possible sources of syrinx fluid in the non-tumorous cases. They are unwilling to reject 'idiopathic syringomyelia without communication with the fourth ventricle in a detectable fashion'.

A cogent argument could be the mechanism of syringobulbia. The reviewer has never seen it in a patient without syringomyelia. Does it occur? A search for this information in this book and in Gardner's monograph does not tell us. Indeed, the coverage of syringobulbia and the formation of Jonesco-Sisest's clefts is totally inadequate in both books. Another surprising deficiency is in the account of gas myelography in the diagnosis of syringomyelia. This major diagnostic advance requires more than the single illustration which does not include the important postural features. Omissions indicate that a subject is advancing. Who would have predicted syringomyelia in the role of first major problem in neurology? If future volumes are of the same calibre our bookshelves will be enriched.

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