It is furthermore a relief from the atmosphere of most works on the same subject in which attention is largely devoted to flint typology. This shift of emphasis and broadening of sources of evidence are needed now that we are beginning to find out that the classic sequences of flint typology set up by the French school and slavishly followed elsewhere may have overemphasized the importance of selected minor variations of tool styles. Some of these, being largely local, may turn out to make little difference in the end product, as seen in the perishables that Clark has so carefully sought out and restored or reconstructed. Although he has covered but a fraction of the time span so assidulously explored by the French school, the principles derived from his work may add a new breath of life to the results of their painstaking industry.

Clark has made full use of statistical techniques, slighted by many of his colleagues. This is particularly necessary in dealing with the bones of wild and domestic animals in Neolithic and early Metal Age collections. That he has not mentioned radiocarbon dating is not surprising, since the latest date in his bibliography of over 750 titles is 1949. However, his profound acquaintance with the minutely detailed climatic studies of the Dutch and Scandinavians makes this relatively unimportant, within the time and space spans covered. The reviewer's only regret is that the subject had to be limited by the nature of the materials largely to northwestern Europe. It opens a clear and brightly polished window on one corner of the world. If only we could see Turkestan and China in the same brilliant light!

The price, which may deter many potential readers, is not excessive when one sees the beautiful printing, and the wealth of illustrations, which will be used as slides in many colleges for years to come. Costing no more than two and a half bottles of Scotch whiskey, this competing British import can provide stimulation over a much longer period.

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Symmetry. Hermann Weyl. Princeton, N. J.: Princeton Univ. Press, 1952. 168 pp. $3.75.

This short book on a vast subject is the work of a master. With a few sure and authoritative words he gives us the heart of the matter. There is no book or article quite like this one on the subject of symmetry, and I doubt if any book will be written in the future that will not in some way lean upon this one.

It starts off with the easy and specific matter of bilateral symmetry and shows how right and left reflections have been used in art, and how in biology it is a matter of import to many organisms, including man. There is a pleasant mixture in this chapter, ranging from the embryological origin of left and right in the worm *Ascaris* to the symbolic meanings the left (or sinister) has taken in times past. Next comes an analysis of translatory and rotational symmetry, leading to a chapter on ornamental symmetry. The same pattern is kept, a mixture of art and natural science, and it takes us from the walls of a room in the Alhambra in Granada to the comb of a bee, from the baptistry at Pisa to the Radiolaria of Haeckel. The last of the four chapters goes into the basis of crystal symmetry, symmetry in relativity, in quantum mechanics, and in mathematics.

The book begins with a general description of what is meant by symmetry, and then proceeds through the specific kinds of symmetry to a general mathematical statement of symmetry. This means that as the book progresses it does become more abstract and more difficult for the nonmathematician to follow. But fortunately it contains so much besides mathematics (although the latter is the main point) that it can still be read with profit and enjoyed by someone who has not advanced beyond long division. More than anything else the book gives the feeling of authority—which its substance, as well as all the other things we know about Professor Weyl, substantiates.

This is the work of a mathematician, and there is one aspect of the book that may disturb the natural scientist as it will the art historian. The biologist is interested in the cause and the mechanism or origin of certain symmetries. For instance, Weyl discusses the phyllotaxis of plants, the arrangements of leaves in whorls, but does not touch upon the recent work on the cause of these leaf distributions. Or, in art history, he shows that certain symmetrical patterns are used by the Greeks, or the Minoans, or the Sumerians, but he does not tell, except in an occasional passing reference, where these patterns had their origin and how they can be traced in the history of art. This is not an omission on the part of the author—his book is on the subject of symmetry itself, what symmetry is, and how it may be precisely defined and described. It is the approach that would have satisfied Plato, and in fact Weyl himself says in the beginning of the book that his argument will go "along a road that will finally lead us to a mathematical idea of great generality, the Platonic idea, as it were, behind all the special appearances and applications of symmetry."

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The Auricular Arrhythmias. Myron Prinzmetal, Eliot Corday, Isidor C. Brill, Robert W. Oblath, H. E. Kruger, *et al.* Springfield, Ill.: Thomas, 1952. 387 pp. Illus. $16.50.

This monograph describes the authors' researches concerning the auricular arrhythmias. It also presents historical reviews and clinical discussions of these arrhythmias. The methods of study and the equipment used are described in an appendix. Their observations have been made with the high-speed cinematograph, the multiple-channel electrocardiograph, and the dual-beam cathode-ray oscillograph.

