years of discrimination against Negroes some form of positive discrimination is in order. In the meantime, part of the American tragedy is that many whites look upon even the present creaky efforts at equal treatment as showing positive discrimination toward Negroes. All things considered, some type of full-employment plan, and an income-support plan as well, are essential in any overall strategy to eliminate poverty.

One of the central purposes of Valentine's book is to "evaluate existing interpretations of poverty." On Valentine's critical scorecard, E. Franklin Frazier, Nathan Glazer, and Daniel P. Moynihan get failing grades as interpreters; Kenneth Clark and Oscar Lewis get (barely) passing grades; and Herbert Gans (*The Urban Villagers*) and Elliot Liebow (*Tally's Corner*) get the top grades. Part of the reason for the high score of the latter two is that they have undertaken rounded urban ethnographies, using observation, participation, and informal interviewing in their approach.

Valentine stresses the need for further ethnographic research on the poor. His book includes interesting suggestions for such research, detailing alternative hypotheses that can serve as guidelines and explaining the advantages that such work would have. After such ethnographic research is carried out we will better be able to assess the contributions of Valentine and of those he criticizes.

In sum, the book is well written; the issues are clearly presented, although sometimes overdrawn; and the ideas swirling about the concept of a culture of poverty are discussed in detail, along with the implications of these ideas for national policies.

HYMAN RODMAN
Merrill-Palmer Institute,
Detroit, Michigan

The Transforming of Russian Science

The Soviet Academy of Sciences and the Communist Party, 1927–1932. LOREN R. GRAHAM. Princeton University Press, Princeton, N.J., 1967. xviii + 255 pp. $6.50. Studies of the Russian Institute, Columbia University.

There are two themes in this study of the fortunes of the Academy of Sciences, the chief research center of the Soviet Union, under the first Five Year Plan. One is the establishment of Communist control within the Academy, which until 1929 was largely autonomous and politically neutral. The other is the concomitant effort to transform scientific research into a planned, immediately useful part of the drive for rapid industrialization. Let us call the first the political transformation of the Academy and the second the "practical" reorganization, the quotation marks here indicating that there is a question whether or to what extent it was genuinely practical.

Graham is far more successful in dealing with the political transformation. This may seem surprising, for political history is much more dependent on archival research, and the archives were closed to him. He was confined to published sources and such archival material as Soviet historians have seen fit to cite in their works. Yet his political history is sharp and insightful, while his account of the practical reorganization leaves the reader dangling with vague and platitudinous conclusions. The fault lies not with Graham, but with the state of the study of Soviet science. Soviet politics has been intensively studied for a long time, with the result that major questions and rival hypotheses have been clearly defined and the relevance of new data (the "significance of facts," to use the historian's favorite terms) can be readily established. Soviet science and its relationships to industrialization have been studied very little. Science leaves a voluminous public record of its development, but this record has lain unexamined, for it is not "significant" to the ordinary student of Soviet history. Loren Graham is one of the few pioneers trying to fashion the major questions and hypotheses that will make this record significant. Small wonder that he has difficulty with the practical reorganization of the Academy, for the issue of practicality is, in this reviewer's opinion, the most complex and far-reaching of all.

It is not only Western studies of Soviet science that are inchoate. The same holds for the work of our Soviet colleagues, who keep criticizing us for harping on political conflict and ignoring constructive achievement. Yet their massive compilations of scientific achievement, such as the recent multivolume *Sovetskaia Nauka i Tekhnika: 50 Let* (Soviet Science and Technology: 50 Years), are catalogs rather than histories. They list institutions and eminent individuals with brief descriptions of their achievements and much briefer allusions to occasional difficulties. They make no serious effort to answer basic questions, or even to ask them. Why, for example, have Soviet mathematics and physics progressed more successfully than Soviet chemistry and biology? Serious engagement with such questions would involve the historian in the Soviet quest for practicality, not on the level of general talk about poor countries struggling for modernization but within the context of particular fields of scientific research as related (or unrelated) to particular fields of economic progress (or stagnation). Like their Western colleagues, Soviet historians have shied away from such labor, gathering their most significant data in political history. This is exemplified by the work of V. T. Ermakov, who gave Graham an important peephole into the archives with his dissertation, "The Communist Party's Struggle for the Reconstruction of the Work of Scientific Institutions in the Years of the First Five Year Plan." (In the Soviet Union scholarly titles still have such splendid amplitude.) The vivid, historically significant material that Graham found in Ermakov concerned not the practical reorganization of the Academy but the fight for political reliability—the loyalty drive, if we may borrow the analogous American phrase of the McCarthy era.

Why this preoccupation with politics? Are historians a variety of sensational journalist, obsessed with tales of brute conflict and domination? Certainly Graham is not. He makes a genuine effort to analyze the constructive cooperation as well as the political conflict between the Academy and the Party. He focuses on the discussions of the planning of science, and on the practical reorganization, as significant evidence of such cooperation. He declares that the discussions of planning were "intellectually interesting," but his own honest reporting shows that they dealt with such issues as how to take notes or how to measure a scientist's output. Indeed, most articles "were not much more than hortatory proclamations that 'science must be planned'" (p. 63). The single exception was a speech of Bukharin's in 1931, which is intellectually interesting largely by contrast with its meager competition. Willy nilly Graham leads

the reader to the conclusion that talk of the planning of science was little more than an aspect of the loyalty drive. Scientists and administrators pledged to direct their research in an organized fashion toward increased efficiency and "practicality."

