

page 35 the formula for the number of morphological subunits is given as $10x(n-1)^2$ and not $10x(n-1)^2+2$, which fortunately appears correctly on the next page; some tables contain errors of fact and some appear without being mentioned in the text.

The book is written in an easy and eminently readable style, and is illustrated by many fine electron micrographs of virus particles.
J. H. SUBAK-SHARPE

CHEMOTHERAPY OF CANCER

New Vistas of Chemotherapy of Cancer

By S. B. Ullman. (S. B. Ullman, 577 Glencairn Avenue, Toronto, 1967.) n.p.

CANCER research, like politics, is replete with unfulfilled promise, open to conflicting opinions and attracts those who would hold out new vistas. Most of those who believe themselves chosen to lead unseeing research workers to new visions of cancer causation or cure lose their enthusiasm with the passing of time. Not so S. B. Ullman. Unfortunately, however, his new vistas are more apparent to him than to his readers.

In this privately printed pamphlet, Ullman criticizes the screening methods and the results obtained by the United States Cancer Chemotherapy National Service Center, but adds nothing himself to the discussion which has gone on for at least two decades on the best way to undertake this form of screening. Nevertheless his criticisms of antitumour screening are not wholly without foundation. A plant extract he submitted to the CCNSC came back with negative results, and Ullman feels somewhat aggrieved by this because he had earlier found it to possess some activity.

Criticism of the CCNSC is not however confined to the disappointed, but has also come from more substantial quarters. There have been raised intellectual eyebrows because of the empirical methods, impatience with the rate of progress and doubts about the value of the results. On the other hand, there has been uncritical acceptance of the results. Neither of these attitudes is completely justified.

The conception of the CCNSC was a courageously determined and generous act; so, to an overwhelming degree, is its execution. If it had done nothing else than set up standards for screening it would have done a tremendous service; as it is the CCNSC, by testing tens of thousands of compounds in roughly comparable tests, has provided a unique international contribution to scientific endeavour on a scale unprecedented in cancer research.

Wide screening (that is, on a large variety of tumours), which Ullman seems to think will provide better answers, of substances selected for good theoretical reasons might be preferable to empirical selection and testing, but if the theoretical grounds on which such substances were made are subsequently discovered to be without foundation or even wrong, as is so often the case, then there is nothing in scientific logic to distinguish them from those substances made and tested for empirical reasons.

Like politics also, cancer research suffers from a severe shortage of ideas. Yesterday cancer in man was caused by infective organisms, now sought in viruses; today it is a failure of the immunological mechanism; the conviction and the converted are there, only the evidence is missing.

Ullman is not worried by all this; he suggests as another "new vista" the administration of one drug after another to the miserable patient. The difficulties of assessing unequivocally the effectiveness of one antitumour agent against one type of cancer in patients do not deter him. These heroic measures are reminiscent of some operations for malignant melanomas, but ultimately even heroic measures may be justified provided they are successful. Ullman does not, however, tell us anything about his results. The pamphlet is full of errors, too numerous to mention.

K. HELLMANN

HANDBOOK FOR IBP AREAS

Guide to the Check Sheet for IBP Areas

Compiled by G. F. Peterken. Including a Classification of Vegetation for General Purposes by F. R. Fosberg. (IBP Handbook No. 4.) Pp. x+133. (Blackwell Scientific Publications: Oxford and Edinburgh, 1967. Published for the International Biological Programme.) 15s.

THE International Biological Programme aims to stimulate research into the biological basis of production and its implications for human welfare. In order to do this certain basic information on the world's biological resources must be available, so that research may be concentrated on the most significant problems and its results extrapolated with reasonable reliability. IBP is publishing a series of methodological handbooks to provide a standardized framework of reference for information basic to its aims. This, the fourth in the series, is a guide for gathering required information on IBP Areas; that is, those areas at present regarded by IBP and other international conservation agencies as adequately conserved, and also those representative areas of the principal ecosystems, and others deemed of outstanding biological interest, in each country that is in need of conservation.

The problems of defining individual ecosystems are insuperable without simplification. The compiler legitimately argues that this is best done by providing a classification of the terrestrial plant communities, and subsequently relating them to animal communities and human influences. F. R. Fosberg has devised a consistent logical classification of world vegetation to the level of Tansley's formation, based solely on criteria of the vegetation itself, arranged in the form of a key. Classification of such a diverse and multivariate phenomenon as vegetation necessitates compromise and intermediate forms are bound to be frequent; this does not detract from its usefulness, which will be as much to standardize description as to pigeonhole individual ecosystems.

The main part of the book describes the methods for completing a check sheet, devised by the Conservation of Terrestrial Communities Section of IBP, for recording the characteristics, history, dynamics, distribution, and present conservation status of IBP Areas. The four sections outline the aims of IBP and the survey, criteria for selecting IBP Areas, the theoretical basis on which the check sheet has been constructed, and a succinct guide for its completion; appendices include technical information on classification of plant formations and soils, notes on Gould's geocode, and a sample check sheet completed. The book is clearly divided and arranged and consequently easy to use. The definitions are concise and unambiguous. The check sheet was tested before final publication under diverse conditions, and I have used both book and check sheet in tropical rain forest and temperate grassland and heath with satisfactory results.

Peterken's handbook admirably accomplishes what it has set out to do; it provides, besides, the first attempt of its kind and thus has considerable theoretical interest.

P. S. ASHTON

STATISTICS IN FORESTRY

Forest Biometrics

By Michail Prodan. Translated by Sabine H. Gardiner. Pp. xi+447. (Pergamon: Oxford, London and New York, 1968.) 150s.

SINCE 1961, when Prodan published his *Forstliche Biometrie*, an English translation has been awaited. This has now been expertly done by Sabine Gardiner.

The book consists of twenty-five chapters covering a wide field of statistics including distribution theory and use, analysis of variance, sampling and survey, experi-