assumption of unchanged fertility. The increases in income in relation to 1956 income are also shown, but the authors are the first to point out that these figures have little significance, if any. They emphatically disclaim any intention of forecasting national income 30 years ahead; they are interested solely in the relative difference between the results under conditions of high and low fertility. In order to test the significance of this differential, the estimates of the parameters are varied within fairly wide limits. While these variations of course give widely differing rates of growth of national income, the relative difference between the high- and low-fertility variants remains remarkably stable, at around 40 percent. This differential would, if anything, be a minimum, since no allowance has been made for the feedback effect of higher consumption improving the vigor and efficiency of the labor force independently of investment or other development outlays. The authors discuss this factor (page 261) but refrain from introducing it explicitly in the model, since any prediction of the extent of this effect would have to be based on pure guesswork.

It would be strange if a couple of mistakes could not be pointed out in a volume which marshals such a vast amount of empirical material. We are told on page 86 that over the last century the proportion of the Indian people engaged primarily in agriculture has increased from about 50 to 70 percent. This is probably due to a misinterpretation of the occupational classification of the 1872 census. It is indeed difficult to imagine what could have been the activities of the "nonagricultural" half of the population a century ago when only 7 to 8 percent of the population were living in towns. On page 116 the Indian agriculturist is said to be "occupied for only about three months in the year, and many of the landless labourers even less than that." Here the authors can perhaps be excused, for vast exaggerations of the amount of rural unemployment abound in Indian economic literature. On page 194, housing is estimated to account for no more than 15 percent of the "monetized" fixed investment. Twice that figure would be nearer the truth. This mistake is of some importance in the further calculations, for the (allegedly) very low share of housing (which has a particularly high capital-output ratio) is cited by the authors in arguments favoring the assumption of a rather low over-all capital-output ratio for India.

However, these are only petty slips in a book which is very comprehensive and full of original and stimulating ideas. No doubt it will prove to be a highly influential book. It does not preach or plead in matters of population policy, but nevertheless—or perhaps therefore—it cannot fail to serve as an eye opener. In fact, it has been serving that purpose since 1956, when a preliminary draft was given wide circulation among Indian economists and demographers.

MOGENS BOSERUP
*Twentieth Century Fund Asian Study, New Delhi, India*

**The Evolution of Culture.** The development of civilization to the fall of Rome. Leslie A. White. McGraw-Hill, New York, 1959. xi + 378 pp. Illus. $7.50.

Leslie White, a veteran social anthropologist at the University of Michigan, has set himself the monumental task of writing the social history of man in three volumes. This, the first, has 278 pages on primitive culture and 89 pages on the agricultural revolution and its consequences, carrying the story to the fall of Rome. Volume 2 will be on the fuel revolution and its consequences. Volume 3 will be a review of the current scene and a prediction for the next hundred years.

In volume 1 White expounds the theories that he has been forging over a lifetime: The 19th-century exponents of cultural evolution—Tylor, Morgan, Spencer, and others, who followed close in Darwin's wake—were right; Franz Boas, who, according to White, poisoned a generation of anthropologists against these titans, was dead wrong; and he, Leslie White, alone, unaided, and defiant, has been able to revive, refine, and restate the older concepts in terms of modern science.

He traces the origins of human society from a primate background, calling the acquisition of speech a primate revolution. Following Morgan, he divides social systems into two categories—primitive and civil. Primitive society is based on kinship and lacks classes and property in the modern sense. Civil society arose after the agricultural revolution, and "all civil societies are composed of two major classes, a small, dominant, ruling class and a large subordinate class of slaves, serfs, peasants, or proletariat" (page 219). In primitive society happiness was for everyone; in civil society, only for the privileged few. In primitive society economic organization is a function of social structure; in civil society the reverse is true.

In a review of this length it is impossible to point out details. Some of White's deductions, such as that on the origin of incest, seem original and plausible, but there are also weaknesses. For example, he divorces culture from the individual as completely as some psychologists remove the mind from the nervous system, and he proposes to ignore the biological element in the formation of cultures. If every primitive man cooperated as thoroughly as White maintains, there would have been no biological evolution.