Similarly with Graham's pages on the reorganization of the Academy's institutes and laboratories. Clearly an effort was being made to point research toward increased service of industrialization, but the reader is left wondering about essential questions. How far did this effort go beyond administrative shuffling, with what impact on actual research in various fields? In the changing tables of organization that Graham surveys we see evidence of strenuous bustle, but what did it really signify for science on the one hand and for the economy on the other? A seven-page supplement summarizes the Academy's report of the "practical" jobs it had undertaken to do by 1932, but Graham does not go beyond the mere listing. If he had taken representative examples and studied them in depth, he might have been able to tell us how much the Academy really departed from its earlier pattern of work, with what gains and losses resulting. He might even have shed indirect light on the strange criteria of practicality in the minds of Bolshevik leaders, who found Pavlov's research worthy of increased support, though he fiercely opposed the Bolshevization of the Academy, while they permitted the arrest of I. I. Ivanov, the world's leading authority on artificial insemination of livestock, of A. G. Doiarenko, the dean of Soviet agronomy, of S. S. Chetverikov, the founder of population genetics, and of most of the country's leading economists. I am not mocking the Stalinist leaders—there has been altogether too much of that—I am saying that one must dig deep in the record of their deeds if one wishes to understand their passionate faith in practicality.

On the political transformation of the Academy, Graham is very instructive. He shows in rich detail how Bolshevization was actually accomplished. By a combination of idealistic appeals and gross threats, which were ultimately backed up by dismissals and jailings, the Communists got the academicians to renounce their autonomy, to elect Communists to membership (before 1929 there had been no Communist members), and to carry out the practical reorganization as a pledge of service to the Five Year Plans. Graham tells the dramatic story remarkably well, considering his lack of access to the archives. He doubts that the loyalty drive had much effect on the actual work of scientists. "The fact that the Academy was purged and coerced was not so remarkable as the fact that within its battered framework it preserved the seeds of fruitful research" (p. 149). An important amendment should be added: in the social sciences the seeds of fruitful research were left in a state so dormant as to suggest death.

One cannot help wishing that Graham had undertaken a larger job, for example, a detailed history of the decade before 1927. Kadar's recent dictum to the Hungarian intelligentsia, "Anyone who is not against us is with us," aptly describes the prevailing attitude of Soviet Communist leaders during the '20's. One would like to know how much the behavior of the Academy contributed to the sudden reversal at the end of that decade, the angry swing to total mobilization and militant intolerance. But even more one wishes for an expansion of the theme of practicality. Graham has shown that the Soviet leaders and scientists were not very articulate or profound in talking about their science policy. That is just enough to whet the appetite for a study in depth of the policy itself, or rather, a study of the polic*ies* in carefully selected fields of science, for the Soviet leaders have had varying degrees of success in their quest for practical benefit from the various sciences. Loren Graham is admirably qualified to discover the reasons why.

DAVID JORAVSKY
Department of History,
Northwestern University,
Evanston, Illinois

Pigmentation and Inheritance

Comparative Genetics of Coat Colour in Mammals. A. G. SEARLE. Logos Press, London; Academic Press, New York, 1968. xii + 308 pp., illus. $17.50.

Searle's competent presentation of comparative mammalian coat-color genetics will appeal to readers with an odd assortment of special interests: mammalian geneticists, practical breeders of domestic species, mammalogists, zoo-keepers, and students of evolution. The author is a mammalian geneticist who has worked with both cats and mice and has lived in Malaysia. The book's special value stems from its combination of topics and points of view.

After a brief introduction to genetics, Searle devotes one chapter to hair structure and function (including display and protective coloration), another to melanin and its production. An excellent chapter on pigment-gene action covers the neural crest story, melanoblasts during and after their migration, the role of the follicular environment, and the six best understood allelic series, each of which is present in many species. The largest part of the book is a descriptive list of pigment genes recognized in a great variety of mammals, including rodents, carnivores, ungulates, and one primate (man), with brief remarks on monotremes, marsupials, insectivores, bats, whales, and elephants. Wherever genetic data are available, Searle summarizes competently; elsewhere he deduces equally well the extent and nature of uncertainties.

Searle uses the genetics of the extensively studied house mouse as his standard type for comparison, covering almost all pertinent literature through 1966. Unfortunately he missed Silvers' proof [*Science* **149**, 651 (1965)], from rat melanocytes invading transplanted mouse skin, that agouti genes of these two species act homologously. Searle discusses domesticated species well, with comprehensive listing of pigment mutants in *Peromyscus*, Norway and black rats, Syrian hamsters, guinea pigs, coypu (nutria), rabbits, cats, mink, dogs, foxes, cattle, water buffalo, sheep, pigs, horses, and man. His presentation clarified my understanding of the inheritance of colors in cats and horses, much to my gratification. An interesting feature is the description of and attempt to homologize coat colors of nearly one hundred wild species, including a recording of color variants that have been observed.

The final chapters attempt greater generalizations. Variegated coat colors are discussed in relation to the Lyon hypothesis, to somatic mosaicism, and to action of autosomal mottling genes. Pathological pleiotropic effects of certain pigment genes from different species are compared and discussed at a moderately sophisticated level. Very useful tables listing species showing particular kinds of mutations that affect the nature and distribution of