priority need, which is to improve the nutrition of the very young, he urges education to promote breast feeding and innovative ways to get early supplementation with weaning foods. He closes the chapter with a persuasive plea for mission-oriented research.

A minor complaint about the book is that one of the most important sections has been relegated to an appendix. Gunnar Myrdal did the same in his three-volume *Asian Drama,* in which appendix 2 deals with the mechanism of underdevelopment and development and sketches an elementary theory of planning for development. Berg has an appendix D dealing with the methodology of nutrition planning that is a much-needed, concise, and balanced presentation of this increasingly important subject.

The book was written during a euphoric interval when optimism about the Green Revolution was very high. During 1973 we have again become aware of the fragility of the efforts to achieve self-sufficiency in less-developed countries. As a result of an unusual aggregation of severe droughts, famines which are among the most massive of recent world disasters are affecting many millions in Africa and India. Worldwide food shortages produced by crop failures in countries such as Russia and China have made it difficult to mount adequate relief programs. Therefore in some places, for example on pp. 1, 53, and 71, Berg sounds overly optimistic. Appendix A, dealing with the national and international response to the Bihar famine, is in sharp contrast to recent experience in Maharashtra. Anyone who is bold enough to write optimistically about the future of our uncertain world must be prepared for such reversals during a publication lag.

There are a few instances in which Berg seems to have gone somewhat beyond accepted scientific evidence, mainly by accepting a specific point of view which may not be generalizable. On p. 13, for instance, the discussion of the effects of malnutrition on physical capacities does not allow sufficiently for human adaptation to poor diets. On pp. 15 and 16 figures are given for nutritional status as though they represent whole countries whereas they really refer only to specific surveys in parts of total populations or to particular geographic areas. On p. 18, the estimate of $340 million a year as the cost of providing nutritional care for the malnourished children in 37 countries is based on assuming that the care is of the quality provided at special institutions in Guatemala City and Kampala ($7.50 a day per child for 90 days); the fact is that only a few children in the less-developed countries get this sort of care. On p. 38 there is unquestioned acceptance of a far from substantiated published claim that intrauterine devices stimulate lactation. It must be said, however, that the book has remarkably few such problems of scientific interpretation, considering how wide a range of information it covers.

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Prospective Energy Source

Geothermal Energy. Review of Research and Development. H. CHRISTOPHER H. ARMSTEAD, Ed. Unesco, New York. 1973. 186 pp., illus. Paper, $14. Earth Sciences, 12.

In countries plagued by a shortage of fossil fuel reserves or an unfavorable balance of payments there is an increasing incentive to develop indigenous energy sources. Geothermal energy—natural underground heat which can be delivered to the surface—may be able to alleviate the impending shortage. In addition, the development of geothermal energy appears to be less ecologically disruptive than that of fossil fuel or nuclear power.

By reading the voluminous proceedings of the United Nations conferences of 1961 (the Conference on New Sources of Energy, held in Rome in 1961 and published by the U.N. in 1964) and 1970 (the Symposium on the Development and Utilization of Geothermal Resources, held in Pisa in 1970 and slowly being published as special issues of the journal *Geothermics*), one can obtain almost all the material presented in *Geothermal Energy: Review of Research and Development*; however, its organization and the summaries provided by the separate articles make this an extremely useful introductory and reference volume.

As is stated in the preface, the book "makes no claim to being an encyclopaedia of the geothermal arts: it is intended only to be an 'A-B-C' to enable the reader to gain an elementary insight into the various phases of geothermal work, from exploration to utilization, including such related topics as earth structure, geothermal economics and field management."

This volume is one of the two books now in print devoted to the subject of geothermal energy (the other being *Geothermal Energy: Resources, Production, Stimulation*, edited by Paul Kruger and Carel Otte and published in July of this year by Stanford University Press). It begins with a chapter entitled "What is geothermal energy?" In this chapter, the editor explains that "the observed temperature gradient in the outer crust averages only about one degree centrigrade for every hundred feet of depth" and that there are certain regions of the earth with much steeper thermal gradients, "sometimes as much as a hundred times the normal: It is the heat in these regions that is termed 'geothermal energy.'"

The book continues with a rather well-balanced, up-to-date, and authoritative coverage of the total range of subjects involved in the exploration, development, and utilization of geothermal resources. Aside from the unifying theme of geothermal energy, the various chapters of the book are really surveys of subdisciplines and therefore require a working knowledge of a variety of diverse subjects. However, exploration for, and the utilization of, geothermal energy demand the coordinated efforts of specialists versed in different disciplines. Each specialist can better contribute to the goals of the group if he has at least some understanding of the problems and the techniques of his collaborators. This volume provides such insight. In addition to review articles, some original unpublished research data are presented; for example, by Marshall and Braithwaite on corrosion control experiments in New Zealand geothermal fields.

This book suffers, as do many collections of paper from different fields, in that no consistent system of units is used throughout. Each author uses his preferred system, and many of the papers are not even internally consistent. This volume, its conversion table notwithstanding, graphically demonstrates the need for the adoption of one standard system of units! There are moreover a number of typographical errors throughout the text. My main complaint, however, is about the price of $14 for a 186-page paperback that became tattered after one reading.

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