What strikes me most is not the content of the book but the tone—the angry vacuum in which it seems to have been written. He quotes many 20th-century anthropologists, but almost always only to refute them; he has kind words only for Cora DuBois and G. P. Murdoch. Others who are not "Boasites" and who have also been engaged in studying the evolution of culture he ignores completely. Perhaps silence is meant for a compliment. Anyhow, it will be interesting to see what happened in the fuel revolution, and to find out what the future holds for us.

CARLETON S. COON
*University Museum, University of Pennsylvania*

**Motivation.** A systematic reinterpretation. Dalbir Bindra. Ronald Press, New York, 1959. vii + 361 pp. Illus. $5.50.

In a field as formless and ill-defined as the psychology of motivation, it would be hard to write a textbook without at the same time introducing categories and principles designed to impose sense and order where these are now lacking, and thus assuming the responsibilities of a monograph. The present book is no exception, and its dual role is acknowledged in its title and subtitle.

The content of the book has to do with the activities of "eating, drinking, approaching, escaping, attacking, exploring, copulating, maternal care of the young, and the like," largely at the infrahuman level. These activities are called "motivational phenomena," and are seen as raising two questions: How are responses patterned into goal-directed action? And what variables determine the latencies, frequencies, amplitudes, and other quantitative properties of the behavior? Bindra believes that no physiological or psychological processes exist that are unique to motivation, and such concepts as motive, drive, need, and incentive are dispensed with or are given secondary status. In their place, to account for patterning, is a concept of reinforcement strongly resembling Skinner's concept, together with a Hebbian emphasis upon the significance of early experience. Quantitative variations in behavior are dealt with as functions of habit strength, sensory cues, level of arousal, and blood chemistry. The ade-

quacy of these principles is tested by applying them to a variety of concrete problems.

It seems doubtful that readers of a different persuasion will be convinced that notions of "drive" and "incentive" are superfluous—their absence is too often felt in this book. Moreover, Bindra's own concepts of "motivational phenomena," "goal direction," "habit strength" (an unfortunate term, since what is meant is not what Hull called by this name but rather something closer to his "reaction potential"), and "arousal" are defined by conventional complexes of symptoms that admittedly lack consistent intercorrelation, and thus suffer from the awkwardness and tentativeness ascribed by Bruner, Goodnow, and Austin (in *A Study of Thinking*) to such disjunctive concepts.

On the other hand, most of the text stays very close to experiment, and here it will be hard to surpass. The carefully detailed and well-documented descriptions of those forms of behavior upon which the author has centered his attention are admirable. The experimental work, which has been chosen carefully for its relevance, is analyzed clearly and economically and is evaluated shrewdly. The frequent suggestions toward further research are uncommonly realistic and stimulating. For these reasons, what is true of few new books in psychology can be said of this one, that one wishes it were twice its present length.

FRANCIS W. IRWIN
*Department of Psychology,*
*University of Pennsylvania*

**Soviet Economic Aid.** The new aid and trade policy in underdeveloped countries. Joseph S. Berliner. Published for the Council on Foreign Relations by Praeger, New York, 1958. xv + 232 pp. $4.25.

Why does the Soviet Union render economic aid to underdeveloped countries? How does its effort in this direction compare with that of the West? What is the connection of Soviet aid with trade? What is the balance of economic and political advantage? It is to questions like these that this book provides serious, thoughtful answers. At a time when exaggerated, alarmist nonsense is all too common, Berliner's moderate and well-documented exposition deserves every welcome. Of course, it cannot be wholly up-to-date, but nothing that has occurred since the manuscript was sent to the printer affects the validity of the basic arguments of its author.

