



Aerial view of the center of Altun Ha (1969), with Group A in the foreground. [From *Excavations at Altun Ha, Belize, 1964-1970*, vol. 1]

The author suggests that Altun Ha, though not a proper city, was clearly an urban community that enjoyed the advantages and coped with the problems engendered by residential congestion. The difficulties encountered in attempting to fit the complex communities of the Maya into preconceived types such as city, town, and village will continue to plague scholars for some time to come. The Altun Ha data contribute to ultimate solution of these problems by increasing the range of known variability.

The bulk of volume 1 is devoted to Group A, which was intensively investigated throughout the seven-year project. Pendergast chooses to deviate from previous technical descriptions of Maya architecture in two important ways. First, descriptions of caches, burials, and tombs are integrated into the construction histories of the buildings from which they were recovered. This format allows a much clearer appreciation of the correlation between important ritual events and structural modification than can be found in the traditional separate presentations of such data. The construction of a major tomb in Structure A-1, for example, coincides with profound alteration in the design of access ways to the summit of the building. Access from the east and the main plaza is blocked while new access ways from the south and a flanking elite residence are constructed. The detailed presentation of tomb contents in this context clarifies the political

and religious importance of the interred individual and renders the transformation of Structure A-1 into his mortuary shrine understandable. The subsequent association of the summit with the flanking elite residence reinforces the notion that following the interment Structure A-1 no longer served the public in the same fashion as in its earlier forms.

Second, Pendergast chooses to analyze the pottery associated with Group A buildings, critical to intersite comparisons, without employing the now-standard type-variety system. While I can empathize with his criticisms of this system, complete avoidance of it makes his ceramic descriptions difficult to correlate with published descriptions of other ceramic assemblages.

The emphasis throughout the architectural descriptions is on the modifications of design that affect visual impact and physical access to and uses of exterior and interior spaces. The result is a sensitive portrayal of the changes that occurred in the public facilities at Altun Ha through the Early Classic heyday and the darkening Late Classic years of the community. Pendergast is careful in his summary of this volume not to preempt the overview that will be supplied in the final volume of the series. Nevertheless, it is clear that he envisions a definite and ultimately tragic change in the function of Group A from a theater of public service to the grand cemetery of a disaffected elite reflecting upon past glory.

This volume is a significant contribution to our understanding of public life in Maya civilization. The illustrations are superb, and the figures are published at a gratifyingly large scale.

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A Psychologist in the U.S.S.R.

The Making of Mind. A Personal Account of Soviet Psychology. A. R. LURIA. Michael Cole and Sheila Cole, Eds. Harvard University Press, Cambridge, Mass., 1979. vi, 234 pp. \$15.

It is rare when an individual or a very small group of individuals working together can influence an entire scientific discipline to the degree that A. R. Luria, L. S. Vygotsky, and A. N. Leont'ev influenced psychology in the Soviet Union. This autobiography provides a fascinating account of the intellectual and personal life of the member of this "troika" whose work is best known in the West. In ten chapters Luria covers his early years, his intellectual awakening under the tutelage of Vygotsky (1896-1934), and his later attempts to deal with classic psychological problems such as the role of genetic and cultural factors in human cognition, the relationship between speech and thought, and the normal and abnormal functioning of the brain. In the final and perhaps most interesting of these chapters, Luria reflects on a problem that confronts all of modern social science—the problem of how we can utilize increasingly sophisticated scientific techniques in the study of human psychological phenomena without losing sight of the fact that we are studying complex, living human beings. In addition to the chapters written by Luria, Michael Cole has contributed an introduction and epilogue.

While the major focus of this volume is on Luria's approach to human psychological processes, the book also provides valuable insights into some of the social and political forces that have influenced the development of Soviet science in general. In the opening sentences of the book Luria writes, "I began my career in the first years of the great Russian Revolution. This single, momentous event decisively influenced my life and that of everyone I knew" (p. 17). The Revolution influenced Luria's life in at least two ways. From Michael Cole's epilogue we learn that as Jews in tsarist Russia Luria and his father had been denied access to

many educational and career opportunities. The relaxation of such restrictions during a period immediately following the Revolution made it possible for Luria to follow a career that had formerly been only a dream. Second, Luria reveals how the Revolution ushered in a period of enthusiasm and creativity in psychology (as well as other disciplines) that probably has not been matched anywhere else during the 20th century. Although this period was destined to end in the late 1930's, Luria never forgot the headiness of these early days: "My entire generation was infused with the energy of revolutionary change—the liberating energy people feel when they are part of a society that is able to make tremendous progress in a very short time" (p. 17).

