together. "Unless substantial steps are taken to resolve this problem," says Miller, "the political situation in Peru is likely to become explosive."

In the final contribution to the series, Louis Faron traces more than 400 years of agricultural production and local organization in the coastal valley of the Chancay River, located in the Department of Lima. Here the present century witnessed a shift to cotton agriculture. Absentee landlords first leased their lands to Japanese management companies, which tended to farm the holdings with Japanese sharecroppers. Sharecropping arrangements, however, were based on traditional Peruvian patterns. World War II resulted in the expulsion of the Japanese from positions of economic dominance. The hacienda owners recovered direct control of their lands, now striving to farm them with modern machinery and wage labor. Within the shadow of the haciendas exist viable Indian villages whose inhabitants work on the haciendas but also grow cotton of their own, producing more cotton on less land and at lower cost than the haciendas. There are also homestead colonies which must compete with the haciendas for available supplies of water. The Chancay valley thus demonstrates how a traditional system of relationships, embodied in the organizational form of the hacienda, can be geared to the requirements of modernization, perpetuated here "by the weight of tradition and the limitation of alternatives."

An End in Need of Definition

These studies provide no easy common denominator. In fact, if they exhibit certain convergences, such as the widening encroachment of the market and the growing use of money and credit, they also seem to indicate that such convergence produces profound divergences, as local factors are made use of in an ever-widening specialization and hence an ever-growing worldwide division of labor. Convergence and divergence seem to go hand in hand. Moreover, it seems to me inherently unlikely that the concept of "modernization" is at all adequate to the intellectual task entrusted to it. It is an essentially quantitative concept, denoting growing magnitudes in the use of energy, of organization, of communication. It may be possible to say, with Steward (in volume 1), that increase in these magnitudes finally results in a state in which "basic structures and patterns are qualitatively altered." The concept, however, does not in and of itself allow us to specify the "criterion complex" which marks the watershed between previously existing societies and modern ones. It merely allows us to speak of "less modern" or "more modern," without yet saying anything about the defining qualitative attributes of modernity that we could recognize as the hallmarks of an evolutionary transformation.

Finally, there remains the unpleasant ethical question of "modernization for what?" Steward explicitly states that the use of the term by his collaborators and himself entails no overtones of progress or regression: "The term is neutral." Nevertheless, these studies produced in this reviewer a profound sense of anguish about a world in which social and cultural arrangements are initiated and carried through with so little concern for attendant human costs. Modernization is not only growth along stipulated quantitative dimensions; all too often it is also a veritable slaughter of the innocent.

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Results of Collision

Introduction to the Quantum Theory of Scattering. LEONARD S. RODBERG and R. M. THALER. Academic Press, New York, 1967. 412 pp., illus. $11.50.

Most of our knowledge of the properties of the fundamental particles that compose matter, and of their interactions, is based ultimately on the results of collision experiments. It is therefore natural that scattering theory, which connects the equations of motion with the description of such experiments, should play an ever-increasing part in the education of graduate students of physics. The appearance of half a dozen books on this general subject during the last few years is an expression of this development.

Of the presently existing books on quantum scattering theory, the one under review is the most elementary. Such a book has a very useful purpose for beginning graduate students and nonspecialists, particularly when, as this one is, it is written in a readable manner. The parts I think are especially good are the discussions of the effective-range theory of low-energy scattering, of charge-exchange scattering, and of the distorted-wave and impulse approximations, and the chapters on Green's functions, on invariance principles and conservation laws, and on angular momentum.

On the other hand, the book contains a larger number of nontrivial errors than it should. I will mention here only a few examples. On page 161 the authors use Cauchy's theorem to evaluate a contour integral even though the integrand contains the absolute magnitude of the variable, a nonanalytic function. On page 138 one finds the statement that "the Schrodinger equation is not soluble at all if $V(r)$ is more singular than r^{-1} [at the origin]." This is of course quite untrue. On page 180 an expression is given for the Møller wave operator that is incorrect, the authors' defense of it notwithstanding. This expression is used on several subsequent occasions. The origin of the trouble here is that the authors do not distinguish between operators and their matrix representations, a failure that is evident also in other parts of the book (as on page 235) and that can be badly misleading to the student.

Finally I should mention the absence of references. In the preface the authors write, "Because the treatment is self-contained and highly personal, we have not attempted to refer to the published origins of many of the ideas." That is regrettable. On this level it may not be necessary to give references for historical reasons, but surely it would be useful to the student to have some guide nearer at hand than the two general books to which the authors refer him to tell him where to go for more detail and depth. In sum, this book can be recommended only with great reservations.

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Optical Modulators

Reticles in Electro-Optical Devices. LUCIEN M. BIBERMAN. Pergamon, New York, 1966. 187 pp., illus. $7.

The reader will be impressed with the complexity and the number of uses to which simple reticles can be put in metrology, radiometry, error-signal detection, tracking, and a host of other applications. Most technical people would ordinarily think of reticles as simple choppers or scales, but in this work Lucien M. Biberman ex-