

## Book Reviews

### *Chromosomal Aberrations: Basic and Applied Aspects.*

Edited by G. OBE and A. T. NATARAJAN. Berlin, Heidelberg: Springer-Verlag. 1990. 319 pages, 100 Figures. Price DM 198. ISBN 3 540 52540 8.

The volume comprises the text of 27 full papers presented at a meeting in Essen, and is dedicated to Professor R. Rieger on the occasion of his 60th birthday in recognition of his outstanding contributions to cytogenetics. A wide variety of problems of current interest are covered by the authors, all of whom are internationally recognised and actively engaged in the fields they present.

The first six papers reflect the increasing awareness that chromosomes within the interphase nucleus are not 'isolated threads whose broken ends wander around looking for partners' but are integrated within an intranuclear architecture which conditions, together with the various protein systems, like topoisomerases, the formation of structure changes. Inevitably, the nature of the basic lesions which lead to aberrations is discussed, the importance (though not the exclusivity) of the double strand break is stressed and three papers (nos. 7–9) survey the evidence derived from the actions of restriction endonucleases when introduced into nuclei.

The next four papers (nos. 10–13) look at some aspects of aberrations in relation to cancer and to the inherited Chromosome Instability syndromes, all of which have a bearing upon the way the cell deals with potential aberration lesions.

Ionizing radiation has been and continues to be an important and potent clastogen both experimentally and environmentally. Recent events have highlighted the possible importance of very low doses and dose-rates, and papers 14–17 look at the 'adaptive response', the protective effect found in some cell systems when a very small priming dose (~ 1 cGy) is given some hours before a much larger (0.7–1.5 Gy) challenge dose. Effects of bomb radiations at high and low levels are dealt with in papers 18 and 19.

Chromosome aberrations (and their subsequent product – micronuclei) have assumed considerable importance in recent years as a means of biological dosimetry in the case of radiation accidents and also for screening potentially mutagenic and carcinogenic compounds. These topics form the subjects for the concluding papers (20–27) with a timely reminder that quantitative results can be warped by extreme culture conditions (26) and by the life-style and genetic make-up of the cell source (27).

There is much in this volume that will be of interest to all concerned with clastogenicity. The papers are mostly short, very readable and with good collections of relevant references. There is a very detailed subject index at the end that I found most helpful. The editors have done an excellent job, not only in arranging the material in logical fashion but in producing the book within memory of the conference.

J. R. K. SAVAGE  
MRC Radiobiology Unit,  
Chilton, Didcot, Oxon OX11 0RD

*Genetic Conservation of Domestic Livestock.* Edited by LAWRENCE ALDERSON. Wallingford, Oxford: CAB International. 1990. 242 pages. Price £25.00. ISBN 0 85198 669 2.

The deliberate conservation of breeds of farm livestock is a recent but expanding business, following on the much more extensive and systematic efforts that have been made to maintain diverse varieties of plants. The reasons for conserving livestock variety have been extensively aired; the following summary by Rudge in this volume will suffice: '1. Genetic insurance – we never know what might be needed in future. 2. Scientific study – mechanisms of evolution/selection, behaviour, physiology. 3. Practical use – present applications to husbandry and markets. 4. Sentiment – history, culture and public interest'. Whilst those in the business often argue that the first three of these are the main justifications for effort and expenditure, I suspect the real motivation for most people is the last. That is nothing for them to be ashamed of, unless they have used arguments other than sentiment to obtain funding.

The possible economic benefits may well be greater in developing regions where stock performance is not as well documented as in those countries with more advanced agricultures and better explored alternative breeds and strains. Thus FAO expends substantial resources on conservation and evaluation of germ plasm resources, primarily in the developing world. Rates of genetic improvement are sufficiently high and are continuing without apparent plateaux in commercial livestock, certainly poultry, pigs and dairy cows, that conserved breeds maintained without improvement are increasingly less likely ever to contribute useful genes. It becomes better to change direction than start again. Thus in my view, the only reason for conservation of livestock in developed