Luria views the evolution of his career and of Soviet psychology in general in terms of a "pre-Vygotskian" and a "Vygotskian" period. To be sure, Luria was not idle before he met Vygotsky in 1924. The events mentioned in the first two chapters, including his early correspondence with Freud and his research aimed at creating "an objective approach to behavior that concentrated on real-life events" (p. 25), reveal that he brought impressive credentials to the partnership. However, it is clear that he viewed these early efforts simply as preparation for his meeting with Vygotsky—an event that he describes as "a turning point in my life as well as in the lives of my colleagues in Soviet psychology" (p. 37). All of Luria's subsequent research efforts were based on the theoretical framework developed during this period. The power of this framework begins to become apparent when one considers that it defined issues Luria investigated bearing on such diverse subjects as the neuropsychology of the frontal lobes, the ontogenesis of language and thought, and cross-cultural differences in the use of sign systems.

One of the most important reasons for Luria's impressive accomplishments is that he combined the insights from his extensive clinical experience with the theoretical advances from a variety of academic disciplines. His last chapter ("Romantic science") reflects the wisdom that emerged from this marriage of theory and practice. In this chapter he inveighs against imprecise and theoretically uninformed clinical speculation, but he obviously sees an even greater danger in overly reductionist laboratory research. He issues a plea to investigators in both clinical and laboratory settings to remember that sophisticated methods and instruments cannot replace a broad theoretical perspective and a hu-

manistic understanding of patients and subjects. For example, in connection with physicians he writes:

The physicians of our time, having a battery of auxiliary laboratory aids and tests, frequently overlook clinical reality. . . . Physicians who are great observers and great thinkers have gradually disappeared. . . . I do not intend to underrate the role of instrumentation in medicine. But I am inclined to reject strongly an approach in which these auxiliary aids become the central method and in which their role as servant to clinical thought is reversed so that clinical reasoning follows instrumental data as a slave follows its master [pp. 176–177].

Michael and Sheila Cole have done an admirable job of editing this volume. While I have some reservations about Michael Cole's point concerning similarities between Soviet and American policies regarding science, I found that his introduction and epilogue provided extremely useful insights. The volume presents us with a rare perspective on the forces that shaped one of the century's great scientific minds.

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Wright's View of Evolution

Evolution and the Genetics of Populations. Vol. 4, Variability within and among Natural Populations. SEWALL WRIGHT. University of Chicago Press, Chicago, 1978. x, 580 pp., illus. \$37.50.

This is the fourth and final volume of the magnum opus of Sewall Wright, one of the great zoologists of the 20th century. The earlier volumes of the work were devoted to the biometrical description of variation of biological systems as the basis for population genetics (volume 1), the theory of gene frequencies in its relation to population structure and the study of variability (volume 2), and laboratory studies and their implications for Wright's "shifting balance theory" of evolution (volume 3). The concern of this last volume is with studies of the amounts of genetic and chromosomal variation within and among local populations of species in nature. The existence of such local differentiation is a prerequisite for the operation of the shifting balance theory.

Here Wright provides a detailed synthesis and discussion of the vast body of data on biochemical variations in natural populations, which has grown exponentially since the introduction of electrophoretic techniques to population ge-

netics. Wright's synthesis is comprehensive, original, and unique. Few authors have ever possessed such a complete and far-reaching view of evolution combined with consummate theoretical and statistical skills and painstaking attention to detail. The shifting balance theory serves as the organizing principle in this synthesis and, indeed, is the unifying theme of all four volumes.

The assumptions fundamental to Wright's grand theory concern the nature of the relationship between the genome and complex characters. These seven basic assumptions are presented early in volume 1 (pp. 60–61): (i) the multiple-factor hypothesis, that characters in general are affected by a great many loci; (ii) the principle of universal pleiotropy, that each locus in general affects many characters; (iii) the uniqueness of alleles in their array of effects; (iv) the relativity of dominance; (v) the universality of interaction effects; (vi) the dependence of phylogenetic homology on similar chains of gene-controlled reactions; and (vii) the existence of multiple peaks of selective value. In light of the evidence presented for a diverse array of characters in many species, these assumptions must be viewed as firmly established hypotheses. This relationship between gene and character is summarized in Wright's conviction that "the existence of complex patterns of factor interactions must be taken as a major premise in any serious discussion of population genetics and evolution" (volume 1, p. 105).

Evolution by natural selection occurs as a result of the interaction of phenotype and environment. In Wright's view there are many different kinds of natural selection depending upon the levels of biological organization and the degree of variation existing at any level. The levels of organization discussed by Wright range from single genes and individuals to families and entire demes. He considers the most important evolutionary force to be selection among more or less randomly differentiated local populations. This interdeme selection is brought about by the differential dispersion of those local populations in which random genetic drift and directional mass selection have established a "system of interacting genes of superior fitness." This is Wright's shifting balance theory of evolution, and in volume 4 he abundantly documents the fact that the genetic differentiation of local populations, necessary to his theory, is widespread in nature.

Although many evolutionary biologists and geneticists at the present time