Book Reviews

Pigment Cell, Vol II Primary and Secondary Prevention of Malignant Melanoma
Edited by Rona M MacKie, Basle: Karger, 1996, 130pp, $158.25, ISBN 3 8055 6273 X.

The editor of the book emphasizes in the Preface that the incidence of malignant melanoma continues to increase steadily, in spite of campaigns aimed at prevention of malignant melanoma, encouraging sensible sun exposure and preventing deaths from malignant melanoma by early diagnosis and prompt treatment. This book does not address the biology of the malignant melanocyte or the problems of its histopathological diagnosis or the margins of excision by the surgeon. As indicated by the title, it is about prevention, and mostly it is about campaigns to persuade people not to get sunburnt. There are seven chapters, three of which are from Australia and one from New Zealand. Another is from the United States, and there are two from the UK.

The first chapter by David Hill and Ron Borland is about methodological issues in research on primary and secondary prevention of malignant melanoma. It is from the Centre for Behaviour Research in Cancer, and it introduces the measurement of human behaviour. All the other chapters tend to cover some of the same ground from the perspectives of the different countries. As one might expect from papers on the subject of human behaviour, they are discursive and use some of the language of sociology and education.

As a review of how to persuade people not to indulge in a habit that is bad for them, they have messages of value for all aspects of health education. They are illustrated by the various posters that have been used, particularly in Australia, to persuade people not to go out in the sun.

The chapters are well written by world experts, such as Rona MacKie of Glasgow, William McCarthy of Sydney and Robin Marks of Melbourne. The references are generous and the discussions of methods and evaluation cover a wide range of facts, explaining terms such as external or internal validity, outcome variables, controls and randomization, questionnaires, reliability and validity. Overall, it is an enjoyable insight into how human beings behave in the sun.

TJ Ryan

Carcinogens and Anticarcinogens in the Human Diet: a Comparison of Naturally Occurring and Synthetic Substances
Committee on Comparative Toxicity of Naturally Occurring Carcinogens, Washington, DC: National Academy Press, 1996, 417pp, C36.95, ISBN 0 309 05391 9.

In our quest for essential nutrients, we are often unaware of the enormity of numbers of other chemical constituents of food. In plants used for food alone at least 12 200 natural chemicals have been identified, and the actual number is far greater. They include colours and flavours as insect attractants and many are produced by the plant as defensive systems against predators, for example glucosinolates and the isoflavones, which are natural fungicides. Having limited excretory systems, plants accumulate variable amounts of these compounds, sometimes stress related, so that predicting human intake in epidemiological studies becomes a difficult exercise.

Nevertheless, many of these chemicals are known to be physiologically active in man, and there is much current interest in their ability to protect against cancer. Can the polyphenols in tea, apples, wine and an enormous variety of foods act as antioxidants, thus preventing oxidative damage, thought to be an important cause of cancer? Do glucosinolates and other sulphur-containing compounds found in onions and brassica vegetables such as broccoli and watercress speed up the detoxification and elimination from the body of carcinogens? Are other compounds such as the isoflavones found in soya, which are known to affect hormonal status in women, responsible for protecting against hormone-related cancers such as breast cancer? Is the wide spectrum of other carotenoids, apart from β-carotene (now shown from intervention trials to be largely ineffective if not harmful in cancer prevention), responsible for the consistent finding that people who eat more vegetables are at lower risk of cancer?

On the downside, however, some of these chemicals have been shown in animal toxicity tests to be carcinogens in themselves, or to enhance the effect of known carcinogens. Caffeic acid is widespread in plants and significant concentrations can be found in apples, pears, peaches and lettuce. In large doses, the isolated chemical induces tumours in rodents and has been classified as possibly carcinogenic to humans. Aflatoxin, often found on grains, nuts and seeds, is a known carcinogen for humans. Black pepper, bracken fern and some edible mushrooms have also been found to be carcinogenic to laboratory animals.

However, in the public's mind, it is the synthetic chemical contaminants, fertilizers, food additives and pesticides present in foods that are associated with risk of cancer. Doll and Peto attributed only some 3% cancer mortality to these in western countries, compared with a likely estimate of 35% from other aspects such as too few plant polysaccharides (starch and fibre) and too much fat, meat and energy. In fact, Bruce Ames has argued that, as a similar proportion of both natural and synthetic chemicals test positive in carcinogenicity tests, and as exposure to synthetic chemicals in much better documented than exposure to natural ones, the cancer risk from natural chemicals might be greater than the risk from synthetics. This suggestion was a primary impetus for a formal investigation, the results of which are published in this report.

The report discusses methods for evaluating chemical carcinogenesis, including epidemiology, screening tests in model systems and rodent carcinogenicity assays, and there is a large section on risk comparisons. Not unexpectedly, the main conclusion of the report was that, although the Ames' hypothesis might be correct,