doubt whether Wilms' kidney tumor should be still called embryonal adenosarcoma (Birch-Hirschfeld), and whether *cortical* adrenal carcinomata are "relatively frequent" in children. A comparison with the frequency of cancer arising in the tiny medulla of the very same organ (neuroblastoma) shows that they are rather rare and late.

The book has 638 excellent photographic illustrations in black and white, an index of authors and subjects, and, at the end of each chapter, references; it is concisely written and stimulating.

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Perinatal Mortality in New York City: Responsible Factors. A study of 955 deaths by the Subcommittee on Neonatal Mortality, Committee on Public Health Relations, New York Academy of Medicine. Schuyler G. Kohl. Harvard Univ. Press, Cambridge, Mass., 1955. xxi + 111 pp. $2.50.

In this book, whose small size belies its importance, an analysis is made of 955 perinatal deaths in the city of New York during the years 1950–51. The term *perinatal* is used to include stillbirths as well as deaths in prematurely born and mature babies.

A startling fact brought out in this study is that about a third of the perinatal deaths were preventable. The best records were made by the voluntary teaching hospitals; the poorest, by the municipal nonteaching hospitals. Responsibility for preventable deaths was shared about equally by erroneous medical judgment, unsatisfactory medical care, and erroneous medical technique. Death was more often preventable in the mature than in the premature infants.

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Theoretical Structural Metallurgy. A. H. Cottrell. St. Martin's Press, New York, ed. 2, 1955. viii + 251 pp. Illus. $4.50.

The understanding of the behavior of metals and alloys has made rapid progress in the last decade, especially with the help of the electron theory of metals, statistical thermodynamics applied to phase changes, and clearly defined descriptions of several lattice defects and the way in which they affect metallic properties. These developments have to show up in today's training of students of metallurgy. The Birmingham school, from the curriculum of which Cottrell's book derives, is well known for its pioneering in metallurgical education.

The author tries to build up the present theoretical picture of the structure of metals from fundamental physical principles. One cannot, of course, expect here a rigorous description of the electron theory of metals. However, the essential aspects of modern theory are explained step by step. The presentation adopted should enable the reader to appreciate the current developments and consequences of the theoretical picture and perhaps even to overcome some metallurgists' horror for the theory and its terminology.

The first chapters give a wave-mechanical picture for the electronic states in atoms and for interatomic forces, together with some fundamentals on crystallography. Some difficulties are unavoidable in a qualitative review of, for example, the Heitler-London molecule that introduces exchange forces. The chapters which follow give a good idea of the quantum theory of the free electron and the electron in a periodic potential as well as some applications to conductivity, ferromagnetism, and cohesion. The thermodynamic variables and their statistical interpretation are introduced next and immediately used to study the thermal behavior of metals. Both electron theory and thermodynamics are employed in the following chapters on the structure and the free energy of alloys and an interpretation of equilibrium diagrams (including zone melting). Diffusion, the diffusion-controlled order-disorder changes and precipitation kinetics are treated in the next three chapters. The book concludes with a chapter on shear processes, a new feature of the second edition. It combines a very brief description of dislocations with a review of the martensitic transformation. Introduction of the latter after the diffusion-controlled transformations probably justifies the position of the chapter on dislocations in the book, although knowledge of dislocation properties would undoubtedly aid comprehension in many of the preceding chapters.

The second edition has been almost entirely rewritten and, in my opinion, greatly improved. Some of the statements are now less dogmatic, and only the essential features of some theories are considered. In addition, simple mathematics are now left to the reader. The number of good figures has been increased, but the total size has been decreased despite the enlarged content. The book is very well written; the last chapters in particular read like a detective story. Cottrell's book can be highly recommended to everyone interested in the physical foundations of the science of metallurgy.

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The Biology of a Marine Copepod Calanus finmarchicus (Gunnerus). S. M. Marshall and A. P. Orr. Oliver & Boyd, London, 1955. vii + 188 pp. Illus. 21s.

One of the most important animals in the sea is this little arthropod, and Marshall and Orr have published so many papers about it that their names are almost synonymous with it. This book is not a simple collation of these papers, but a carefully prepared treatment of the various aspects of the biology of *Calanus finmarchicus,* beginning with systematics and distribution and proceeding through such topics as anatomy, reproduction, food, migrations, parasites, and environmental relationships.

Although this is the latest and most exhaustive word on the subject, it cannot be said to be the last word. The uncertainties and lacunae are constantly called to the reader's attention, beginning with the as yet unresolved question of whether there are two species, or two—or even three—distinct forms involved under this name. Nevertheless, this book is a splendid example of the sort of information we must have about the important animals of the sea before we can understand more completely the economy of the sea.

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Radiobiology Symposium, 1954. Proceedings of the symposium held at Liege, Aug.–Sept., 1954. Z. M. Bacq and Peter Alexander, Eds. Academic Press, New York; Butterworths, London, 1955. xix + 362 pp. Illus. $9.80.

The second International Symposium on Radiobiology was held at Liege, Belgium, in August and September 1954. This volume, edited by Z. M. Bacq and Peter Alexander, contains most of the papers that were presented, together with the discussions. It is of particular value to the American reader who has a general interest in the effects of ionizing radiations on biological systems because the preponderance of material is presented by outstanding European radiobiologists or representatives of their laboratories. The discussions are for the most part of a very high order and serve to highlight present-day thought on the complex mechanisms involved in the production of initial, secondary, and ultimate effects in simple chemical systems and in living organisms.

The several papers and discussions dealing with the action of protective, sparing, and restorative agents in simple and complex systems give an exceedingly full picture of present knowledge of