It is important to avoid the unbalanced ultra-"political" attitude which is so often met with whenever Soviet activities are the subject of discussion. We hear of "tremendous Soviet aid drives"; the arrival of a group of Soviet technicians is assumed to be evidence in itself of plots and subversion; by some curious logic, a Soviet credit or arms delivery is regarded not merely as an inconvenience to the West (which it often is) but also as a politically immoral act, though no one has yet explained by what moral principle only the West is entitled to grant economic or military aid to third parties.

Berliner shows that there are more sensible ways of looking at these problems. He rightly emphasizes the predominantly political motivation of aid—how could it be otherwise?—but finds such Soviet activities quite logical in the circumstances. "The Soviet leaders may have felt they had little choice but to get into the aid business, if they wanted to exercise continuing influence on the course of events in underdeveloped countries" (page 17). This influence is exercised not so much by direct "cloak-and-dagger" subversive maneuvers, which are relatively rare and do not play a decisive role, as by a more general and more long-term effort to win friends and influence people. The actual scale of Soviet aid has been a small fraction of that of Western aid—smaller than would appear from a straight comparison of the relevant statistics, because the figures usually cited for Soviet (but not Western) aid include commitments to supply goods in future years, and also because almost all Soviet aid consists of interest-bearing credits, while the bulk of Western assistance takes the form of outright grants. When all this is allowed for, the actual annual flow of aid from the Soviet bloc can scarcely amount to more than 3 to 4 percent of that from the West. Nor has the rate at which new credits are granted shown any upward trend since 1956.

Why, then, has the political effect of the aid program been so disproportionately large? Berliner advances some good reasons: novelty, the anti-imperialist traditions of the U.S.S.R., the attractiveness of the Soviet example of rapid transition from backwardness to industrial might, and the alleged lack of "strings" or of irritating controls over the objects on which the money is spent. These and other points receive a careful assessment. Berliner also analyses the causes of the partial Soviet retreat from the extreme autarchy which characterized the late Stalin period—the gradual realization that there are economic as well as political advantages to be gained from having more dealings with the outside world. Yet, as he shows, autarchic tendencies remain, and they tend to obstruct the extension of Soviet ties with non-Soviet countries. Soviet resources are heavily committed to sustaining extremely ambitious programs of internal growth, and it is by no means clear that much larger quantities of capital goods can be made available for export outside the Soviet bloc in the near future, though as Berliner rightly points out, much depends on political decisions about priorities.

There are a few points at which critical remarks seem to be called for. Thus, the treatment given to trade (as distinct from aid) on balance tends to understate the economic advantage of commodity exchange to the Soviet bloc and, therefore, to overemphasize by implication the purely political element in trade policy. Then there are two statistical errors, which operate in opposite directions. On the one hand, the share of foreign trade in the Soviet national income is understated, because of a quite insufficient allowance for the overvaluation (in terms of internal prices) of the *valuta* ruble in which foreign trade statistics are expressed. On the other hand, the share of machinery exports in total output of machinery, as given by Berliner, reflects a significant underestimate of the output of Soviet machinery, the error being due to a misinterpretation of official Soviet indices. This may be explained for the statistically-minded as follows: The error consists in treating the "repairs" component of the "machinery and metal-working" index as if it referred only to "special railway rolling-stock repair plants," whereas this is but one of ten known categories of "repair" activity falling under this head, and this upsets Berliner's calculation of the share of machinery within this category, which is based on the assumption that "repairs" were only of negligible importance.

But these are minor criticisms, which in no way detract from the value of this admirable and timely book. Not the least of its merits is the clarity and conciseness of the style of writing. May there be more like it.

A. NOVE
*London School of Economics*
*and Political Science*

**Techniques of Population Analysis.** George W. Barclay. Wiley, New York; Chapman and Hall, London, 1958. xiii + 311 pp. Illus. $4.75.

The purpose of this volume is to provide training (without benefit of lectures) in techniques of population analysis to persons who are not statisticians and who have had no prior experience in analyzing census or vital registration statistics. As a result, the book is written in simple fashion and is quite nontechnical.

The subjects covered range from "The