the article were more chemical and technological than it is, even though there are some useful references to chemical preparation.

"Non-oxide Ceramic Dielectrics" by P. Popper would seem to contain rather too much theory which is not immediately relevant. However, it is useful to have information on this interesting new subject by an author who is actively engaged in research on it.

"Electrophoretic Deposition of Insulating Materials", reviewed by J. B. Birks, is a practical subject which involves much chemical 'feel'. The author succeeds in presenting the relevant theoretical background of his subjects clearly and concisely, which is useful since colloid science is generally treated in a biological context. The article gives a helpful survey of the practical applications.

V. Daniel

## EMBRYOLOGY

### A History of Embryology

By Dr. Joseph Needham. Second edition, revised with the assistance of Dr. Arthur Hughes. Pp. 304+18 plates. (Cambridge: At the University Press, 1959.) 52*s*. 6*d*. net.

THIS new edition of Dr. Needham's remarkable contribution to the history of science will be widely welcomed. Its first appeal is to professional biologists, who will (or should) want to know more about the way their own science found its way out of abysmal ignorance and superstition towards greater knowledge and understanding, and historians of science will find it an indispensable source-book.

But it is important for wider reasons. It is important for the general historian, who will find in it numerous illustrations of the social relations of science. One that I found illuminating was the fact that in the seventeenth and eighteenth centuries there was a widely held conviction (abundantly justified by later events) that research into the nature of generation would throw light on orthodox theological doctrines, such as that of 'original sin', and that this "led to an economic situation of value for biological development". To-day it is devoutly to be wished that the powers that be, including public opinion in general, would extend this conviction and realize that research in biology will throw light on the central problem of man's nature and destiny.

The historian will also find many examples of the unfortunate political and social results of wrong attitudes to science and technology; for example, the contempt of antiquity for the 'base mechanic' and his arts, and the recurrent incomprehension of science and scientific method by governments and dominant classes. As Sir Charles Snow has so pithily pointed out in his recent Rede Lecture this incomprehension between the professional scientists and the representatives and products of so-called humane studies can be mutual, and in Britain has led to the development of two cultures within the one nation.

It would seem that the only way to heal this split is through some reform of education, aimed at the integration of the sciences and the humanities in the cultural process, and many of us feel that for this the historico-evolutionary approach is necessary.

The evolutionary concept links man with the rest of life, mind with matter, contemporary history with archæology, while the history of science and its gradual invasion of new fields can be the bridge between the scientific and other elements in human history. Books like Dr. Needham's are of the greatest value in helping to realize this process of our cultural re-education and re-integration.

Julian Huxley

## FOURIER SERIES

### Trigonometric Series

By Prof. A. Zygmund. Second edition. Vol. 1: pp. xii+383. Vol. 2: pp. vii+354. (Cambridge: At the University Press, 1959.) 84*s*. net each volume.

ZYGMUND'S authoritative treatise, which first appeared as a single volume in 1935, has been thoroughly revised and much enlarged for this second edition. The first volume contains practically everything which was in the original edition. The essential foundations on convergence and summability are dealt with in the earlier chapters; the reader needs a firm grasp of the elements of point-set theory and of Lebesgue integration. The main results are illustrated in a good chapter on special Fourier series. The rest of the first and the whole of the second volume deal with special problems and topics, much of the material in the second volume being work done during the past thirty years, showing, in particular, the influence of Littlewood and Paley. Each chapter is closely packed, and only the very indolent will ignore the additional wealth of content available in the annotated exercises.

The author marshals his material skilfully. A good example is his chapter on interpolation of linear operations, where the Riesz–Thorin interpolation theorem and the famous Riesz–Fischer, Hausdorff–Young and Riesz theorems which interpret and generalize the Parseval formula:

$$\frac{1}{2\pi}\int_0^{2\pi} |f|^2 \mathrm{d}t = \Sigma|c_n|^2$$

for a function $f$ with Fourier coefficients $c_n$, are neatly stitched together and embroidered with Paley's remarkable theorem on Fourier coefficients and the Hardy–Littlewood theorems on re-arrangement of Fourier coefficients. His chapter on multiple Fourier series emphasizes the need for significant rather than obvious generalizations.

Even where the ground has been well ploughed, some problems remain. For example, it is now more than eighty years since du Bois-Reymond constructed a continuous function with a Fourier series diverging at one point; the extension to divergence at an everywhere-dense set of points followed easily enough, but so far all such sets have been of zero measure. The question still stands: Can a continuous function have a Fourier series which diverges at all points of a set of positive measure? A similar problem was solved some thirty years ago by Kolmogorov, with a delicate argument producing an integrable function with a Fourier series diverging everywhere.

In its new form, beautifully produced by the Cambridge University Press, this book remains the standard and indispensable text for any analyst interested in Fourier series for their own fascinating sake.

T. A. A. Broadbent