CHAPTER 1

Occupational Structure and Mobility Process

The objective of this book is to present a systematic analysis of the American occupational structure, and thus of the major foundation of the stratification system in our society. Processes of social mobility from one generation to the next and from career beginnings to occupational destinations are considered to reflect the dynamics of the occupational structure. By analyzing the patterns of these occupational movements, the conditions that affect them, and some of their consequences, we attempt to explain part of the dynamics of the stratification system in the United States. The inquiry is based on a considerable amount of empirical data collected from a representative sample of over 20,000 American men between the ages of 20 and 64.

Many of the research findings and conclusions we report have significant implications for social policy and action programs. For example, we repeatedly indicate whether the inferior occupational chances of some groups compared to those of others are primarily due to the former's inferior educational attainments or to other factors. These differences reveal whether educational programs would suffice or other social actions are necessary to effect improvements in the occupational opportunities of the groups under consideration. We hope that the documented generalizations presented will be helpful to policy makers and the interested public in formulating appropriate action programs and clarifying partisan controversy, but we have not seen it as our task to spell out the practical implications of our findings in detail.

Neither have we set ourselves the objective of formulating a theory of stratification on the basis of the results of our empirical investiga-

tion. This does not mean that we have restricted our responsibility to reporting "the facts" and letting them speak for themselves, or that we favor an artificial separation of scientific research and theory. On the contrary, we seek to place our research findings into a theoretical framework and suggest theoretical interpretations for them. To bring theoretical considerations to bear upon our empirical data on occupational achievement and mobility, however, is a much more modest undertaking than to construct a theory of stratification. The latter is not the aim of this book, although we shall speculate in the concluding chapter about some of the broader implications of our results for such a theory.

STRATIFICATION THEORY AND MOBILITY RESEARCH

In a classical presentation of social mobility as an important problem for sociological inquiry, completed four short decades ago, the author lamented,

> Within our societies vertical circulation of individuals is going on permanently. But how is it taking place? . . . what are the characteristics of this process of which very little is known? Individuals have been speculating too much and studying the facts too little. It is high time to abandon speculation for the somewhat saner method of collecting the facts and studying them patiently.[1]

It was only after World War II that Sorokin's challenge began to be met in any substantial way. To be sure, many of the great social thinkers of the last century, stimulated by the great impact of industrialization on society and the resulting concern with social change in general and the role of class differentiation for change in particular, developed theories of stratification or differentiation. The classical example is Marx's theory of class conflict as the prime force generating historical change, which has dominated much of social thought in the nineteenth century and much of political life in the twentieth.[2] Marx would probably not be displeased to see that his theory today is much more influential in actual political life than in the social sciences, since he held that the action implications of a social theory, not its objective scientific merits, are what justifies it. Durkheim's theory of the division of labor focuses more specifically on occupational differentiation, its roots in social density, and its implications

1 Pitirim A. Sorokin, *Social Mobility*, New York: Harper, 1927, p. 414.

2 For a concise summary of Marx's class theory, see Reinhard Bendix and Seymour M. Lipset (eds.), *Class, Status, and Power*, Glencoe: Free Press, 1953, pp. 26-35.

for lessening consensus and altering the nature of social solidarity.[3] But neither these two nor any of the many other broad theories of social class and differentiation had much influence on the systematic research on social mobility that has been carried out in the last two decades. Indeed, most empirical studies of occupational mobility never refer to these theories. Thus even investigators known to be conversant with and sympathetic to Marx's theory do not make reference to it in their mobility research.

The reason for this neglect of stratification theory in mobility research is not simply the often-voiced complaint that the grand theories developed in the last century are not formulated in terms that make them easily amenable to empirical investigation. It is more specific than that. Stratification theories seek to explain the features of social differentiation in a society by reference to the historical conditions that have produced them, which implies a comparative framework in which differences in institutional conditions between historical periods or societies are related to consequent differences in the stratification systems. To explain the conditions that have produced the distinctive features of a stratification system it is necessary to contrast it with other systems or, at the very least, with one other, whether the comparison is based on systematic data or relies on impressionistic observation. Empirical studies of social status and mobility in one society cannot make the relevant comparisons to formulate or refine the propositions of stratification theories, because each society constitutes merely a single case from the perspective of these theories, regardless of the volume of quantitative data collected. Moreover, stratification theories generally are concerned with other institutional conditions in a society that produce the characteristic class structure, or with other conditions that have been produced by this class structure. Empirical studies typically have no information on these other variables. Thus both Marx and Durkheim consider extensive social interaction an essential condition for the development of social differentiation—specifically, for the development of the class consciousness that crystallizes class differences in Marx's case, and for the development of the division of labor in Durkheim's. But mobility research rarely if ever collects information on the extent of social interaction. The design of mobility research is not suited for the study of the problems posed by stratification theory, for it centers attention not on the institutional differences between societies but on the differ-

3 Émile Durkheim, *On the Division of Labor in Society*, New York: Macmillan, 1933.

ential conditions that affect occupational achievements and mobility within any one.

