

speculation with reasoned conclusion. The discussions and presentation are clear, but some of the descriptions of analysis techniques are too cursory, and careful reading is needed to determine exactly how they were applied and the assumptions made.

The records for Jamaica have the great advantage of fair accuracy but, in many respects, they are very limited. In particular, there is little break-down of the number of births and child deaths by the characteristics of the parents. Thus no close study of differentials in fertility and mortality—the most satisfactory approach in the search for causes—is possible. This is a serious restriction, notably in connexion with the complex pattern of mating which involves 'keeper' unions and consensual and legal marriages; here differentials can only be guessed at by indirect means. It seems possible, then, that the weaknesses of the basic material will greatly reduce in scope the studies of further aspects of Jamaican demography. Some small-scale sample surveys of the mating and reproductive histories of women would surely give results of enormous value in this area.

W. BRASS

## A BROAD VIEW OF ECOLOGY

### Agricultural Ecology

By Prof. Girolamo Azzi. Pp. xv+424. (London: Constable and Co., Ltd., 1956.) 45s.

**T**HE ecology of agricultural crops is a subject which is well worked and yet little known. There is a mass of undigested information about an enormous range of crops. In fact, much more is available than for wild plants, which are the plants with which ecologists usually deal. For this reason, a new book is very welcome, especially so since it is written by someone who has been intimately connected with the subject for thirty-five years.

With such a wide field it would be possible to write a safe, factual, rather prosaic book. However, Prof. Azzi has preferred to write differently. "Agricultural Ecology" is a book of imaginative ideas, around which is woven a considerable amount of information, most of which has not been available in English before. While to some Prof. Azzi's treatment may be annoying, it is both stimulating and provoking, and sorts out some of the tangle of factors affecting the growth of plants in the field.

The author begins with climate. Looking at it from the point of view of the plant, he shows very clearly the division of the growth of plants into periods. As the plant passes from one period to another, so its climatic needs—cold, heat, water, etc.—vary. In each period a different factor is critical and may be limiting to growth and final yield. A mass of data is given for a considerable variety of crops, both tropical and temperate, and it includes critical estimates of crop needs in each period. Of particular interest are the figures for rainfall need and the passing references to the critical factors concerned in such things as different as wheat rust and cotton boll weevil.

With the help of the critical factor concept, the normal maps of climatic factors are converted into maps of crop physiographic zones, and polygon figures combining factors together are used for representing crop climatic ranges diagrammatically.

Soil is treated in the same cavalier but provoking fashion. Soils are classified on the basis of an index

derived from chemical content, water balance and workability, and not on a more classical pedological basis. As a result, it is possible to correlate productivity with soil characteristics.

The last part of the book is concerned with the yield of the plant as such, and its relation to specific ecological factors. Quality is linked to quantity, and seed quality and the effects of vernalization are not forgotten. Out of it all Prof. Azzi develops a general concept of the inter-relations of velocity of growth, size and structure of crop plants, and again he is able to relate it to productivity.

Here then is a curious book, both delightful and infuriating. The publishers say that it is the definitive text-book in agricultural ecology. I cannot agree with them. In one romantic sweep, Prof. Azzi has turned inside out every conceivable aspect of the growth of plants. He has thrown on one side almost every traditional approach, omits almost completely references to work published in English, and makes no use of statistics. Many will think his ideas are not so proper as classical ones. Yet perhaps they are nearer to fundamentals. It is remarkable but true that we still know very little about crop yields and that most of us are content to accept variations in yield as we find them or to explain them piecemeal in terms of individual factors. Prof. Azzi is not. Perhaps his book will stimulate others to enter this field and to continue his good work.

A. D. BRADSHAW

## WOMEN GRADUATES

### Wives Who Went to College

By Judith Hubback. Pp. viii+164. (London: William Heinemann, Ltd., 1957.) 12s. 6d. net.

**W**OMEN who have had a university education want to use their capacities to the full and to make a contribution to society. How can they combine this with marriage and motherhood? Mrs. Judith Hubback, herself a graduate mother, tried to find this out by sending out, in 1953, a questionnaire to 2,000 married women graduates (of whom 58 per cent replied) asking about their types of training, marital status, domestic and social circumstances, number of children, incomes, professional careers and their state of overtiredness or satisfaction. She wanted facts to refute prejudice and to establish whether these women were actually mis-employed, what types of part-time work they followed and what form of education really intelligent girls should be given. As a control, 420 non-graduate wives with a similar social background were asked the same questions.

The first account of this research, financed partly by the Leche Charity, appeared as a Political and Economic Planning broadsheet entitled "Graduate Wives". The present book analyses the answers and discusses the issues raised. It is found that the marriage-rate for women graduates is almost up to the normal, that they tend to be more fertile than average, that it takes some fifteen years before the last child is at school, that circumstances during the period of raising children give little opportunity for systematic intellectual pursuits or for an outside career, but that part-time teaching is the career most easily combined with family life, although many other paid or voluntary occupations are followed by some of the sample. At the time of the survey 64 per cent are at home full-time, but a large proportion of the graduates intend to follow a career later, in