

- Econometrics* [E. Lepa, trans. (Pergamon, London, 1959)], includes an appendix by K. Porwit in which data for Poland are applied to Polish problems.
15. P. C. Mahalanobis, "Some observations on the process of growth of national income," *Sankhyā*, 307 (1952).
 16. ———, "The approach of operational research to planning in India," *ibid.*, 3 (1955); ———, "Draft plan-frame for the second five-year plan," *ibid.*, 63 (1955). These articles and that cited in 15, all of them written after several visits to the Soviet Union, presumably embody some of what Mahalanobis considers the lessons of both Marxist theory and Soviet experience. In fact, as E. D. Domar has pointed out, Mahalanobis's work was partly foreshadowed, as early as 1928, by the work of the neglected Soviet economist G. A. Feldman, although Mahalanobis learned of Feldman's paper only after the appearance of his own model (see 17).
 17. E. D. Domar, "A Soviet model of growth," in *Essays in the Theory of Economic Growth* (Oxford Univ. Press, New York, 1957).
 18. See M. Bronfenbrenner, *Economic Development and Cultural Change* (1960), pp. 45–51, for an earlier discussion along similar lines, which includes considerably more criticism along with the exposition.
 19. Because of these definitions, Mahalanobis's I and C sectors differ from the Marxian "Departments" I and II of *Das Kapital*. Interestingly enough, Feldman also reorganized the Marxian "departmental" structure in the same way in his 1928 article (see 17, pp. 226–228).
 20. Let us define a "dummy" or meaningless variable X such that $Y_t = aX^t$. Substituting aX^t for Y_t and aX^{t-1} for Y_{t-1} , we find $X = (1 + \lambda_1 \beta_1)$, while a becomes equal to Y_0 in order that $[a(1 + \lambda_1 \beta_1)^0]$ should equal the known base period or pre-plan value Y_0 . For a fuller explanation, prepared with the interests of economists in mind, see W. J. Baumol, *Economic Dynamics* (Macmillan, New York, ed. 2, 1959), chap. 9.
 21. Equation 2 corresponds to a considerably more complex result of Mahalanobis's Eq. 1 in "Some observations on the process of growth of national income" (15, p. 309)—a result which he does not derive. A derivation, attributable primarily to Marcel K. Richter of the University of Minnesota (currently at the University of California, Berkeley) is given in M. Bronfenbrenner, *Economic Development and Cultural Change* (1960), p. 48. The Mahalanobis original has, however, one important economic advantage over my simplification. The present formulation assumes implicitly that the existing capital stock can be reallocated readily between sectors of the economy when λ coefficients are changed. Mahalanobis's own development provides greater realism on this point at the price of greater mathematical cumbersomeness. (Irving Morrisett of Purdue University first pointed out to me this advantage of the actual Mahalanobis model over the modification given here.)
 22. To obtain the critical value of t , set the logarithms of the right-hand sides of Eqs. 3a and 3b equal to each other and solve for $t-1$: $\log 0.28 + \log K_0 + (t-1) \log 1.01 = \log 0.24 + \log K_0 + (t-1) \log 1.03$. The resulting value of t is 8.86 years. Mahalanobis, with his more elaborate equation, derives 15 years as his critical value of t (see 15, p. 309).
 23. Mahalanobis's estimate of the critical period for consumption is also 29 years; thus, approximately a generation of austerity is required if the more ambitious heavy-industry planning pattern is adopted (see 15, p. 310).
 24. One critique readily available to American readers is that by the Japanese economist R. Komiya [*Rev. Econ. and Statistics*, 29 (1959)]; Komiya's point of departure is a four-sector Mahalanobis model considerably later and more elaborate than the model considered here. In a letter written to me (dated 26 December 1961), Mahalanobis explains certain of the crudities of his two- and four-sector models. "I used [these models] mainly to get a clearer understanding of priorities in economic planning, and also to get some dimensional ideas of the pattern of investment for the second five-year plan. My exercises had an extremely practical aim; there was urgent need of making immediate decisions, and we simply did not have time to develop any refined theory."