Although no single empirical study of social status and mobility in one society can advance stratification theory—which is the reason we have stressed that doing so is not the aim of our book—this does not mean that such research is irrelevant for the theory. Far from it; the cumulative results of empirical studies of stratification in different societies are essential for testing and refining stratification theory. Sorokin called for this kind of cumulative research effort in the passage quoted, and he attempted in his own work to derive theoretical generalizations about stratification from the limited bodies of empirical data then available.[4]

A number of local studies of occupational mobility in one community were pioneering endeavors that provided important insights into the problem,[5] but the tendency to use their results—as the only ones available—to draw inferences about social mobility in the society at large soon called attention to their evident limitations for such a purpose. It became increasingly apparent that nationwide studies based on representative samples are needed to clarify the process of social mobility, particularly in modern society where occupational mobility is often accompanied by geographical moves that take individuals from one local community to another. A number of such national mobility surveys in different countries were initiated shortly after the end of World War II by a group of scholars who formed an international committee on social stratification and mobility under the auspices of the International Sociological Association. Outstanding illustrations are the studies of mobility in Britain by Glass and his colleagues, in Denmark by Svalastoga, and in Sweden by Carlsson.[6] National studies in numerous other countries have also been carried out, but there is no need to review them here since a comprehensive bibliography of these and a few local studies, together with some comparative analysis of their results, has been presented by Miller.[7]

[4] Sorokin, *loc. cit.* For a critique, see Gösta Carlsson, "Sorokin's Theory of Social Mobility," in Philip J. Allen (ed.), *Pitirim A. Sorokin in Review,* Durham: Duke Univer. Press, 1963, pp. 123-139.

[5] For two American studies, see H. Dewey Anderson and Percy E. Davidson, *Occupational Mobility in an American Community,* Stanford: Stanford Univer. Press, 1937; and Natalie Rogoff, *Recent Trends in Occupational Mobility,* Glencoe: Free Press, 1953.

[6] D. V. Glass (ed.), *Social Mobility in Britain,* London: Routledge and Kegan Paul, 1954; Kaare Svalastoga, *Prestige, Class and Mobility,* Copenhagen: Gyldendal, 1959; and Gösta Carlsson, *Social Mobility and Class Structure,* Lund: CWK Gleerup, 1958.

[7] S. M. Miller, "Comparative Social Mobility," *Current Sociology,* Vol. 9, No. 1, 1960. A recent Italian study not included in Miller's review is presented in Joseph Lopreato, "Social Mobility in Italy," *American Journal of Sociology,* 71(1965), 311-314.

Our research on the American occupational structure is in the tradition of these national surveys of occupational mobility. It shares with them the assumption that the understanding of social stratification in modern society is best promoted by the systematic investigation of occupational status and mobility. In short, the focus is on the stratified hierarchy of occupations rather than on some other aspects of social differentiation. The limitation of this approach as well as the justification for it should be pointed out. The major limitation is that it does not make it possible to analyze the various dimensions of stratification.

Max Weber's famous distinction between class, status, and political party calls attention to different dimensions of social stratification.[8] He granted the importance of economic classes that is stressed in Marx's theory. These classes are differentiated on the basis of the position of men in relation to the economy, particularly the possession of property in the form of capital, and they determine the life chances of individuals and their economic interests. But Weber emphasized that this economic differentiation is not the only dimension along which society is stratified. Men are also differentiated into social strata in terms of the social honor or prestige accorded to them, and the members of a status group, as Weber called prestige strata, share a distinctive style of life, accept each others as equals, and restrict noninstrumental social intercourse to the ingroup. Moreover, the roles individuals play in the struggle among parties for political power refer to still another aspect of stratification, which must be distinguished from both class position and prestige status. The difference between the latter two can be summarized by saying "that 'classes' are stratified according to their relations to the *production* and *acquisition* of goods; whereas 'status groups' are stratified according to the principles of their *consumption* of goods as represented by special 'styles of life.' "[9]

Although Warner did not utilize Weber's conceptual scheme, and was apparently not even aware of it, his community studies led him to the same conclusion: other criteria than strictly economic ones govern the differentiation of men into various prestige strata.[10] The

[8] Max Weber, *Essays in Sociology,* New York: Oxford Univer. Press, 1946, pp. 180-195.

[9] *Ibid.,* p. 193 (italics in original).

[10] See especially W. Lloyd Warner and Paul S. Lunt, *The Social Life of a Modern Community,* New Haven: Yale Univer. Press, 1941, pp. 81-126. This is the first volume of the *Yankee City Series.* There is no reference to Max Weber in the entire series.

prestige status of individuals is not directly determined by their economic affluence or personal attributes but by the social stratum in which their families have found social acceptance. Social strata rather than individuals are ranked by the community into a prestige hierarchy. The family's possessions and characteristics affect its prestige status only indirectly, by influencing the stratum in which members are accepted, as indicated by their patterns of social participation and association. Important as these prestige strata studied by Warner may be in the social life of a community, however, economic rather than prestige criteria are undoubtedly the crucial ones in the stratification system of the entire society, particularly the industrial society.

