proceedings, in not being up-to-date. There are almost no references to papers later than 1990, except for some self-citations which extend to 1991. In addition to well-known major contributors to the field of metastasis, research participants were also drawn from laboratories in Continental Europe, which are not frequently represented at Symposia of this type.

Some of the papers are general overviews, while others report the Authors own studies in detail. On the whole the various contributions are rather disparate, but occasionally authors contrast a related phenomenon. An example is the role of the CD-44, a transmembrane protein involved in lymphocyte transport, for which the group of Herrlich (Karlsruhe, Germany) have obtained convincing evidence of a role in metastasis. On the other hand, I.R. Hart (London, UK) described studies involving a panel of melanoma cells in which no evidence for a direct involvement of CD-44 in metastasis was found.

The subject matter is divided into the following sections:
(1) Concepts, Genetic Aspects and Models
(2) Molecular Mechanisms and Modulation of Invasion and Metastasis
(3) Growth Factors, Angiogenesis, Microvasculature and Metastasis
(4) Aspects of Metastatic Melanoma
(5) Immunological Aspects and Therapeutic Approaches
(6) New Methods in Radiological Diagnosis, Therapy Planning and Therapy of Metastasis

The first section has papers dealing with the role of ras oncogenes and bladder carcinoma and the initial steps in cancer dissemination of rat bladder carcinoma. These raise questions without providing any answers.

The second section is concerned principally with cell adhesion and highlights complexity and conflicting results.

In the third section the discussion of angiogenesis is disappointing and work is reported from investigators who are not prominent in the area. There is, however, a very valuable chapter from L. Weiss (Buffalo, New York). He analyses, in detail, a mechanism for the destruction of cancer cells in the microvasculature based on deformation. Weiss' data for the destruction of cancer cells when trapped in capillaries has long been a key observation in the field of blood-borne metastatic spread. It leads to the concept of metastatic inefficiency which is so evident when the relative infrequency of metastatic dissemination is compared with the number of cancer cells shed into the circulation. Weiss' suggestion as to how this destruction occurs is compelling and he provides most interesting new data which indicates that treatment of cells with doxorubicin increases biomechanical destruction. In the section on melanoma there are two rather unconvincing contributions on metastasis-associated surface molecules, in addition to the critical analysis of the role of CD-44 to which reference has already been made.

The last two sections contain a mixture of topics and on the whole are of little interest. Immunotherapy with autologous tumour 'vaccines' are reported by investigators from Pittsburgh and Heidelberg with claims of benefits being made on the basis of episodic observations. There is a sense of deja vu as the investigators do not appear to have taken account of past studies in which claims based on isolated cases failed to be substantiated in properly controlled trials.

The last section contains reports on the use of radio-labelled monoclonal antibodies for diagnosis and therapy. The conclusions do not differ from those which have previously been reported, namely, that expectations greatly exceed actual performance. However, the paper from Weisleder (Harvard Medical School, USA) appears to open a new field; the use of contrast agents for magnetic resonance imaging of liver metastasis by receptor targeting of iron in the liver via the asialoglycoprotein receptor.

The usefulness and value of this volume is limited, but it probably deserves a place in the libraries of larger Cancer Research Institutes.

Atlas of Tumor Pathology - Tumors of the Cervix, Vagina, and Vulva
R.J. Kurman, H.J. Norris & E. Wilkinson Washington DC: Armed Forces Institute of Pathology, 1992, 262pp.

Over the years since its inception in 1947, the Atlas of Tumor Pathology (known colloquially as 'the Fascicles') has established a well-deserved reputation for authoritative and practical coverage of the surgical pathology of tumours, and has been influential in promoting the standardisation of tumour nomenclature. The latest addition to the Third Series, on tumours of cervix, vagina and vulva, will undoubtedly find its way onto the bookshelves of countless diagnostic pathologists worldwide, and rightly so. As well as being a comprehensive guide to the histological diagnosis of neoplasms and tumour-like lesions, the Fascicles have developed into monographs promoting consistent terminology, and providing relevant information on histogenesis, pathogenesis and clinico-pathological features of lesions. The Fascicles are published at virtually cost price, and this ensures widespread accessibility. There is a great deal of information distilled into a relatively slim volume of 262 pages, and although continuing to serve as a practical bench guide for the busy diagnostic pathologist, the text of this Fascicle is well written and easy to read at more leisure. As we have come to expect, the illustrations (almost all black and white) are of excellent quality throughout, and the references are well chosen and up-to-date.

