through a momentary failure to mentally process for point." The chapter entitled "Finis," to underline the unreality of the book, is twenty pages from the end. The illustrations, which are often practical and helpful, are chiefly line drawings, although there are a few radiographic reproductions of animal experiments. Two illustrations, 3 and 33a, are outstanding, and show an attractive young lady aged three to five, clearly the same young lady. I suspect her of being the author's daughter. I could find no reference to the illustrations in the text, but then there are no other references in this highly individualistic performance. An instructive book for those who like their science dressed journalistically, and an entertaining one for those with an eye for the unusual.—J. G. BONNIN.

Lumbar Discography. By John S. COLLIS, Jun., M.D., Department of Neurological Surgery, The Cleveland Clinic Foundation, Cleveland, Ohio. With a Foreword by Wallace B. HAMBY, M.D. 11½×9 in. Pp. xii+173, with many figures, graphs and tables. Index. 1963. Springfield, Illinois: Charles C. Thomas, Publisher. Price \$12.75.

This monograph is based on an extensive experience of lumbar discography acquired in the Neurosurgical Department of the Cleveland Clinic of Ohio and includes a most meticulous analysis of all the findings in a series of 1,014 patients so investigated. Although it is obvious that the author and his team are enthusiasts, the statistical review is sufficiently comprehensive to enable any experienced surgeon to form his own opinion of the value of the procedure, and from this point of view the book will repay careful reading. Beautifully produced in the American style, the layout, paper, printing and general appearance make the book a model for this type of publication.

The contents comprise ten separate sections. After an introduction consisting of a rather cursory account of the anatomy and development of the lumbar discs, the second section deals with the technique of discography employed in the author's clinic. A special frame is used to position the patient, a central transthecal puncture of the disc or discs is carried out under radiological control using two needles, the second being inserted through the first, and, after injection of radio-opaque solution, radiographs are taken with the needle in position. It is quite clear that the procedure is usually very painful and indeed the type and distribution of the pain is correlated with the x-rays to arrive at the diagnosis. A short account of other techniques of discography is included in this section.

After a short chapter on the interpretation of the findings, a radiographic atlas and a most comprehensive analysis of all the findings in the series comprise the main bulk of the book. By correlating the radiographs with the pain experienced by the patients all the discs investigated are classified as normal, herniated or degenerated. The atlas shows radiographs said to be typical of these conditions and is only marred by the quality of some of the pictures. Even allowing for some of the difficulties of reproducing x-rays of the lumbar spine on a much smaller scale, some of these are of surprisingly poor quality. The section on the analysis of the findings could hardly be more comprehensive. Finally there are short sections dealing with findings relating to the pressures within the discs themselves and with other diagnostic procedures, notably contrast myelography.

The monograph, admirable though it is in many respects, has failed to convince me that lumbar discography is a valuable, or indeed a justifiable, procedure in the routine investigation of patients with lumbar disc lesions. It is clear that the procedure is painful, often extremely painful. The complication rate in the series reported is low, five in 1,014 patients, but the various dangers are obvious. To me the most significant table in the book is on page 82; it analyses the accuracy of the findings in 545 discograms which were subsequently checked by operative exploration. Of 124 discs said to show degeneration sixty-four were found to be normal, an error of over 50 per cent; of 385 discs said to show herniation forty-eight were normal, an error of over 12 per cent. I believe that the accuracy of these findings would compare unfavourably with clinical diagnosis made by any surgeon experienced in disorders of the low back and based on ordinary clinical and radiological examination. A comparison of the relative values of discography and myelography in the diagnosis of lumbar disc lesions is meaningless if one believes, as I do, that myelography is indicated only when the presence in the spinal canal of a space-occupying lesion other than a nuclear protrusion is suspected.

Finally, I do not, in spite of the author's arguments, believe that the puncture and injection of a radio-opaque substance into a normal disc may not in some cases ultimately produce changes within the disc which would not otherwise have occurred.—J. R. ARMSTRONG.