Chinese experience with other tumors was also reviewed. There was a surprising insensitivity to the place of cigarette smoking in the genesis of lung cancer, especially since there has been a marked increase in smoking since 1949 and the Chinese lung cancer incidence has doubled in the past decade. One can only surmise that it is politically inconvenient for the Chinese government to acknowledge this link. This attitude is comparable to that of American politicians, who acknowledge the link but make no substantial effort to deal with the problem. As might be expected, cervical cancer is effectively handled by mass screening in China. The Chinese approach to breast cancer is up to date in most respects but is not innovative, and no interest in estrogen or progesterone receptors was displayed. It is surprising that gastric cancer, the second or third most common cancer in China, has not been given a more prominent place among the Chinese study objectives, especially since screening programs are a Chinese specialty and have been shown to lead to the discovery of increased numbers of early tumors in other countries. Only 2 percent of the gastric cancers in a Shanghai hospital were confined to the mucosa, in contrast to current Japanese reports of 35 to 50 percent early carcinomas among newly diagnosed gastric tumors. Chemotherapy would appear to be based on Western treatment protocols, and x-ray therapy is handicapped by the limitations of obsolete equipment. Thus it would appear that the Chinese have given higher priority to the prevention and early detection of cancer than to its treatment. This is not surprising in view of the heavy investment in equipment and personnel that modern cancer therapy requires and the low cost-benefit ratio it provides. This report makes it obvious that the Chinese have the skills necessary to make important contributions to the basic science of oncology, but they are constrained by limitations of equipment, supplies, and budget. For example, experimental immunology has developed slowly and programs in this discipline have been exclusively focused on applied research.

The book would have benefited from the inclusion of a large map to indicate the sites visited and of district incidence maps of specific tumors such as are tantalizingly described for the esophagus and nasopharynx.

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Ethnoarcheology

Explorations in Ethnoarchaeology. Papers from a seminar, Santa Fe, N.M., Nov. 1975. RICHARD A. GOULD, Ed. University of New Mexico Press, Albuquerque, 1978. xiv, 330 pp., illus. Cloth, $17.50; paper, $6.50. School of American Research Advanced Seminar Series.

This collection of papers begins with an introduction to ethnoarcheology (ethnographing for archeological purposes) by Gould that is thoroughly enjoyable—a good mixture of information, orientation, theory, and wit, including the great truth that "all our ideas about past and present-day human behavior are founded on rubbish." The chapter should be reprinted for use in introductory archeology and anthropology courses; there is nothing better on the subject. Of special interest are Gould's affirmation that refuse is a truer indicator of behavior than has been obtained with traditional anthropological methods of inquiry; his reaffirmation of the primacy of cultural materialism while not denying the role of ideational explanations in some circumstances; and the justified relegation of the emic to irrelevancy for archeologists. Two other aspects deserve particular comment. The claim that ethnoarcheologists can identify long-term adaptations in the cultures they study I find questionable; certainly they look for such adaptations, but these are always difficult to identify or prove from short-term observations, especially in the context of rapid acculturation. Short-term observations and acculturation contexts are inevitable characteristics of contemporary ethnography and have been major impediments to postulating and proving long-term adaptations in anthropology as a whole.

The second aspect is more provocative. This is the delineation of fundamental human behavioral regularities in regard to material culture: " 'laws' of behavior that are universal to mankind," or "deep structures." In the introduction we are left in the lurch waiting for these laws, although John Bennett and Melvin Tumin's *Social Life* (1948) might have at least been used as a springboard and Schiffer begins to crack the ice in a later chapter.

Jones's chapter is Welshly entertaining and a delight to read. However, to explain the abandonment of the second most important staple in the Tasmanian diet (fish), given seasonal nutritional stress, as due to the sudden appearance of a food taboo among all of Tasmania's tribes is an abnegation of materialism and an embrace of nonexplanation. Jones claims that this was only one instance of traits' disappearing from the cultural inventory of the island (biogeographical pauperization); however, there is no evidence that ground stone axes or boomerangs or hafted tools, examples he cites, ever existed on Tasmania, and fish was such a clearly needed resource that his explanation is unconvincing. He claims that there is no evidence that diseases were prevalent in the waters around Tasmania. However, on a survey of aboriginal settlements on the South Australian coast I stayed at Wilson Bluff with Mr. and Mrs. Harvey Gurney, Mrs. Gurney being a registered nurse. They informed me that a number of years ago a commercial fishing enterprise had been started off the coast but had been abandoned because the fishermen consistently developed large skin lesions that were difficult to treat. I would propose that the occurrence of similar diseases in the coastal waters of Tasmania is a more plausible explanation for the abandonment of the Tasmanians' number two staple.

Many readers will undoubtedly be familiar with Rathje's Projet du Garbage, of which he presents an updated account.

Hole's chapter on Luri pastoral nomads is readable and interesting, especially concerning the use of wild acorns and game and cultivation and cutting (with sickles) of fodder. However, there is not enough precise information to make the account really useful, and objections and exceptions come readily to mind regarding many of the proposed archeological implications. There are enlightening moments, but not enough.

Tringham's chapter is one of the best in the book. If Watson, LeBlanc, and Redman's polemic on the philosophy science did not convince many people to adhere to strict tenets of "Science," Tringham's brass-tacks arguments will probably be more persuasive. The article is in the vanguard of a new concern in archeology with the relation of the properties of materials to the tasks they are chosen for. As Tringham (and subsequently Stanislawski) argues, there is a lot of hard work involved, but further progress in archeological interpretation is likely to be minimal until much more basic research concerning material properties has been done. Although Tringham argues against continued use of "high-level" theory without "low-level" foundations, I am sure she would agree that high-level theory is necessary initial-

ly in order to provide some rational basis for looking in great detail (and at great cost) at specific low-level characteristics.