Fay-Cooper Cole, Architect of Anthropology

Fay-Cooper Cole was born in Plainwell, Michigan, on 8 August 1881 and died suddenly after a brief illness in Santa Barbara, California, on 3 September 1961. He was not only an eminent anthropologist and authority on the peoples and cultures of Malaysia, and one of the founders of modern archeology, but also one of the great administrators and developers of men and institutions. In addition, he was a foremost interpreter of anthropology and social science to the general public, continuing in that role after his retirement as chairman of the department of anthropology of the University of Chicago.

Cole attended the University of Southern California briefly at the end of the century and then shifted to Northwestern University, where he graduated in 1903. After postgraduate work at the University of Chicago, he joined the staff of the Field Museum as an ethnologist under George A. Dorsey,

who had an important influence upon his career in anthropology.

Public interest in the Far East had been aroused through the acquisition of the Philippines, and Cole soon had an opportunity to carry out a research and collecting assignment in northern Luzon. Before leaving for the field he spent a period in graduate work under Franz Boas at Columbia University and then went on to Berlin for further training under Felix von Luschan, the great German physical anthropologist. In the meantime he had married Mabel Cook, who was to participate fully in all his future activities; together they set off for a 2-year study of the Tinguian and neighboring tribes in the northern Philippines. The resulting papers and monographs, and the accompanying collections, established Cole as a highly promising scholar.

His first important monograph, *A Study of Tinguian Folklore*, served as his doctoral dissertation at Columbia

in 1914 and was published in the Museum series the following year. In it he compared the life as reflected in myths and legends with that of the present day and found differences which we are only beginning to be able to explain. Publication of his major monograph, *The Tinguian: Social, Religious and Economic Life of a Philippine Tribe*, was delayed by World War I. The monograph appeared in 1922 and was an important contribution, both in its theoretical scope and in the completeness of its coverage of Tinguian life.

A second expedition to Mindanao, in 1910–12, to study the pagan Bukidnon and the tribes of Davao Gulf was cut short by malignant malaria which very nearly cost the Coles their lives. On their return Cole was made assistant curator of Malayan ethnology at the Field Museum. He prepared a monograph on *The Wild Tribes of the Davao District, Mindanao*, which was published in the Museum series, and he began to take an active role in public affairs and professional activities.

While on his last major expedition to Indonesia, in 1922–23, Cole received offers from both Northwestern University and the University of Chicago and was asked by each to develop a program in anthropology. On his return he taught at both institutions before deciding that his future lay with Chicago.

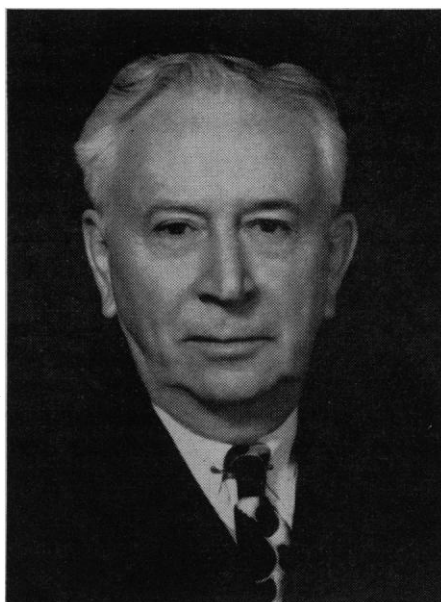
Coming to the University of Chicago in 1924 as an assistant professor in the department of sociology and anthro-

pology, Cole developed anthropology into a major department in the space of a very few years. He was primarily interested in establishing a research-oriented department devoted to graduate training. His role in the Scopes trial in the following year brought him to national attention and resulted in crowded classes and increased university support. Soon he brought in Edward Sapir, and together they began to attract a large group of graduate students. A broad program of training in all fields of anthropology was instituted, and research in new directions was encouraged. When a separate department of anthropology was officially established in 1929, it had a promising future.

