views on political issues. No doubt many professors were unmoved by the investigations of subversion, either because they sympathized with them or because they could not imagine themselves being affected by them; other professors were threatened and drew back in the face of threat; others, including what would appear to be a substantial majority of the more distinguished members of the profession, perceived the threat clearly enough and were disturbed by it but did not yield to it. It would be regrettable indeed if this final fact were lost in the concentration which this book gives to its documentation of weakness and retreat on the campus.

To those readers of *Science* who may have come to believe that social scientists have difficulty in writing comprehensively, I am pleased to recommend this book as a model of straightforward, unpretentious exposition. The authors present a rather considerable array of statistical data, but, partly through the effective use of graphic representation, they succeed in maintaining the readability of the text. I should also urge that the reader not skip over the long postscript contributed by David Riesman, analyzing the problems of interviewing college professors. His description of the consequences of confronting "avant-garde" or "rear-guard" professors with "blue-stocking" or "market research" interviewers is both instructive and amusing.

ANGUS CAMPBELL
Survey Research Center, University of Michigan, and *Institute for Social Research, Oslo, Norway*

Embryos and Ancestors. Gavin de Beer. Clarendon Press, Oxford, England, ed. 3, 1958 (order from Oxford University Press, New York). xii + 197 pp. $4.

In 1939 Gavin de Beer published *Embryology and Evolution,* attempting to show, as he puts it, that "after rejecting the theory of recapitulation, a much better synthesis could be made of our knowledge of embryonic development and evolutionary descent, opening up new fields for observation and co-ordination of studies in embryology, genetics and evolution." In 1940 he produced an expanded and altered version of a similar argument in the first edition of *Embryos and Ancestors.* This appeared in a revised edition in 1951, and the volume under review here represents the third edition. None of the previous versions or editions has been reviewed in *Science* or was reviewed in the *Scientific Monthly* (a fact interesting and probably significant in itself). Nevertheless, since early editions of the book have been so widely read, it seems more appropriate in this review to compare the present edition with its predecessor than to discuss it as a completely new contribution to knowledge.

The third edition is a thoroughgoing revision of the second; the whole text has been reset. The main organization of the book is much the same, although some passages have been shifted in position and the chapter on the evolution of the coelenterates, which occupied two pages in the second edition, has been eliminated as a separate chapter, its content having been incorporated into the chapter on the germ layers. Clarifications and minor changes of content and of references are liberally scattered throughout the whole text, and in a number of cases actual interpretations are modified. The author, for instance, goes to great lengths in both the second and third editions to distinguish between neoteny and paedogenesis, yet one generalization specified as concerning neoteny in the second edition is referred to as paedogenesis in the third. One of the general conclusions in the second edition reads: "Phylogeny plays no causal part in determining ontogeny except in so far as past external factors have been responsible for exerting selection and preserving those internal factors which are operative in the ontogeny of the descendants." In the new edition this is shortened simply to "phylogeny plays no causal part in determining ontogeny." De Beer has also introduced some new terminology, designating as *neanic* novel evolutionary characters which have made their appearance early in ontogeny and as *ephebic* those which have appeared at later stages in the life history of the individual. The principal change in the new edition is one of size. While the actual text (minus bibliography and index) of the second edition occupies 142 pages, that of the third fills 174 pages. The bibliography is increased from more than 270 references to over 350. One new illustration has been added, and one new table, both from the work of A. H. Schultz.

The material added in the latest edition includes amplification of what was said, in the earlier editions, of the positions of the classical authors of the 19th century, and also the exposition and discussion of new data, some of which became available only after the appearance of the preceding edition. In some cases, in the text and in one table, examples are multiplied—in particular, more evidence is drawn from the plant kingdom than in the previous edition. Where new evidence is brought in, it is drawn principally from the same fields as in earlier editions—from the study of morphogenesis, taxonomy, natural history, evolution. Since so much of the argument hinges on the time of action of genes, it is a great pity that no reference is made to von Ubisch's success with androgenetic merogony or to Briggs' success with nuclear transplantation. De Beer has failed, furthermore, to take up any of the modern studies on developmental genetics which are so apposite to his theme and thus has missed his opportunity to effect the synthesis between embryology, genetics, and evolution which he has stated to be his primary aim.