Stanislawski's article provides more detailed information than his previous publications on Hopi ceramic technology and traditions. Although his material is—as always—extremely thought-provoking, one constantly wonders how important specific randomizing factors (for example, transport of clay between villages, trading of pots between potters in different villages, the degree of randomization of clan residences) are in the overall ceramic makeup. Despite all the factors that generate "noise," Stanislawski mentions that individual potters can recognize pots made by particular people, which means that not all is chaos. While stylistic patterning may be randomized in some dimensions, it would be nice to know if that is the case for all ceramic types (ritual, commercial, domestic, and so on) and to what extent attributes such as line width and spacing cluster along teacher-apprentice dimensions. One wants to know to what degree the ceramic assemblages diverge from unanalyzable randomness, how to distinguish useful patterning from other variation, and when Stanislawski is going to bring out a monograph on his work.

Gifford's chapter presents some interesting data concerning vertical movement of small and large artifacts due to trampling, although in listing determinants of "archeological visibility" she neglects what is probably the most important variable, artifact density.

Kirch belabors the well-known concepts of adaptation and the extra-somatic. He goes on to present some rather vague and unevaluated hypotheses concerning seasonality and lack of diversity, population pressure, and political and socioeconomic forces as determinants of western Polynesian agriculture.

Schiffer presents a readable and enjoyable overview of ethnoarcheological techniques, together with examples of down-to-earth laws derived from contemporary American discard behavior. His exhortations to broaden the theoretical scope of ethnoarcheology are well placed.

Gould's concluding chapter has some good and some bad. The good is the concrete exploration of ethnoarcheology and a materials approach (as more or less advocated by Tringham) to explaining the distribution of raw material types in sites according to tool type, although there is precious little referencing in this section. The bad is largely in the theoretical introduction, in which Gould shows a misunderstanding of the fashion in which laws operate and goes on to arrive at the remarkable conclusion that "the less the archaeologist must depend upon uniformitarian assumptions to infer past human behavior, the more valid his explanations will be" (pp. 254–255). I cannot see any archeologist dispensing with uniformitarianism used as it was meant to be used. The discussion of flake scrapers is marred by numerous inaccuracies and distortions, the statement on locations of woodworking tasks (p. 282) is misleading, and it is not clear whether statements regarding flake scrapers' being derived from adze debitage are based on conjecture or observation (I suspect the former). Nevertheless, there are illuminated moments, and the description of raw material selection and transport to base camps is very good, as are the main conclusions.

Overall, while many of the specific case studies may not be telling us a great deal that is new (but then traditional archeological reports rarely do either), there are enough thought-provoking articles of general interest to make the book well worth buying. It is, moreover, well written—a laudable recent trend in archeology.

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Language Comprehension

Cognitive Processes in Comprehension. Papers from a symposium, Pittsburgh, May 1976. MARCEL ADAM JUST and PATRICIA A. CARPENTER, Eds. Erlbaum, Hillsdale, N.J., 1977 (distributor, Halsted [Wiley], New York). xiv, 330 pp., illus. $19.95.

This is a stimulating and timely collection of papers by a number of psychologists who are active in the study of cognition. In fact, their work represents a new field that is coming to be known as cognitive science, an area of research that merges viewpoints from cognitive psychology, linguistics, and artificial intelligence. Some of the most interesting ideas in psychology are being distilled from this new mixture, ideas that are shaking many of our traditional ways of thinking about thinking. All of the chapters in this volume struggle with the complexities of understanding complex discourse—how people extract the gist or overall meaning from long passages of text, how they infer much that is not explicitly stated, and how they decide what details to ignore.

Because of the ferment in this field, the newly developing ideas (to call them theories would be premature) are rapidly changing and a variety of approaches to the same problems are competing with one another. Readers of this volume can gain a good overview of a number of prominent approaches to discourse comprehension, but they should be aware of several arguments that are carried on sotto voce (and occasionally viva voce) throughout the book. Because terminology changes meaning from chapter to chapter, it may help to point up what these arguments are about. Some chapters lay primary emphasis on inductive inferences operating over relatively small segments of text. This approach has been called a data-driven, or "bottom-up," processing approach. Other chapters stress the application of sets of previously acquired expectations (schemata or frames) to what is being read or heard. In this view, processing is more "top-down," or conceptually driven. In addition, some workers emphasize people's familiarity with and expectations about the structure of various kinds of discourse and others emphasize familiarity with the content of what is being discussed.

The authors tend to concentrate on one or the other aspect of these approaches, although they all recognize the other points of view. For example, Carpenter and Just examine eye movement data to study how we infer semantic relations between groups of sentences; on the whole this approach emphasizes bottom-up processing. Both van Dijk and Kintsch spend more time discussing the global structures of texts. Nevertheless, their theory of how people gradually build up a "macrostructure" on the basis of various kinds of textual cues places most emphasis on inductive inferences from the propositional level to an intermediate level of structure, with relatively little emphasis on the role played by the overall syntax or "superstructure" of a text. Hinsley, Hayes, and Simon, on the other hand, stress that, in solving algebra word problems, people often make decisions about the category to which a problem belongs quite early in reading. Thus, they place greater emphasis on the top-down application of previously acquired schemata in the comprehension process.

A question that arises from work that stresses either text-based or schema-based analyses is expressed by Fred-