The first chapters cover embryology and anatomy of the lower female genital tract, followed by a review of Human Papillomaviruses, the latter incorporating a brief but useful section on their molecular biology and association with neoplasia. The rest of the book is devoted to a systematic and very comprehensive coverage of the great variety of tumours and tumour-like conditions to which these sites are susceptible. The section on cervical intraepithelial neoplasia (CIN) is well illustrated, and the text is clear and succinct, but not all pathologists will be comfortable with the classification of CIN (influenced by the Bethesda System) into low grade and high grade lesions. The low grade category combines CIN1 with atypia of condylomatous and koilocytic types, and is often associated with infection by the 'low-risk' HPV types, but it carries the potentially risky implication that the lesion is unlikely to progress and does not require treatment.

The chapters devoted to the heart of the book - systematic consideration of individual tumours of cervix, vagina and vulva are admirable, and give an excellent blend of practical diagnostic description and clinico-pathological information. I can whole-heartedly recommend this Fascicle to all surgical pathologists - it contains well illustrated descriptions of all the tumours which most of us are ever likely to encounter - plus a few more! It will also be useful to others in the field of oncology who need accurate and up-to-date information on histological and clinico-pathological features of tumours of the lower female genital tract.

A.R.W. Williams

Protein Kinase C
Edited by D.S. Lester & R.M. Epand, Chichester: Ellis Horwood, 1992, 365 pp. £59.00.

The discovery of the enzyme protein kinase C (PKC) in the late seventies and the finding that it is the receptor for phorbol ester tumour promoters and at the heart of processes mediating cellular proliferation and differentiation has led to the publication of several thousand papers on this enzyme during the last decade. In the case of a research areas as expansive and at times confusing as that associated with PKC it is beneficial to find editors and authors who are prepared to review the field with the intent to integrate existing evidence and to render it more easily digestible. David D. Lester and Richard M. Epand have undertaken the formidable task to do just that by editing a book which aims
Membrane biophysical phenomena play an important role in the understanding of PKC and its activation. PKC activation is a general process that is linked to the signal transduction pathway through the activation of various membrane phospholipids initiated by the action of phospholipases C, A2, and D. Furthermore, PKC is an amphipathic protein, that is a protein, which can exist in both soluble and particulate (membrane-bound) forms, and it is the membrane-bound species which is generally regarded as the physiologically active enzyme. One of the striking features of membrane-associated PKC is that its distribution varies as part of the signal-regulated receptors involved in signal transduction. The amount of PKC associated with the membrane in cells can be as low as 5% of total PKC, as found in neutrophils, or as high as 88%, as found in certain transformed cells. In view of these facts it is not surprising that four chapters, which constitute the major portion of part 1 of the book, are devoted to PKC interactions with membranes. J. Shah and G.G. Shipley discuss the relationship between PKC structure and function, while D.S. Lester describes membrane-associated PKC, R.M. Epand outlines effects of PKC modulators on membrane properties, and M. Mosior and S. McLaughlin explain how electrostatics and dimensionality can produce apparent cooperativity when the PKC protein and its substrates bind to membranes. The latter chapter, even though informative, is probably the least directly relevant to scientists interested in PKC function. Most of these reviews provide useful and pertinent information. For example Epand highlights the surprising consequence of the fact that the activity of membrane-bound PKC can be regulated effectively by substances that do not bind to the enzyme with high affinity. This is because the volume of the membrane is small. Most PKC modulators are very lipophilic molecules which partition completely into the membrane phase and are thus concentrated in a small volume. For example, a modulator which is added to an aqueous suspension of 10 μg ml⁻¹ membrane produces a concentration of 100 mM on complete partitioning into the membrane. This effect renders comparison of the potency of activators and inhibitors of PKC in different assays rather difficult.

Part 2 of the book comprises five chapters on studies of biological consequences of PKC function. H. Rasmussen, R.A. Calle, S. Ganesan, J.F. Smallwood, D.C. Throckmorton, and W.S. Zawalitch consider the role of PKC in sustained cellular responses, especially the spatial and temporal features of the events associated with sustained cellular responses. They also review the interaction between the signalling systems involving PKC and present a useful summary of the methods by which cellular PKC function can be studied. S. Jaken describes interactions of PKC isoenzymes with intracellular components. She points out that differences in subcellular location of PKC isoenzymes may provide a selective means for regulating accessibility to substrates which will not be apparent in in vitro assays. Immunocytofluorescence studies have shown that PKC isoenzymes are often linked to certain components of the cytoskeleton and the cell nucleus. The role of nuclear PKC is currently the topic of much debate. Increased expression of immediate early response genes occurs rapidly on PKC activation in many cell types, and it is conceivable that PKC in the nucleus is required for the regulation of nuclear events pivotal for growth and differentiation.

The function of PKC substrates is only poorly understood. The best known PKC substrate is a protein called MARCKS, which is an acronym for myristoylated alanine-rich C kinase substrate. In a chapter on 'the MARCKS protein: a PKC substrate which regulates cytoskeletal membrane interactions' by A. Aderem and J.T. Seykora the properties of this ubiquitous protein are introduced, and evidence is discussed which suggests that it cycles reversibly between the plasma membrane and the cytosol in a phosphorylation-dependent manner. Actin seems to be the cytoskeletal component of particular importance for the phosphorylation-sensitive binding of the MARCKS protein.