The authors begin their book with a study of the

normal auricles. They conclude that contraction does begin in the region of the sino-auricular node about midway between the cephalic and caudal ends, that there are no special inter- or intra-auricular conduction pathways, and that the inter-auricular septum is an integral part of the auricles. They offer evidence to confirm the view that the contraction wave spreads in a fashion that reaches points equidistant from the site of origin at the same time and that it dies out when it can travel no further.

Experiments are then described from which they conclude that extrasystoles and paroxysmal tachycardia arise from a single ectopic focus, and that the contraction wave spreads in the same fashion as it does in normal sinus rhythm. The same arrhythmias are studied in man, and the authors decide that they do not differ from the experimentally induced arrhythmias in dogs. The argument is then carried to auricular flutter and fibrillation, and from their experimental evidence and studies in man they conclude that these arrhythmias also arise from a single ectopic focus and that a "circus movement" is not present.

The pharmacology of quinidine and digitalis and the treatment of the various auricular arrhythmias are discussed. The final chapter brings together the authors' evidence as to the unitary nature of the auricular arrhythmias.

The book is well put together, and the illustrations are both profuse and excellent. It presents an important conception of the nature of the auricular arrhythmias, and the evidence adduced in its favor is indeed weighty. Cardiologists should be familiar with the authors' views from previous publications. This book brings them together in a single volume which is worth while to physicians in general because of its clinical features, and because of the clarity and logical development of the views presented. The evidence presented certainly reopens the question as to the existence of circus movements in auricular flutter and fibrillation. At the moment, the book would have lost nothing had the discussion of the Wolff-Parkinson-White syndrome been omitted.

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The Ocean River: The Story of the Gulf Stream. Henry Chapin and F. G. Walton Smith. New York: Scribner's, 1952. 325 pp. Illus. $3.50.

It has been difficult for this reviewer to keep clearly in mind just what authors Chapin and Smith mean by the Ocean River. At times they appear to mean what oceanographers call the Gulf Stream system—that narrow, intense ocean current extending from the Straits of Florida into the North Atlantic east of the Grand Banks. At other times the entire North Atlantic Ocean is included, and the reader unexpectedly finds himself in the Caribbean or the North Sea. Indeed, there is a great deal of rambling in this book, and unfortunately most of it is only incidental to the Gulf Stream.

The first three chapters are a sketchy summary of historical geology. The entire fourth chapter is an account of the myth of Atlantis, partly drawn from the writings of Ignatius Donnelly, a pre-Velikovsky congressman from Minnesota, who, suffering from intellectual indigestion in the Library of Congress, wrote voluminously on other startling subjects, such as the Baconian controversy. All this, of course, has nothing to do with the Gulf Stream.

Chapters five and six bring us from the Phoenicians, through Leif Ericson, to the Franklin chart of 1770.

It is only in the last half of chapter seven that the reader will find several pages (140–47) that give any account of the results of the past 20 years of scientific work on the physical oceanography of the Gulf Stream. The scientific reader will be disappointed to find that there are no figures showing the thermal structure across the stream, that there are no velocity profiles, that there is no discussion of the water masses involved. It is this exceptionally scanty and superficial treatment of the modern knowledge of the structure of the Gulf Stream that detracts so much from the value of the book to a scientific reader. There are many exciting and intensely interesting problems concerning the Gulf Stream being uncovered today. For example, we are just beginning to make measurements of velocity as a function of depth in the parts of the stream in deep water; we are just now beginning to formulate dynamical laws for the current and its meanders; and we are in the progress of developing new strategies of exploration. But none of these things finds a place in *The Ocean River.*

Chapter eight deals with winds; chapter nine with fishes. The remaining five chapters are concerned with Spanish conquistadors, pirates, New England merchant trade, the Banks cod fisheries, etc., ending with a sociological essay on the Atlantic and Western man.

It is the unreserved opinion of this reviewer that *The Ocean River* is too diffusely written to be of any interest to the scientific reader. It is a pity that someone does not translate into English a really good book on the Atlantic Ocean: Gerhard Schott's *Geographie des Atlantischen Ozeans.*

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Scientific Book Register

Food Science: A Symposium on Quality & Preservation of Foods. E. C. Bate-Smith and T. N. Morris, Eds. New York: Cambridge Univ. Press, 1952. 319 pp. Illus. $8.00.

Synthetic Methods of Organic Chemistry: An Annual Survey, Vol. 6. W. Theilheimer. Basel: S. Karger, 1952; U. S. distrib., Interscience, New York. 401 pp. $12.90.

The Origin and History of the British Fauna. Bryan P. Beirne. London: Methuen, 1952. 164 pp. Illus. 18s.

Functional Endocrinology from Birth through Adolescence. Nathan B. Talbot *et al.* Cambridge, Mass.: Harvard Univ. Press, 1952. (Published for the Commonwealth Fund.) 638 pp. $10.00.