rich museum and laboratory. This led to his descriptions of neurologic syndromes that will be retained in medicine until clarification of their etiologies; even then, Charcot's name will be indelibly part of their recognition.

MICHAEL B. SHIMKIN
National Cancer Institute,
National Institutes of Health

Indians of the High Plains. From the prehistoric period to the coming of Europeans. George E. Hyde. University of Oklahoma Press, Norman, 1959. xiii + 233 pp. Illus. $4.

George Hyde has undertaken the formidable and challenging task of presenting a "coherent picture" of the Indian occupancy of the western plains prior to the year 1800. Mainly, the story is one of the Plains Apache who dominated the central and southern plains from about 1500 to 1700, and of the Comanche and Shoshone ("Snakes") who overran much of the central and northern plains during the 18th century. The data utilized come largely from historical documents, buttressed here and there by archeological evidence turned up in the past quarter century. Three maps and 14 plates (the latter including two particularly interesting mid-18th century deerskin paintings believed to relate to the contemporary Plains Indians) supplement the text.

The author has assembled an impressive body of data, much of it from obscure sources which present-day students too often overlook or neglect in their piecemeal treatment of certain segments of the larger problem. Steeped in years of thinking and reading, Hyde has earned the gratitude of his readers for his region-wide interpretations and for compiling a plausible reconstruction of human activity against which future findings and interpretations can be compared. The end result of his labors makes entertaining reading for anyone dogged enough to stay with the book through its mass of detail and frequent shifts of locale.

The preface describes this as "a reading book, not a treatise"; hence the author disavows a need for the careful documentation that should characterize any scholarly work and which readers have come to expect in this "Civilization of the American Indian Series," of which this is the 54th volume. More serious is the author's penchant, where direct documentation or other supporting evidence is lacking, for suggesting a tentative identification or interpretation and, thereafter, for handling these suggestions as established facts. Because many of the documents for this period are decidedly sketchy and vague and because they frequently use tribal designations which are not readily correlated with the better documented groups of later periods, other interpretations than those set forth still merit serious consideration. Sharp reactions to many of Hyde's views must be anticipated.

Despite these and other shortcomings—a certain archeological naiveté, and the need for healthy skepticism on the part of the reader—Hyde's book should have a place on the shelf of anyone seriously interested in the early historic Indians of the western plains.

WALDO R. WEDEL
U.S. National Museum,
Smithsonian Institution

Report on the State of Machine Translation in the United States. Yehoshua Bar Hillel. Technical Report No. 1. Prepared for the U.S. Office of Naval Research, Information Systems Branch, Jerusalem, Israel, 1959 (available as PB151746 from Office of Technical Services, U.S. Dept. of Commerce, Washington 25, D.C.). 48 pp. + appendixes. $2.25.

This critique is a sobering evaluation of the many misconceptions engendered by overly optimistic approaches to fully automatic, high-quality machine translation (FAHQMT). It is based upon the author's visits in late 1958 to most of the 12 major mechanical translation (MT) centers in the United States, discussions with members of the two British centers, and a study of the principal publications of all these centers.

It recommends that fully automatic, high-quality machine translation be renounced and that future practical research be concentrated on either fully automatic, low-quality translation or partly automatic, high-quality translation; it further recommends that basic research into language structure, models, and so forth be divorced from immediate applicability to mechanical translation. Ten proposals for the organization of further research and for the improvement of cooperation are made.

The appendixes include copies of two papers, presented before international conferences, on the theoretical limitations of FAHQMT and an original paper entitled "A demonstration of the non-feasibility of fully-automatic high-quality machine translation."

Speculating on the author's dim view of the possible success of mechanical translation, one might point out that it is easy to construct hypothetical phrases (as the author has done) which cannot be translated by any conceivable machine; this is so easy, in fact, that much of what is written is unintentionally untranslatable, either by machine or human being. If a passage isn't meaningful and unambiguous in the original language, then attempts to translate it into something meaningful are not even a proper activity. In such cases one is tempted to rewrite the passage, and if this is done, it should be recognized that it is not a translation, but the work of a new author. The point here is that since, to a degree, the benefits of mechanical translation are denied us by the machine's intolerance of sloppy communication, we should be more precise in our writing, and if necessary develop a language that permits the necessary degree of precision and nonambiguity.

CHARLES M. GOTTSCHALK
MENDALL S. THOMPSON
Science and Technology Division,
Library of Congress

Elements of Solid State Theory. Gregory H. Wannier. Cambridge University Press, New York, 1959. 269 pp. $6.50.

In this volume, Wannier presents us with a readable and cogent account of a considerable segment of modern, solid-state theory. The volume is limited to a size which will not discourage a reader seeking a cultural acquaintance with the subject. It is, however, a book for the physicist, and most topics are discussed at a high level of sophistication.

Two of the early chapters (chapters 3 and 4) have a special value for they treat topics which have only recently attained prominence in the literature of physics and which are therefore not treated in the familiar textbooks. Chapter 3 is devoted to lattice dynamics and includes a discussion of topological aspects of the distribution of the vibrational frequencies of crystals. The recognition of the influence of special points on the form of the frequency