Occupational position is not identical either with economic class or with prestige status, but it is closely connected with both, particularly with the former. Class may be defined in terms of economic resources and interests, and the primary determinant of these for the large majority of men is their occupational position. To be sure, Marx stressed that the criterion of class is not a man's occupation but whether he is an employer who has the capital to buy the labor of others or an employee who sells his labor. This criterion, however, is no longer adequate for differentiating, as Marx intended it to do, men in control of the large capitalistic enterprises from those subject to their control, because the controlling managers of the largest concerns today are themselves employees of corporations. If class refers to the role persons occupy in the economy and their managerial influence on economic concerns, it is more accurately reflected in a man's specific occupation than in his employment status in contemporary society, where the economy is dominated by corporations rather than individual proprietors. Occupational position does not encompass all aspects of the concept of class, but it is probably the best single indicator of it (although more refined measures should take economic influence directly into account). Conceptually, there is a closer relationship between economic class and occupational position than there is between occupational position and prestige status. But there is also some relationship between the latter two because many occupational pursuits (notably those involving physical labor) are incompatible with the "honor" of belonging to the higher prestige strata. In addition, the maintenance of the "proper" style of life of these higher strata requires considerable economic resources.

The occupational structure in modern industrial society not only constitutes an important foundation for the main dimensions of social stratification but also serves as the connecting link between different institutions and spheres of social life, and therein lies its great significance. The hierarchy of prestige strata and the hierarchy of economic classes have their roots in the occupational structure; so does the hierarchy of political power and authority, for political authority in modern society is largely exercised as a full-time occupation. It is the occupational structure that manifests the allocation of manpower to various institutional spheres, and it is the flow of movements among occupational groups that reflects the adjustment of the demand for diverse services and the supply of qualified manpower. The occupational structure also is the link between the economy and the family, through which the economy affects the family's status and the family supplies manpower to the economy.[11] The hierarchy of occupational strata reveals the relationship between the social contributions men make by furnishing various services and the rewards they receive in return, whether or not this relationship expresses some equitable functional adjustment, as assumed by the functional theory of stratification.[12] Indeed, there is good reason to suspect that such adjustment is often disturbed, because the occupational hierarchy is not only an incentive system for eliciting services in demand but also a power structure that enables men in controlling positions, such as corporation managers, to influence the distribution of rewards.

The variegated role of the occupational structure in connecting different elements of social organization makes an understanding of it essential for the student of modern society. The study of social stratification, in particular, presupposes a thorough knowledge of the occupational hierarchy, which is a major source of the various aspects of social stratification in industrial society. Many problems of stratification cannot be investigated on the basis of research on the occupational structure, however, because such research does not provide information on the various manifestations of stratification and their interrelations—the extent to which class, status, and power differences overlap or diverge—but only deals with the underlying dimension common to them all. Hence inquiries into the occupational structure are merely a first step, albeit an important one, in the analysis of social stratification.

Our study builds on the tradition that has developed in national surveys of occupational mobility but departs from this tradition both methodologically and substantively. Previous studies of occupational mobility have devoted much attention to methodological problems of

[11] See Talcott Parsons and Neil J. Smelser, *Economy and Society*, Glencoe: Free Press, 1956, pp. 51-55, 70-72.

[12] See Kingsley Davis and Wilbert Moore, "Some Principles of Stratification," *American Sociological Review*, 10(1945), 242-249.

measurement, notably, how to rank occupations and how to measure the extent of mobility between social origins and occupational destinations. In addition to the use of outflow percentages from origins and inflow percentages into destinations, summary measures of the extent of mobility have been devised, the best known of which is the "index of association" or "social distance mobility ratio."[13] The quantitative score of occupational status employed in our research makes it possible to utilize several more complex statistical procedures, such as regression techniques, which permit refined analysis of the data. These more elaborate methods of analysis are of special importance for the investigation of the simultaneous influence of several factors on occupational achievement and mobility. A major substantive difference between our inquiry and earlier mobility research is our concern with these factors that influence occupational mobility.

The predominant emphasis in mobility research has been on the analysis of the occupational mobility matrix as a self-contained entity. Although the results of this analysis describing the mobility pattern are occasionally related to other variables, such as education or fertility, the major preoccupation is typically the internal analysis of mobility tables, and relatively little attention is devoted to the systematic investigation of the relationships between other factors and occupational mobility. The tendency to conceive of mobility as a single variable and examine it largely without relating it to other variables has severely restricted the fruitfulness of mobility research. After all, the purpose of scientific inquiry is to establish, and then to explain, general relationships between variables, and not merely to delineate the population distribution of one variable, regardless of how important this variable may be. It is as if students of political behavior were merely to ascertain the shifts in party preferences between elections without investigating the factors associated with different party preferences and with shifts in them. Preoccupied with mobility as such, investigations have generally not supplied sufficient information on its correlates to make it possible to explain the observed mobility patterns.

