

ships that accompany it, Bertram's paper not only illustrates the traditional approach of the ethologist, it exemplifies one of the new directions ethology is taking. A traditional ethological interpretation of the observed cooperation within a pride might have settled for a description of its function—namely, to ensure the survival of the individuals within the pride. Bertram goes beyond this by identifying a factor (kinship) that seems to mediate within-pride cooperation. Clearly, in doing so, he provides an exemplar of a relationship that is likely to transcend the particular species he is studying. That this is the case is revealed in the paper by T. H. Clutton-Brock and P. H. Harvey on "Evolutionary rules and primate societies." These authors provide a detailed discussion of a variety of primate social behaviors in which kinship relationships appear to play an important role. The evidence they cite indicates that in primates (as in lions) feeding tolerance—along with a number of other beneficent behaviors—varies directly as a function of the degree of genealogical relation between the individuals involved.

Of course one could, if one chose to, pick any of the other essays to illustrate the unique flavor of this outstanding collection. Suffice it to say that the book contains more than 500 pages showing some of the best minds in the field interacting on issues that are certain to shape the future of ethology and, perhaps, society as well. There are ideas here whose influence will be felt for many years to come.

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The Maghreb Neolithic

The Later Prehistory of Tangier, Morocco. ANTONIO GILMAN. Peabody Museum of Archaeology and Ethnology, Harvard University, Cambridge, Mass., 1975. x, 182 pp., illus. Paper, \$15. American School of Prehistoric Research Bulletin No. 29.

Throughout much of the mid-Holocene, when agricultural settlements flourished in southwestern Asia and cattle pastoralists roamed the Sahara, the inhabitants of the Maghreb (northwestern Africa) apparently remained hunter-gatherers. To an essentially unchanged Epipaleolithic tool kit and subsistence adaptation they added only ceramics, a few new stone tool forms, and perhaps

certain domesticated animals. This traditionally accepted view of the Maghreb Neolithic is based largely on research (much of it inadequately published) completed before the Second World War, at a time when the present emphasis on prehistoric economies was still nascent and most explanations for variability in the archeological record relied on diffusionist models rather than examination of localized adaptive patterns.

Gilman's monograph, an edited version of his Harvard Ph.D. dissertation, is an attempt to right the balance for the Maghreb Neolithic. Using collections excavated by the American School of Prehistoric Research between 1936 and 1947 in three caves at Cape Ashakar near Tangier, Gilman attempts a functionally oriented culture-historical analysis and interpretation of the Neolithic in this region. His work is thoughtful (for example, he continually cautions the reader about the limitations of his data) and precise. Prehistorians working in the western Mediterranean will find his careful comparisons of Maghreb and Iberian ceramic assemblages particularly useful. The monograph is well written and illustrated, and there is a wealth of tabulated data and statistical correlations to bolster some of the interpretations.

I do not find Gilman's reconstruction of subsistence patterns and adaptive systems very satisfactory, but the fault lies with the limited data available rather than with the author. I am intrigued by his interpretation of the goat and pig mortality curves at Mugharet al 'Aliya as demonstrating the latter animals to have been domesticated and the former (evidently imported from outside the Maghreb) feral. The proof is not conclusive to my mind, but it certainly suggests that the adaptive patterns were more complex (advanced?) than has previously been thought.

I am in complete agreement with Gilman's thesis that variability in ceramic assemblages from Maghreb sites indicates regional stylistic differences due to geographical separation of cultures as well as intersite differences due to differences in function (reflecting, for example, seasonal occupations). While the differences in function must remain hypothetical until more data are available, the model is in substantial agreement with the one my colleagues and I have proposed for the immediately preceding period in eastern Algeria (see Lubell *et al.*, *Science* **191**, 910 [1976]).

Gilman marshalls his data effectively to show that the Neolithic of Iberomaurusian Tradition should be replaced by his Mediterranean Neolithic. The latter is

composed of three geographic facies in the western Maghreb which differ in artifact assemblages and economic practices while retaining a distinctive North African character. Gilman carefully and effectively argues against the importance of external connections (without denying their occasional presence), noting that "accounting for the nature of North African assemblages in terms of outside influences or lack of them diverts attention from the functional considerations which must underlie any adequate explanation of their variability" (p. 6). In fact, he views the present work as "a necessary first step in considering the Neolithic cultures of the western Maghreb as adaptive systems" (*ibid.*).

It is a good first step, and I hope Gilman and others will continue in this direction. While I cannot entirely agree with the characterization of Maghreb prehistory as uneventful and isolated (p. 132), the demonstration of cultural and economic continuity from the Epipaleolithic through the Neolithic and the unimportance of external influences during the latter (although one wonders about those imported caprines) clearly makes this an ideal region in which to investigate some of the current models about the transition from Paleolithic to Neolithic economies.

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