

Scientific approach to art

Beyond Aesthetics: Investigations Into the Nature of Visual Art. Edited by Don Brothwell. Pp. 212+80 photographs. (Thames and Hudson: London, May 1976.) £9.50.

THE writers of the 12 essays collected here have tried to be objective about the visual arts. The task was fairly easy for two of them. Creedy describes the British system of art education, and says it is the best in the world. There is a light-hearted piece on the demography of artists by Cox. Statistics are hard to come by, and classification is capricious, but their pay, hours of work, and expectation of life seem about average. The apparent hazards of being an artist in France become comprehensible when one discovers that the category includes acrobats. Research has unexpected hazards. A chimpanzee bit her keeper for the first time when a drawing was incautiously interfered with. Whiten uses this as evidence for the intensity of the artistic impulse once it is aroused. It is odd that apes, unlike some birds, show little artistry when wild. This latency is perhaps similar to that shown by Eskimos. Decorating clothing and tools was traditional, but Brothwell says that the strikingly vigorous statuettes, now so much admired, were not made before European contact.

Defects in colour vision are as common among students at several art schools as in the general population. Pickford comments that nearly half of the group was unaware of the defect until tested in early adulthood. He comments also on the greater than average incidence of myopia and astigmatism among artists. He questions the idea that artistic differences between races have a physiological basis, although he comments on the curious absence of precise words for *blue* in many languages. It was this that led to the suggestion that colour perception varied. In a second article Pickford tries to make sense of aesthetic preferences in spite of their fluidity. Fluidity is the theme of Rookmaaker's article on art and morals. Using the depiction of nakedness as an example, he argues that anything can become acceptable if it is introduced in sufficiently small steps.

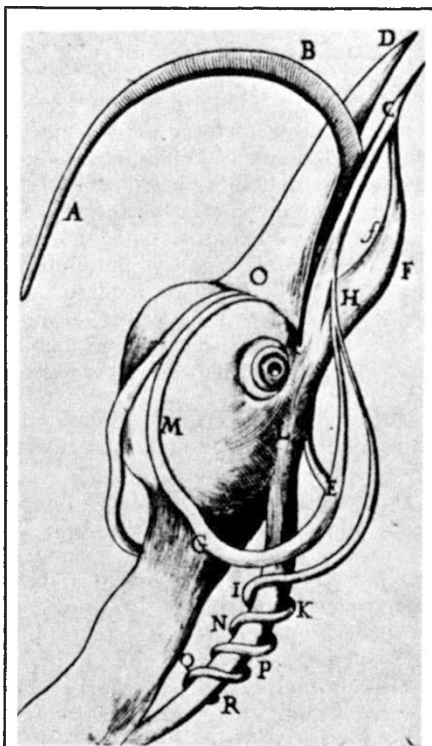
It is a pity Weale was not given more space to discuss the geometry and physics of art. Compression and too few illustrations make it difficult to understand all the interesting things he has to say on such subjects as deliberate distortion and the *pointilliste* technique. Writing of the use artists make of scientific illustrations he com-

ments "... if a pattern appears in a book it is part of science, but if it is brushed on to a canvas it becomes art."

There are two unsurprising articles on children's drawings and paintings, and an article on cross-cultural psychology that is surprising only because of the number of platitudes and tautologies crammed into it.

N. W. Pirie

N. W. Pirie has recently retired as head of the department of biochemistry at Rothamsted Experimental Station, Harpenden, UK.



Tongue and hyobranchial apparatus of a woodpecker. By G. A. Borelli, published in Rome in 1681. Taken from *A History of Comparative Anatomy: From Aristotle to the Eighteenth Century*. By F. J. Cole. Pp. 520. (Dover: New York; Constable: London, March 1976.) £3.90 paper.

Ion transport in plants

Uptake of Ions by Plant Roots. By D. J. F. Bowling. Pp. xi+212. (Chapman and Hall: London, Halsted: New York, March 1976.) £6.50.

THE uptake of ions by plant roots is a subject which over the years has probably had more man-hours devoted to it than any other single aspect of plant physiology. In consequence an extensive, very diverse and often contradictory literature has accumulated. From

time to time courageous individuals attempt to digest this material and produce a coherent exposition of the process. The would-be author is presumably initially inspired to his task by a conviction that he can see order where others cannot and inevitably therefore there will be; as Dr Bowling states in his preface, "some undue bias and personal foibles". His bias is towards the electrophysiology of roots, a topic which is well described. Realisation of this bias, however, seems to have caused the author to over-compensate to the extent that in a short book (185 pages of text) covering a vast subject he seems to have devoted a disproportionate amount of space to discussion of already well documented topics.

Although covering not merely the uptake of ions by roots, as the book's title implies, but also their transfer to shoots together with related information on leaves and algae has led to some superficiality in presentation, Dr Bowling has, however, produced an interesting and logically presented book. He looks on the overall process as being divisible into four sections or links in a chain: movement of salts in the soil to the root surface; uptake into the root; transport across the root and movement in the xylem to the shoot. Separate chapters deal with what Dr Bowling describes as "the more theoretical aspects of salt uptake".

Finally, there is a chapter which although headed 'Some conclusions and a look into the future' attempts firstly, to analyse results from his laboratory on the absorption of potassium and water by a sunflower plant grown in potting compost in controlled conditions in the light of the previous chapters; and secondly, describes briefly some recent experiments on the existence of specific ion binding proteins in the plasma membrane and the action of ionophores or ion-carrying agents. It is a pity that more space could not have been devoted to the relevance of these latter two aspects to the electrophysiological and kinetic approaches described earlier.

Because of its breadth of coverage the book is a good source of reference to the literature up to 1974 and it should prove useful to students and others specialising in the subject. I hope, however, that before the next printing is set, it will be re-proofed to remove some omissions in the references and misprints in the text.

D. A. Barber

Dr Barber is a Principal Scientific Officer at the Agricultural Research Council's Letcombe Laboratory, Wantage, UK.