The comparison of occupational mobility in different countries greatly enhances the substantive interest of the findings, because this comparison stimulates insights and speculations about other known variations between these countries that may have produced the differences in mobility patterns. Thus Carlsson relates his findings on mobility in Sweden to those of other investigators of mobility in Great

[13] Independently developed and differently labeled in Glass (ed.), *loc. cit.*, and Rogoff, *loc. cit.* Limitations of this measure are discussed in Chapter 3.

Britain and West Germany, and Miller presents a comprehensive secondary analysis of mobility in 18 different nations, although the data for some of these are unfortunately of questionable reliability.[14] The most extensive secondary analysis of social mobility in various industrial societies has been carried out by Lipset and Bendix, who investigate a variety of factors associated with mobility in different countries and derive from their analysis suggestive theoretical generalizations about social stratification in modern society.[15] The national studies of occupational mobility, despite their limited scope, have made the important contribution of laying the groundwork necessary for such comparative secondary analysis.

Whereas research on occupational mobility in a single society cannot make the comparisons needed to generalize about stratification systems, as previously noted, it can attempt to explain the observed patterns of mobility by ascertaining some of the other conditions associated with them. This is a basic objective of the present monograph. Although we, too, start the substantive discussion of our findings with an analysis of the intergenerational and intragenerational mobility tables themselves, we proceed to discern what other factors not contained in these tables affect the patterns reflected in them. After examining, in the next two chapters, the patterns of intergenerational and intragenerational mobility among occupational groups and historical trends in these patterns, the focus shifts to the study of the conditions that influence differential occupational success and some of its consequences.

A substantive problem of central concern to us, which mobility research in the past has largely neglected, is, therefore, how the observed patterns of occupational mobility are affected by various factors, such as a man's color, whether he has migrated, or the number of his siblings and his position among them. We found it advantageous, however, to reformulate this problem by decomposing the concept of occupational mobility into its constituent elements: social or career origins and occupational destinations. Rather than asking what influence a variable—community size, for instance—exerts on upward mobility, we ask what influence it exerts on occupational achievements *and* how it modifies the effect of social origins on these achievements. The main reason for this reformulation is that the likelihood

[14] Carlsson, *op. cit.*, pp. 116-120; and Miller, *loc. cit.* See also Thomas G. Fox and S. M. Miller, "Economic, Political and Social Determinants of Mobility," *Acta Sociologica*, 9(1965), 76-93.

[15] Seymour M. Lipset and Reinhard Bendix, *Social Mobility in Industrial Society*, Berkeley: Univer. of California Press, 1959.

of upward mobility depends, of course, greatly on the level from which a man starts; this makes the finding that a given factor is associated with mobility ambiguous, as will be more fully shown in Chapter 5. Such ambiguities are avoided by taking the level of social or career origins into account. To cite only one example at this point: the chances of upward mobility of Negroes, though lower than those of whites, appear misleadingly high unless the exceptionally low levels of origins are taken into consideration.

This reformulation of the problem enables us to dissect the process of occupational mobility by determining how various factors condition the influence of origins on occupational success. Thus we trace the interdependence between social origins, career beginnings, and education, and examine their direct and indirect influences on occupational achievements. This basic model is subsequently enlarged by investigating how a variety of other factors contribute to occupational achievement and mobility. The analysis of the characteristics of individuals and social conditions that affect occupational success serves to explicate the patterns of movement observable in the mobility matrix. A system of stratified occupations must include provisions for the allocation of persons to positions in order to maintain itself in the face of the birth and death of men, their maturation and retirement, the expanding need for some occupational services, and the declining demand for others. The process of occupational mobility refers to the social metabolism that governs this allocation of manpower and hence underlies the dynamics of the occupational structure. The specification of the factors that affect the occupational achievements of individuals seeks to account for this dynamic process. In sum, the conventional mobility matrix represents the structure of occupational allocations to be explained, and the analysis of the conditions that determine the process of mobility is designed to furnish the required explanation.

METHOD OF DATA COLLECTION

Following the lead of the subcommittee on stratification and mobility of the International Sociological Association, the data for our study were collected in a national sample survey. There is an important innovation in our procedure, however. Our survey of "Occupational Changes in a Generation" (OCG) was not organized as an *ad hoc* inquiry but was carried out as an adjunct to the monthly "Current Population Survey" (CPS) of the U. S. Bureau of the Census. The CPS, in continuous operation since 1942, has the primary function of producing monthly statistics on the labor force, unemployment, and related topics,[16] but it often collects data on a variety of other subjects, as illustrated in the information given in Appendix A, "Bibliography of Official Government Publications Relating to the Population Covered in OCG."[17]

The decision to secure our mobility data through the CPS had far-reaching consequences for the study design and analysis—largely benign consequences, but occasionally troublesome ones. The most attractive result of this decision was that we were able to obtain, at marginal cost, data on social mobility for a much larger sample than had ever been studied in such a national sample before. A second important advantage was that the investigators did not have to become involved in the creation and operation of a complex survey mechanism but could depend on the skills in sampling, questionnaire design, field operations, and data processing of a large staff of highly trained and experienced professionals.

