R.J.C. Atkinson's interpretation of the sequence of events. For some reason this is printed in a slightly smaller type and the pages are 'boxed', as though they were a supplement to the main text. This is the most useful part of the book to anyone unacquainted with the subject, and it is enhanced by photographs of old excavations and famous archaeologists. The remainder of the book is something of an anti-climax. Balfour describes twelve "local prehistoric sites", but without properly linking them to Stonehenge or to the cultural development of the Neolithic and Early Bronze Ages. Indeed, one site (Old Sarum) is not contemporary with Stonehenge by the best part of a thousand years, and the explanation given for its inclusion is that it is on a ley line joining Stonehenge with Salisbury Cathedral!

Part 6 relates to the recent history of Stonehenge, its changes of ownership, the adverse consequences of its popularity, and controversy over the preservation of the monument. Balfour criticises the Department of the Environment for inept custodianship and puts forward his own proposals for better management of the remains.

In short, this is not a book which will appeal to readers of *Nature*, nor is it one which they would be likely to recommend to their students. It would be appreciated by the interested teenager, and perhaps lead on to more substantial fare. But if you do give it as a Christmas present, don't forget to warn the recipient about page 88.

J. E. Wood

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Nature and genesis of tumours

The Genesis of Cancer: A Study in the History of Ideas. By L. J. Rather. Pp.262. (Johns Hopkins University Press: Baltimore and London, 1979.) £12.25.

THIS book provides a detailed study of the evolution of scientific ideas on the nature and genesis of tumours. The work is not primarily concerned with aetiology in the sense of formal causation, but rather with concepts relating to the actual body components from which tumours are formed, and the factors determining their gross and microscopic structure. The theories and controversies on cancer current during successive phases in the development of biomedical science are passed in review, and in order to deal adequately with ideas of this kind Dr Rather, professor emeritus of pathology at Stanford University School of Medicine, has of necessity had to survey the long history of scientific thought in general from its earliest beginnings in the Greek classical period. Chapters are therefore devoted to humoral theory from the fifth century BC to 1800 and to tissue theory over the same period, and cover such topics as the movement of blood, the role of lymph, the idea of cancer "seeds", the theory of fibre structure of tissues, the birth of the "cellular" theory, the idea of generative membranes, and the germ-layer theory. Each of these subjects is dealt with in minute detail with copious quotations from the writings of the various authors making the original discoveries or contributing to the debates they generated; and as an overall theme, the problems of tumours, tumour structure and tumour growth are slotted in at every stage.

On this broad-ranging yet detailed historical basis some modern ideas are foreshadowed with the flowering of the cell theory following the perfection of the achromatic microscope in the 1830s. This section of the work may be of interest to general scientific and medical readers outside the ranks of specialists in the history of medicine, for here Dr Rather deals in great detail with Schwann's original theories and their reception, with the concept of tissues built of cells defined in the light of Schwann's work, and with the new contributions to cell theory made by Rokitansky and Virchow in the 1850s and 1860s. The last section of the book brings the story closer to the present time by covering the period 1852 to 1900, considering particularly cytogenetic, embryological and "blastemal" theories of tumour cell origin; the great debate on the origin of epithelial tumours, and Virchow's connective tissue theory, are also dealt with at length within the setting of the new cellular pathology. A few paragraphs at the end of the book provide a brief opportunity to place the ideas and developments of the nineteenth century in perspective in relation to modern molecular biology which grew directly from them.

The book is admirably written and provided both with copious notes and a full bibliography; indeed, more than a quarter is devoted to these latter sections which include extensive quotations from the many original sources cited. For the general reader, *The Genesis of Cancer* will perhaps prove excessively specialised, not to say daunting. However, if persevered with, a broad picture of the evolution over many centuries of biological and medical ideas emerges from the fog of minutiae and gives rewarding insights into the way in which our present views on cancer have grown directly from past controversies.

It is perhaps a pity that the disadvantages of a small typeface have been made worse by a tendency to avoid paragraphing, but otherwise the production of the book is good and its presentation attractive. One may perhaps wonder at the spelling of Würzburg as "Wuerzburg" and the description of the Scots as "Scotch", but these are minor cavils. It is also strange that Harvey's great contribution should be dismissed on the grounds that ". . . it is unlikely that he would have made his discovery had he not travelled to Padua for his medical education", when he so obviously indeed chose to travel there for this purpose. In a similar way the contribution of Malpighi likewise fails to receive its due. But apart from these small points, Dr Rather has written a scholarly and useful book which will be of considerable significance for historians of medicine and which may in addition be of interest to medical and scientific readers outside this speciality.

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Physics in a national Canadian laboratory

Physics at the National Research Council of Canada, 1925-52. By W. E. K. Middleton. Pp.238. (Wilfrid Laurier University Press: Waterloo, Canada, 1979.) C$9.

THIS book tells the story of the rapid growth of research in physics in the National Research Council laboratories in Ottawa before 1953. They began in 1929. Like the National Bureau of Standards in the United States and the National Physical Laboratory in the United Kingdom, they became the home of the national physical standards. They engaged in research also for other government departments and for private industry. By 1939 they were the most important centre of scientific research in the country.

Major-General A. G. L. McNaughton, who became the President of the NRC in 1935, early recognised that World War II was inevitable. Before it began in 1939 he had already brought some military problems to the laboratories and a year later their work was almost entirely directed to War-time purposes. It included developments in range finding, aerial survey and recognisance, aerodynamics, radar, ballistic measurement, gauge calibration, aircraft de-icing, military optical instruments, radiography and other testing of aircraft castings and other military supplies, and many other tasks. Most of this was done by the Physics and Engineering Division and the Divisions that evolved from it. The book does not discuss the War-time research at the NRC in other science than physics, such as on high explosives, poisonous gases, refrigeration of meat during overseas

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