Second messenger pathways linked to PKC influence the properties of ion channels and thus the firing patterns of neurons. These pathways are reviewed in a chapter by L.K. Kaczmarek. Probably the most interesting chapter of the book for the readers of this journal is the last one by C. Borner and D. Fabbro on PKC and cellular transformation. They integrate many of the findings outlined in the preceding chapters in an attempt to conceptualise the role of PKC subtypes in the regulation of cell proliferation and intracellular communication. The action of PKC has to be seen as a major stimulus to a cascade of protein kinases which converges ultimately on the activity of a nuclear serine protein kinase called p34[ccdc]. This enzyme regulates the transition of cells through mitosis by phosphorylation of lamins which are involved in the assembly of nuclear envelope proteins. The authors highlight recent biochemical and genetic approaches aimed at identifying mechanisms by which individual PKC subtypes contribute to cell transformation and intracellular communication. An important point is that an understanding of the role of PKC in normal cell growth requires the consideration of the cellular signalling as a whole and not of its parts in isolation, and that PKC has to be viewed not only as a positive growth effector but also as a negative feedback regulator which prevents overstimulation of cells and hence uncontrolled proliferation. These dual properties endow the PKC enzyme family with a multifunctional physiological role which is
often ignored when PKC is claimed to be able to act as a transforming oncogene.

Overall the chapters are written in a fashion easily understood by biologists, pharmacologists and biochemists and by students in these disciplines. Each chapter is comprehensively referenced. The editors include also a very helpful glossary at the end of the book. If the book has weaknesses, they are those inevitably associated with multi-author collections of reviews on highly topical scientific issues: (i) there is considerable overlap between the different contributions, and (ii) findings published after 1991 are not included, which will make the book rapidly outdated. The urge for speedy publication is probably responsible for an unusually large number of trivial spelling mistakes. However these minor objections are easily outweighed by the usefulness of the overview provided. Nevertheless one has to agree with the conclusion drawn in chapter 10. ‘In spite of a decade of intense effort since the discovery of PKC our knowledge of the cell biology and cellular functions of this ubiquitous family of enzymes is rudimentary.’

A. Gescher

Gastrointestinal Cancer
Edited by S.J. Winawer & R.C. Kurtz, New York: Gower Medical, 1992, 240 pp. $124.50.

This is a multi author book covering the field of ‘luminal GI cancer’. The two editors and five of the other ten authors are drawn from the staff of the Memorial Sloan-Kettering Cancer Center in New York. The six chapters included in this volume cover Oesophageal tumours, Stomach tumours, Colonic polyps, Colorectal cancers, Pancreatic and biliary tract cancers and Endocrine tumours of the GI tract respectively. In line with the editors specific chosen field of luminal cancers no attempt is made to cover the primary liver tumours although the management of hepatic secondaries from the GI tract is covered in the individual chapters.

The volume is well laid out and each chapter follows a clear uniform format covering epidemiology, aetiology, pathology, presentation, diagnosis, treatment and outcome. Where appropriate palliative surgical techniques and methods of pain relief are fully described as in the section on pancreatic cancer. Potentially confusing areas such as the differences between Duke’s original staging of colorectal cancer and the subsequent more commonly used Astler-Coller and Kirklin-Dockerty modifications are clearly and concisely explained. Each chapter is individually referenced with 73 to 222 papers being cited. The references and the content of each chapter are fully up to date including for example the 1990 NIH consensus conference report on adjuvant chemotherapy and post operative radiotherapy for colorectal cancers.

The book is comprehensively illustrated to a very high standard. Histological sections and illustrations of specimens are beautifully photographed and are accompanied by useful explanatory line drawings where necessary. Radiographs, line drawings and the appearance of gross specimens are presented side by side. Schematic diagrams are used extensively to illustrate surgical techniques, lymphatic spread and tumour staging. All are clear and easy to follow as are the well presented tables and graphs.

As would be expected ‘Gastrointestinal Cancer’ coming from the Memorial Sloan-Kettering Cancer Center has a strongly American approach and reflects American practice and experience. British readers will note differences not only in the use of non SI units but also in the screening recommendations and therapeutic approach to some of the tumours described. Chemotherapy and radiotherapy are given greater prominence than would be usual UK practice but the evidence both for and against such approaches is included and well referenced so that the reader will be able to make his or her own judgement of the value of these treatment modalities.

Overall this is a very impressive book. The clear style and illustrations make it a pleasure to read and it will be a welcome addition to the shelves of physicians and surgeons in the field of gastroenterology and a popular volume in medical school libraries.

N.V. Jamieson