The disadvantages and vexations attending this *modus operandi* stemmed largely from two circumstances: the lengthy lead-and-lag times required from initial planning to execution of field work, and from field work to data processing and statistical analysis, necessitated by having to work through a giant bureaucracy; and the severe restrictions on the amount of information that could be collected. For example, no attitudinal data could be obtained, because the field staff lacked the required experience; and no information on religion could be collected, because the present policy of the Bureau of the Census prohibits it.

Discussions with officials of the Bureau of the Census during the latter half of 1959 established that the Bureau recognized a general public interest in statistics on social mobility; that it would be feasible to include questions on this subject in the CPS; that such questions could be cross-tabulated with others normally obtained in the CPS; that this could be done at reasonable marginal costs; but that special financing would have to be obtained to support such work.

During the succeeding 12 months the investigators drafted proposals for financing and secured approval of two projects to be supported, respectively, by the National Science Foundation and the Public Health Service. The development of plans for the two projects re-

[16] U. S. Bureau of Labor Statistics and U. S. Bureau of the Census, "Concepts and Methods Used in Household Statistics on Employment and Unemployment from the Current Population Survey," *BLS Report* No. 279 and *Current Population Reports*, Series P-23, No. 13, June 1964.

[17] An instructive discussion of the value of the CPS as a resource for social research is presented in Daniel B. Levine and Charles B. Nam, "The Current Population Survey," *American Sociological Review*, 27(1962), 585-590.

quired considerable consultation with officials of the Bureau of the Census, inasmuch as it was necessary to anticipate in considerable detail what would be done and what it would cost. The essential features of the study were determined during this period. The grants for the study were officially approved early in 1961; the questionnaire was pretested in the summer of that year; and final decisions about all aspects of the study design had to be made soon thereafter, including specification of the actual statistical tables to be produced.

The data collection for the OCG survey took place in March 1962. The Bureau of the Census had already planned to obtain in this month not only the usual labor-force information, including occupation, industry, and class of worker of members of the experienced civilian labor force, as well as age, sex, and color, but also data on educational attainment, income, marital and household status, and number of children ever born. With this information available from the regular CPS interview, it was necessary only to determine what additional items would be required to serve the purpose of a study on social mobility.

As a matter of feasibility and economy, it was decided that the supplementary OCG information should be collected not in the course of the regular CPS interview but by means of a "leave-behind" questionnaire, which the eligible respondents were asked to fill out and mail to the regional headquarters of the Bureau of the Census. The pretest confirmed the supposition that this self-enumeration procedure would be workable. It was still necessary to impose strict limitations on the amount and detail of information to be requested in the OCG questionnaire. A two-page document, supposedly self-explanatory to the great majority of respondents, was developed to secure data on the following items: birthplace of respondent, his father, and his mother; number of siblings and birth order; educational attainment of respondent's oldest brother (if any); size of community of residence at age 16; type of school attended up to age 16; age at entering first job, and occupation, industry, and class of worker of that job; family living arrangements up to age 16; occupation of father (or other person who was the family head) when respondent was about 16 years old; educational attainment of father (or other family head); marital status; and, for married men living with their wives, the number of the wife's siblings and her father's occupation. The actual questionnaire is reproduced in Appendix B. The reader must remember, however, that it covers only the supplementary OCG items and not the whole array of information available from the regular CPS interview. There is no point in reproducing

the CPS interview form itself; it is a complex document, fully intelligible only to trained interviewers, and designed for automated data processing.[18]

One of the hazards of self-enumeration is, of course, that respondents will not comply with the request to complete and return the document on schedule. Provision was made, therefore, for initial mail follow-up, and for a final follow-up by personal contact (telephone call or household visit) of a subsample of the remaining nonrespondents. Assuming a high completion rate for these final follow-up interviews, as was in fact obtained, it was possible to introduce differential sample inflation factors for the two groups in the sample: (a) those responding to the initial contact or to one of the mail follow-ups, and (b) those responding only on the final wave of personal follow-ups. The end result was a set of estimates essentially free of nonresponse bias. (This refers to potential bias resulting from failure to respond at all; a separate bias remains due to failing to answer particular questions when returning the questionnaire.)

We shall not attempt to supply details on the design and properties of the CPS sample, as a thorough technical discussion is available elsewhere,[19] and as each official report based on CPS carries notes on sampling procedures and estimates of sampling variability. In March 1962, as in each month since 1956, the CPS contacted some 35,000 occupied dwelling units or households. These contained approximately 25,000 men 20 to 64 years of age who were designated as eligible respondents for the OCG questionnaire. Complete questionnaires or follow-up interviews were obtained from almost exactly five-sixths of these men; that is, from about 20,700 respondents. Sample figures were inflated to independent estimates of the U. S. population by age, sex, and color, incorporating the differential weights for response status already mentioned. The 20,700 respondents represent the approximately 45 million men 20 to 64 years old in the civilian, noninstitutional population of the United States in March 1962 (including as "civilians" some 900,000 members of the Armed Forces living in families on military posts in the United States or off posts in civilian quarters). Unless otherwise specified, all tables refer to this sample.