A number of embryologists now question whether attacks on the recapitulation theory are any longer necessary. Certainly a number of recent textbooks, while they may still describe the doctrine, refute it at the same time, and there seem to be increasingly fewer which labor it as tenable. Whether or not, however, belief in recapitulation is a present danger, de Beer's continuing attempts to bring together data from embryology and evolution are commendable, and the resulting books provide stimulating collateral reading for students.

JANE OPPENHEIMER
Department of Biology, Bryn Mawr College

Pollen and Spore Morphology/Plant Taxonomy. Gymnospermae, Pteridophyta, Bryophyta. (*An Introduction to Palynology,* vol. 2). G. Erdtman, Ed. Almquist and Wiksell, Stockholm; Ronald, New York, 1957. 151 pp. Illus. $8.

This volume is divided into three parts. The first and major portion is devoted to illustrations of pollen grains of 57 genera of gymnosperms and of spores of 113 genera of pteridophytes and 69 genera of bryophytes. The second section, by B. Afzelius (Gulveg), discusses new methods of studying the wall structure. The third part, by J. Eadwan Pragloiski, is on the preparation of ultrathin sections.

The pollen and spore illustrations depict distinguishing characteristics of one or more species, either as entire palynograms or as sketches illustrating strucural details of the exine or sclerine of similar species or genera. The text for these illustrations will be published as volume III of the series. This is the first comprehensive coverage of these categories on a world-wide basis. Figure 2 is especially helpful to beginning palynologists in that it shows lateral, distal, and proximal perspective sketches of the same grain. Fern spores have been illustrated previously by many authors, usually for local geographical areas, but this treatment brings into one place illustrations of genera that are found in widely separated floras. Very few authors have

given attention to spores of mosses; thus, these illustrations are especially helpful.

Afzelius' discussion covers the use of new techniques such as phase contrast, ultraviolet light, polarization, interference, and electron microscopy. The use of these aids is just beginning and in time will contribute to the interpretation of the minute details of pollen-wall structure. A few of the species already studied by electron microscopy of ultrathin sections show that exine is homogeneous and thus not properly divisible into the sexine and nexine layers.

Pragloiski gives detailed instructions about methods of embedding pollen or spores in methacrylate and of making the modifications of the block and microtome necessary to secure sections of from 0.25 to 0.50 microns in thickness.

It is regrettable that text and illustrations were not published together. The change of the series title from the *Pollen Morphology and Plant Taxonomy* of volume I to that of the present book presents a cataloging problem in that each volume has a separate call number and thus they are not shelved together.

This book will be a major reference volume for palynologists.

CLAIR A. BROWN
Department of Botany,
Louisiana State University

Abortion in the United States. A conference sponsored by the Planned Parenthood Federation of America, Inc., at Arden House and the New York Academy of Medicine. Mary Steichen Calderone, Ed. Hoeber-Harper, New York, 1958. vii + 224 pp. $5.50.

Pregnancy, Birth and Abortion. Paul H. Gebhard, Wardell B. Pomeroy, Clyde E. Martin, and Cornelia V. Christenson. Hoeber-Harper, New York, 1958. xiii + 282 pp. Illus. $6.

One of the most important medicolegal and sociological problems in human eugenics today is induced or criminal abortion. Although the medical profession has been long aware of the magnitude of this problem, it has not been apparent to the general public. Little knowledge has been available concerning the frequency of the procedure in single and married women; its impact on the individual, the family and society; or the basic reasons for seeking an abortion. Such basic information is of paramount importance in the development of rational measures to combat this undesirable practice.

