sazan and hiru (will our own Professor Sazan be connected with the Southern blot invention when he travels in Japan?, and will Hill be recognized as hiru?) Cake is translated as Kuchen in German and keeku in Japanese, and this will interest those who either have a sweet tooth or are interested in Belebtschlamm alias yojou-kasseiodei, in other words activated sewage sludge. Or, a last example, the English word Tea is cha in Japanese, which clearly explains both the colloquial English phrase 'a cuppa cha' and also the equally English word charlady for the original tea-maker to Gentlemen in the British East India days, now a visiting house-cleaner who likes to have the tea made for her by the lady of the house.

Nothing I have written above should be taken as a criticism of this dictionary. It contains a very broad and comprehensive selection of terms relevant and possibly relevant to biotechnology, and should be of considerable value to Japanese, German and British speakers who want to understand each other's scientific literature. A non-technical translator from one to another of these languages should certainly find it invaluable in producing a meaningful translation. The interest in comparing words or phrases in the three languages will be an added bonus to the curious. The price, about £100 sterling, is high by our standards, but not perhaps excessive for a unique volume of 1350 pages. It should find its way into the libraries of the better-off biotechnology firms with the right international research interests, and into major scientific libraries. I should add that, if Japanese texts were written in roma-ji, it would make the task of non-speakers of Japanese very much easier, since this book does not help one to read Japanese print in its normal script.

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Differentiation of Protoplasts and of Transformed Plant Cells. Edited by J. REINERT and H. BINDING. Vol. 12 in the series: Results and Problems in Cell Differentiation (Editors W. Hennig, Nijmegen and J. Reinert). Berlin: Springer-Verlag. 1986. 157 pages. DM 98. ISBN 3 540 16539 8.

The editors of this volume made a commendable attempt to provide a title which draws together its disjointed contents. Three of the four chapters are concerned with protoplast isolation, fusion and differentiation. The final chapter is only very loosely related to the others, and deals with molecular aspects of genetic transformation by *Agrobacterium* and by cauliflower mosaic virus. It is true that both parts of the book describe different ways of creating new plant genotypes, but there are other approaches to plant genetic manipulation which are not reviewed, and so its contents are not easily justified in those terms.

The first chapter is a review of the Isolation and Regeneration of Protoplasts from Higher Plants, and was contributed by Drs Maheshwari, Gill, Maheshwari and Gharyal of the University of Delhi, India. It summarizes much research on isolation and culture methods, and factors affecting cell division and differentiation. In excess of 200 references are cited and many are tabulated, so that those relating to specific plant species are easily found. This comprehensive survey of the literature is potentially very useful to newcomers to the field. The second and third chapters were written by Drs Binding, Krumbiegel-Schroeren and Nehls, the topics being Protoplast Fusion and the Development of Fusants. The subdivision of this material into two chapters is justified by the depth to which this subject is treated. As with the first chapter, many references and summaries of the literature make these chapters valuable sources of information. The single bibliography which serves chapters 2 and 3 contains more than 300 references. These first three chapters are more than literature surveys, however. Any scientist contemplating embarking on a research programme which aims to exploit protoplast isolation and fusion would learn much from reading these chapters. One doubts that there will be many such scientists, though, given the limited applications to which protoplast fusion can be put. It is unfortunate that at the time that this book was conceived and assembled, DNA-mediated transformation of protoplasts was in its infancy, and so was not included as a distinct section of the book. Such an inclusion would have made the volume much more attractive, since this is one area where protoplast technology is of growing importance.

The final chapter on the Molecular Biology of Plant Cell Transformation was contributed by N. S. Yadav of E. I. du Pont de Nemours and Company. The bulk of this chapter is given over to a detailed account of the molecular biology of crown gall disease. A smaller proportion is concerned with the use of T_i plasmid and cauliflower mosaic virus as gene vectors. As with the earlier chapters, this one is well served with references, but none is later than 1985. The problem of publishing reviews in rapidly developing areas is that they are out of date almost as soon as they are published, and this one is no exception. To its credit, the review of crown gall disease is very good, although one could find similar reviews in other books and journals.

Those people who buy this book are likely to do so for the content of the first three chapters, which provide a detailed source of information. At just over one hundred pages, though, this information comes expensive.

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