The tabulations produced for the OCG study are in the form of

[18] Detailed specifications on regular CPS items can be found in the *Current Population Reports* and *Special Labor Force Reports*, such as those listed in Appendix A.

[19] U. S. Bureau of the Census, "The Current Population Survey: A Report on Methodology," Technical Paper No. 7, 1963.

estimates of population frequencies (in 1000's). Given the controls employed in the estimation process, we automatically enjoy near-perfect comparability of the OCG data with other CPS tabulations for the month of March 1962, although some minor discrepancies are unavoidable, given the difference in over-all completion rate for the regular interviews and the OCG supplement. (See Appendix C, "Notes on Coverage of OCG Tabulations and Comparability with Other Sources.") The advantage of comparability with several other sources makes the OCG statistics one element in a comprehensive set of social and demographic statistics describing the state and condition of American society at a particular point in time. We do not have to offer interpretations in a vacuum or resort to speculation as soon as we depart from the confines of the particular tables at hand; a cornucopia of reliable supporting information is at hand.[20]

What can we say of the quality of the OCG statistics? The first observation is that those portions of the data deriving from the regular CPS interview represent a product of survey procedures repeated literally scores of times in the past and refined and improved in the course of repetition. A large amount of information is available on their reliability and validity. We have detailed statistics, for example, on the correspondence between responses obtained in CPS interviews and those obtained independently in a full-scale census.[21] As survey data go, the CPS statistics must be presumed to be highly reliable and accurate by current standards.

We are in a less secure position with respect to the data secured in the OCG supplementary questionnaire. Questions resembling these had been asked in previous surveys, of course, but little work on the evaluation of the resulting statistics had been done. In the OCG study it was possible to design only a modest number of checks on data quality, although these go beyond what is usually available for the evaluation of survey data. The most significant evaluations are summarized here.

In the pretest carried out in the Chicago metropolitan area during the summer of 1961 an effort was made to ascertain addresses of respondents at the time they were 16 years old so that these identical respondents could be located in the records of one of the censuses of 1920, 1930, or 1940. Among 123 cases in which a census match was

[20] See Appendix A, "Bibliography of Official Government Publications Relating to the Population Covered in OCG."

[21] U. S. Bureau of the Census, "Accuracy of Data on Population Characteristics as Measured by CPS-Census Match," *Evaluation and Research Program of the U. S. Censuses of Population and Housing: 1960*, Series ER 60, No. 5, Washington: Government Printing Office, 1964.

achieved we found that there was 70 per cent agreement between the census report and the respondent's report of father's major occupation group. Although 30 per cent disagreement may appear high, this figure must be interpreted in the light of two facts. First, the date of the census and the date at which the respondent attained age 16 could differ by as much as five years; many fathers may actually have changed occupations between the two dates. Second, re-interview studies of the reliability of reports on occupation may find disagreements on the order of 17 to 22 per cent,[22] even though the information requested is current, not retrospective. Hence we are inclined to think that the reporting of father's occupation is perhaps not markedly inferior in reliability to the reporting of respondent's own occupation. (For further details, consult Appendix D, "Chicago Pretest Matching Study.")

Although the pretest afforded the only opportunity for a case-by-case comparison of OCG information with information from another source, some other checks were possible. Certain cohorts that were classified in 1910 and 1940 Census reports by father's occupation could be identified in the OCG data. The distributions of these cohorts by father's occupation in the two sources were compared. The comparisons suggest that the OCG distributions are reasonable, if allowance is made for the fact that the census classifications pertain to the time when the cohorts were under 5 years of age, whereas the OCG question asked for father's occupation at the time the respondent was age 16.

Another check of the same sort pertained to the distribution of men by father's educational attainment. Here a somewhat involved estimation procedure was used to impute distributions of respondents by father's year of birth. The latter then furnished a basis for estimating what the educational attainment distributions should have been had the fathers been typical of the cohorts from which they were drawn, as these cohorts were enumerated in the censuses of 1940, 1950, and 1960. Contrary to what might be expected, the comparison of imputed education distributions with those reported in OCG revealed no general tendency for the OCG respondents to exaggerate the attainment of their fathers, except that considerable numbers of OCG respondents appear to have classified their fathers as high-school graduates when they should have been reported as completing only one to three years of high school.

Both sets of results—reported in detail in Appendix E, "Census

[22] *Ibid.*, Table 34; U. S. Bureau of the Census, "The Post-Enumeration Survey: 1950," Technical Paper, No. 4, 1960, Table 36.

Checks on Retrospective Data"—are, therefore, moderately reassuring. The conclusion, however, is not that the OCG data on socioeconomic background are free of error, but merely that they may be almost as reliable as the CPS data on current occupational status. Although this study took some special pains to look into the incidence of data error, it must be conceded that very little was done to estimate the effect of such error on conclusions and inferences. In that respect, unfortunately, our investigation is all too typical of the current standards of social research.