Two very informative books on this subject have just been published, and together they provide a wealth of data on the abortion problem. The first book, *Abortion in the United States,* is the report of a conference on abortion sponsored by the Planned Parenthood Federation of America. The late Alfred Kinsey, a member of a panel at this conference, was motivated to initiate the second study, *Pregnancy, Birth and Abortion.*

Abortion in the United States is a report of a conference on the problem of induced abortion—criminal and therapeutic. The 38 participants included physicians, sociologists, psychologists, religious leaders, and other interested individuals. At the present time there are no laws which control the practice of illegal abortions. The woman who resorts to pregnancy termination is often emotionally disturbed. Family, social, and economic factors may enter into the causation of the pregnancy and its undesirable end. Induced abortions may be traumatic experiences for the individuals involved and do not solve underlying basic problems. Induced abortions grossly estimated at more than one million per year are not in the medical, social, and public interest, and steps should be taken to reduce the incidence appreciably.

The members of the panel suggested the following five steps to reduce the frequency of induced abortion:

1) Medical, psychological, and social studies of women seeking abortions should be sponsored by governmental and private agencies.

2) Consultation centers for women seeking abortions, such as are found in Scandinavian countries, should be established; the main function of these would be to help women realize that abortion is not the only solution to the problem.

3) Facilities for obtaining contraceptive advice under medical supervision should be improved, although it has not been definitely established that availability of contraceptive advice will decrease the number of induced abortions.

4) There should be early, continued, realistic sex education.

5) There should be a joint effort on the part of all bodies concerned to study present-day abortion laws of the various states and frame a practical, workable statute which could be adopted on a nationwide basis.

Pregnancy, Birth and Abortion is the third volume published by the Institute of Sex Research. The authors have analyzed pregnancy out of wedlock and induced abortion from all aspects, utilizing coded interviews with 7074 women, of whom 1209 were prison inmates. The book is concerned with conceptions among unmarried females and the prevalence of induced illegal abortions among married and unmarried women in this country. It is noteworthy that 75 percent of married women experience a live birth, 25 percent experience one or more spontaneous abortions, and 25 percent admit to one or more induced abortions. The total number of abortions in married women is greater than in the unmarried, although fewer married women have induced abortions. The incidence of abortion in married women decreases as the level of their education is raised. Ten percent of unmarried women experience pregnancy by age 30, and 89 percent of these pregnancies are terminated by abortion. The incidence of abortion in previously married women is 79 percent. The average woman regards the divorcee as a sexual competitor.

The age of the woman at the time of her marriage, the decade in which she was born, and the intensity of her religious faith were studied. Methods of inducing abortion as well as the prevailing cost were investigated. Surprisingly, the ill effects of abortion were found to be few, and the procedure did not interfere with sexual enjoyment or the possibility of marriage.

The volume contains an abundance of factual material of great interest to the physician, the sociologist, the psychologist, and others interested in an important problem.

M. EDWARD DAVIS
Department of Obstetrics and
Gynecology, University of Chicago

Quantitative Inorganic Analysis. G. Charlot and Denise Bézier. Translated by R. C. Murray. Methuen, London; Wiley, New York, ed. 3, 1957. x + 691 pp. Illus. $15.

This text is a faithful translation of the original French version published in 1955, even to the reproduction of the figures and tables. By a more condensed printing, the number of pages has been reduced by about 130. The chapter numbers in part II have been deleted.

Part I, comprising 33 chapters which take up half the book, deals with the various types of analytical chemical operations, such as acidimetry, oxidimetry, titrimetry, precipitation and separation by precipitation, chromatography and ion-exchange, separation by distillation, determination by means of different solvents, extraction, gravimetric methods, instrumental analysis, spectrophotometry, colorimetry, spectrography, electrometric analysis, polarography, potentiometric analysis, coulometry, methods utilizing radioactivity, determination of trace elements, methods of effecting solution of samples, and gas analysis, as well as discussions of precision of measurement and statistical methods. In this new edition the principal instrumental methods—absorption spectrophotometric and electrochemical—have been treated fully.