The year 1929, however, turned out to be a bad year to start any new enterprise, and one of the results of the stock market crash was the loss of a promised building for anthropology. But friendships made by Cole over the years in the Chicago community enabled the new department to continue its program. A close personal friend, Adolph Lichtern, provided an endowment for the support of anthropology, and a group of prominent business men supported the archeological program which Cole was developing for Illinois and the Mississippi Valley region. In addition, the Rockefeller Foundation provided funds for bringing A. R. Radcliffe-Brown to the university and supported a number of field research projects as well.

During the 1930's Cole's own research interests were closely identified with the development of Midwestern archeology. He put aboriginal Illinois on the map, strongly influenced archeological method, introduced dendrochronology to the Mississippi Valley, and brought archeology and history into a fruitful relationship. In addition, he trained a large group of students who now occupy important posts and who are continuing to expand our knowledge of aboriginal Indian life in the New World.

His major publications during this period were devoted to archeological subjects. *Rediscovering Illinois* (with Thorne Deuel) provided the first detailed chronology of aboriginal occupation in central Illinois and served as a basic framework for later studies. *Kincaid: A Prehistoric Illinois Metropolis* summarized several seasons of field research on a large "Middle Mississippi" cultural center on the Ohio River



Fay-Cooper Cole

and provided the first archeological dating in the Midwest based upon tree rings. Together these volumes represent an important achievement in the interpretation of prehistoric life in the New World.

These publications also reflect Cole's treatment of graduate students as junior colleagues. He gave them responsibility for particular projects and full credit for their contributions. He also maintained a personal interest in their welfare and came to the aid of a great many, both financially and in other ways. His strong interest in his students was reciprocated. On his retirement from the University of Chicago a group of former students organized and prepared a volume on the *Archeology of the Eastern United States* (edited by James B. Griffin), which was presented to him in 1952.

During World War II Cole took an active part in the training of Army and Navy officers in the Civil Affairs Training School for the Far East. He returned to his earlier interest in Southeast Asia and wrote *The Peoples of Malaysia*, a major synthesis and interpretation of this important region.

Soon after his retirement from the University of Chicago, where he had served as professor of anthropology and chairman of the department since its inception in 1929, he and his wife moved to Santa Barbara, but he continued his activities as vigorously as ever. He served as chairman of the department of anthropology at Indiana

University for a year, gave the Condon lectures at Oregon State University, served as Walker-Ames professor at the University of Washington, and taught at Cornell University and other institutions.

During his long career he participated actively in scholarly and professional associations. He was a fellow of the American Association for the Advancement of Science, the American Geographical Society, the Society for American Archaeology, and the American Anthropological Association, of which he was president for two terms. He also was a member of the Social Science Research Council and of the National Research Council, where he served as chairman of the Division of Anthropology and Psychology in 1929-30. He particularly valued his membership in the American Philosophical Society. The Chicago Geographical Society, of which he was president in 1931-32, awarded him its gold medal for Malayan research.

He also participated actively in public affairs. He served for many years as a member of the Illinois State Board for Museums and was chief of the social science division of the "Century of Progress," with responsibility for planning and installing the social science exhibits at the Chicago World's Fair. After retirement he became a trustee of the Santa Barbara Museum of Natural History and attended the 9th Pacific Science Congress at Bangkok as an official delegate of the American Anthropological Association.

Cole was awarded an honorary Sc.D. from Northwestern University and an LL.D. from Beloit College, as well as an LL.D. from the University of Chicago on the occasion of the 25th anniversary of the dedication of the Social Science Research Building, which he helped to plan.

He lived a full and active life, in a period when anthropology grew from a science of marginal significance to its present role in university and national life. He had a vision of what anthropology might become and worked unceasingly to bring it about. In addition to his widow he leaves a son, LaMont Cole, who is professor of zoology at Cornell University. He will continue to live in the hearts and minds of everyone who came in contact with him.

FRED EGGAN

University of Chicago,
Chicago, Illinois