Still another aspect of the problem of quality was subjected to special study. This is the matter of potential bias due to nonresponse on particular items in the questionnaire. The problem was examined with special reference to its impact on correlation coefficients. It is possible to set absolute limits on the possible extent of "NA bias" in a computed correlation, but these limits are so wide as to be rather uninformative. A particular correlation between father's occupational status and status of the respondent's first job, for example, was computed as .377 from cases reporting both variables. The extreme values that it could take if computed for all cases, on opposite extreme assumptions about the bivariate distributions of NA cases, are .190 and .464. However, on a reasonable rather than extreme allowance for variation between the reporting cases and the NA cases in respect to the correlation in question, it turns out that the correlation for all cases would probably not differ by more than $\pm$ .03 from the computed value. This is of the same order of magnitude as the standard errors of sampling for most of the correlations used in the analysis. Moreover, we are aware that the use of broad class intervals in our calculations and other approximations in computing can, by themselves, easily induce errors of the magnitude of .01. Again, we are somewhat reassured that normal precautions taken in the interpretation of small differences will suffice to avoid erroneous inferences from results affected by NA bias. (For details of this calculation, see Appendix F, "Effect of Nonresponse on Correlation Results.")

It should be mentioned that the problem of NA bias arises mainly for the supplementary OCG items, since the current practice in processing regular CPS items is to allocate NA's. The following summary account describes the procedure that is used:[23]

Assignment of years of school completed for those not reporting. When information on either the highest grade attended or completion of the grade was not reported for respondents in the 1962 survey, entries for the items were assigned using an edit in the computer. Such assignments were not made where the education of brothers or fathers [OCG supplementary questions] was not reported. The general procedure was to assign an entry for a person that was consistent with entries for other persons with similar characteristics. The specific technique used in the March 1962 survey was as follows:

1. The computer stored reported data on highest grade attended by color and age, and on completion of the grade by age and highest grade attended, for persons 14 years old and over in the population.
2. Each stored value was retained in the computer only until a succeeding person having the same characteristics (e.g., same color and age, in the case of assignments for highest grade attended) and having the item reported was processed through the computer. Then, the reported data for the succeeding person were stored in place of the one previously stored.
3. When one or both of the education items for a person 14 years old and over were not reported, the entry assigned to this person was that stored for the last person who had the same characteristics.

[23] U. S. Bureau of the Census, "Educational Change in a Generation: March 1962," *Current Population Reports*, Series P-20, No. 132, September 22, 1964, p. 5.

One reason for dwelling on the matter of data quality is the suspicion that, in this study, biases in the data are more likely to lead to erroneous inferences than are random errors of sampling. Research workers have become sensitized to the problem of sampling error and are accustomed to presenting tests of statistical significance as a protection against the effects of such error. The sample size here, however, is so much larger than in most sociological studies based on surveys that it is largely a waste of time to compute significance tests. With some exaggeration, we can assert that almost any difference big enough to be at all interesting is statistically significant. Indeed, the data show all kinds of "significant differences" (not due to sampling error) that can be given no clear interpretation and that may be so slight as to be of no practical importance. There is always the chance, moreover, that a difference that is not a result of accidents of sampling may nonetheless be misleading in the sense that it could have arisen from response bias.

We have, therefore, largely refrained from using formal tests of significance and only occasionally make reference to standard errors. In any event, the only statistics for which we have reasonably good estimates of standard errors are percentages. Appendix G reproduces the table of standard errors computed by the sampling experts of the Bureau of the Census. If the reader studies this table he may discern that the standard errors are of about the magnitude that would be computed on the assumption of simple random sampling if the sample were about two-thirds as large as the OCG sample. This

reflects the fact that the sample is not a simple random one but an areally clustered sample. We do not know, however, how other statistics, such as regression coefficients and F-ratios, are affected by the departure of the sample design from simple random sampling. Only very rough guesses about standard errors can be made, when we feel obliged to discuss sampling variation explicitly.

We can give few details about the complex job of collating records, bringing together information coded manually with that stored in a form suitable for automated data processing, compiling the final composite record, and programming the tabulation of the statistics we requested. All this work was done according to standard operating procedures of the regular staff of CPS. One special feature of the OCG survey was the requirement for detailed coding of occupations and industries, which is a prerequisite for the recoding into occupational status scores, to be described in Chapter 4. Such coding is not carried out in the usual CPS studies but is, of course, a feature of the decennial census. Hence elaborate coding instructions were already available.

By the time the data were actually collected the investigators had developed the first of two major sets of specifications for tabulations. It should be mentioned here that at no time have we had access to the original survey documents or to the computer tapes on which individual records are stored. This information is confidential and not available to private research workers. Consequently it was necessary for us to provide detailed outlines of the statistical tables we desired for analysis without inspecting the "raw" data, and to provide these, moreover, some 9 to 12 months ahead of the time when we might expect their delivery. This lead time was required for programming the computer runs that would produce the tables. Evidently this circumstance precluded our following the common strategy of looking at a few marginal totals before running some two-way tables and deciding on interesting three-way or higher-order tabulations after having studied the two-way tables. We had to state in advance just which tables were wanted, out of the virtually unlimited number that conceivably might have been produced, and to be prepared to make the best of what we got. Cost factors, of course, put strict limits on how many tables we could request. We had to imagine in advance most of the analysis we would want to make, before having any advance indications of what any of the tables would look like.

The general plan of the analysis had, therefore, to be laid out a year or more before the analysis actually began, although there turned out to be "serendipitous" elements in the tabulation specifications we drew up; some tabulations proved to be amenable to analytical procedures not initially contemplated. The reason some particular combination of variables that seems to be called for is not reported is usually that the need for it had not been anticipated. There are many combinations we might have desired but could not afford, and many others that we would later have liked to see but that we simply had not thought of when dummy tables were drawn up. We were conscious of the very real hazard that our initial plans would overlook relationships of great interest. However, some months of work were devoted to making rough estimates from various sources to anticipate as closely as possible how the tables might look. This time was well spent, for, on the whole, the tabulations have proved satisfactory. The specific design of the analysis, however, goes beyond our concern here, since it is part of the story of each of the substantive chapters in the volume.

ORGANIZATION OF THE BOOK

The analysis of the data collected in the survey constitutes the bulk of the material reported in the present book, although we draw occasionally on other sources as well. In concluding this introductory chapter we present a brief outline of the organization of the book and the topics of the various chapters.

The next two chapters deal with the structure of relations among occupational groupings and their changes through time. Here the conventional intergenerational and intragenerational mobility tables are analyzed, with little reference to any variables not already contained in them. A number of new procedures are used to explore the flow of manpower among occupational groups from different perspectives and to infer the underlying factors that govern these movements and that reflect the social distances between occupations. Having investigated the patterns of mobility in Chapter 2, we consider historical trends in them in Chapter 3. One of the contributions of this analysis is to demonstrate how difficult and hazardous it is to make inferences about changes in intergenerational mobility from a knowledge of the changes that have occurred in the occupational structure.

After this examination of the occupational structure itself we turn to the analysis of the processes of occupational achievement and mobility that find expression in this structure. The basic question is how the status individuals achieve in their careers is affected by the statuses ascribed to them earlier in life, such as their social origin, ethnic status, region of birth, community, and parental family. The relatively novel techniques employed for the purpose of this analysis are de-

scribed in Chapter 4. Lest this methodological discussion appear intolerably abstract, we have incorporated into it some of the major findings of the study in the guise of illustrations, such as those on the relationship between education and occupational mobility.

The basic model of the process of occupational mobility is presented in Chapter 5. Occupational status in 1962, the survey date, is conceived as the outcome of a lifelong process in which ascribed positions at birth, intervening circumstances, and earlier attainments determine the level of ultimate achievement. A formalization in terms of a simple mathematical model permits an approximate assessment of the relative importance of the several measured determinants. In the following chapters this model is, in effect, modified and enriched by introducing estimates of the effects of several factors and contingencies not included in the initial formulation. The question recurrently asked is how an additional set of variables modifies the influences of social origins and earlier attainments on later achievements.

Thus Chapter 6 considers the inequalities of opportunities engendered by race, region of birth, and nativity, paying special attention to the question of whether the inferior chances of success of Negroes and other minorities are essentially due to their inferior background and education or persist when these factors are controlled. In the context of analyzing the relationship between migration and social mobility in Chapter 7 we investigate whether the migrant's community of origin or the community in which he lives and works has a greater influence on his occupational chances, and we derive some inferences about the impact the influx of rural migrants into large cities has on the occupational chances of the city natives. The significance of farm background for occupational achievements is examined in Chapter 8. The influences exerted on careers by number of siblings, sibling position, the relations among siblings, and the emphasis on education in the family are treated in Chapter 9. The analysis in Chapter 10 of the relationship between marriage and occupational life is particularly concerned with homogamy, the degree of similarity in background and education between husband and wife.

Attention shifts in the eleventh chapter to a variable usually considered to be a consequence rather than an antecedent of occupational status and mobility; that is, fertility or, more precisely, the number of children born to the respondent's wife. This topic serves to exemplify a procedure considered appropriate for abstracting the influence of mobility as such on a dependent variable from the influence of those statuses in terms of which mobility is defined. The substantive problem is whether the additive effect of social origin (either husband's or

wife's) and present status can account for the fertility of the couple, or whether mobility itself exerts a further independent influence on their fertility. It would have been advantageous to ascertain also whether mobility exerts such an independent influence on a variety of other factors—for instance, political attitudes, prejudice, and anomie —but the limitations imposed by the method of data collection unfortunately make this impossible.

In the final chapter we not only summarize the main findings but also discuss some of their broader implications. At that point, we shall relate our findings to the comparative data on mobility in different industrial societies analyzed by Lipset and Bendix and suggest some reformulations in their theoretical generalizations that appear to be implied by our results. This concluding discussion gives us an opportunity to speculate about some general principles concerning the causes and consequences of occupational mobility in modern society.