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ALCOHOL USE AND AGING:
THE RESULTS OF A 19 YEAR PROSPECTIVE STUDY
by

RONALD D. STALL

DISSERTATION

Submitted in partial satisfaction of the requirements for the degree of

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Ronald D. Stall

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-RDS

ABSTRACT**ALCOHOL USE AND AGING: THE RESULTS OF A 19 YEAR PROSPECTIVE
STUDY****BY****RONALD D. STALL**

Despite important health policy and theoretical implications, the study how alcohol use changes or stays the same as a concomitant of the aging process has been neglected. This study was defined to explore issues which surround the use of alcohol during the latter half of life.

To meet this goal, a reinterview was conducted in 1983 of the white males aged 30-69 who were sampled in 1964 in a household survey of the drinking habits of San Franciscan adults. Although a few other long-term prospective alcohol-use studies have been attempted, this is the first such study which followed a general population sample. Of the 246 men sampled in 1964, 85 were reinterviewed in 1983. Despite sizeable attrition from the sample at reinterview, bias introduced by loss to follow-up was minimal.

Changes in frequency of alcohol use, quantity of alcohol use, the maximum amount of alcohol consumed during the past year, and alcohol-related problems as manifested by these men are reported. In general it can be said that the majority of these men were stable in their alcohol use over time, although a large percentage of the men evidenced declines in their alcohol consumption and related problems. Only a small percentage of men increased alcohol consumption over the years. No differences were found to exist between two sets of cohorts for whom we have behavioral data at the same

approximate ages, while the majority of the age groups were significantly different at follow-up from the Time 1 levels of alcohol use. Given certain assumptions, it may be concluded that the changes evident within the sample over the 19 year follow-up period were due to aging, and not cohort or time period, effects. An analysis of qualitative data concerning the reasons (identified by the respondents themselves) for change and stability in alcohol use over this 19 year time period would indicate that processes of social aging play a major part in the aging effects on alcohol use.

Implications of these findings in regard to theoretical issues in alcohol studies and well as health policy issues concerning alcohol use among aging persons are outlined in the final chapter.

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CHAPTER 1

Alcohol Use and the Aging Process: Introduction

The study of how alcohol use patterns change across different stages of the life course has been largely ignored. This is an unfortunate gap in the alcohol literature, since such research can provide a better sense of how varying patterns of alcohol use are shaped through the life course. For example, such research is relevant to understanding how problem drinking careers are manifested or change across time. Central to this concern is the study of the temporal continuity or chronicity of alcohol-related problems. Perspectives on the influence of alcohol on biological and social functioning can be enlarged through the use of research designs which compare subjects at two or more points in the life span. Further, among other contributions, such research might be used as a bridge between the fields of alcohol studies and the sciences which study behavior across the life course (e.g. gerontology or developmental psychology). To date, such a synthesis has yet to be attempted.

The research project described here was initiated as a beginning attempt to fulfill the above goals. That is, the primary purpose of this research project was to describe how alcohol use patterns change (or do not change) as a concomitant of the aging process. Specifically, this research project followed the white, male respondents aged 30-59 from a random household sample of San Franciscan adults who were first interviewed in 1964. The men still available from the 1964 study were reinterviewed 19 years later (in 1983). During this 19-year period the majority of the respondents passed from approximate "middle" to "old" age, thus permitting an empirical prospective measure of how alcohol use patterns change or stay the same as a concomitant

of the aging process. The primary measures of drinking patterns employed for this study were those of quantity and frequency of alcohol consumption. Although other long-term alcohol use prospective studies have been completed, this is the first such study to follow the drinking habits of a community sample into the second half of life.

Potential Contributions of this Research

It has become commonplace to point out that the proportion and raw numbers of the elderly in the United States will continue to increase until the midpoint of the next century (e.g. Hauser, 1976). Current experience suggests that future senior citizens will demand a proportion of health care expenditures far in excess of their actual percentage of the population, thus creating a formidable socio-medical problem (Shanas and Maddox, 1976). In order to continue to provide an adequate level of health care for America's aged of the 21st century, health care strategies designed specifically to meet the needs of the elderly -- including effective preventive health care components -- must be implemented.

The efforts to design effective preventive health care strategies are complicated by the fact that behavioral factors have been implicated in the etiologies of diseases expected to be most prevalent among the future elderly. Certain behavioral factors important to the etiologies of serious disease states have proven to be intractable in the face of intervention efforts and, as of yet, the most effective strategies for the prevention of such behaviors are poorly understood. Clearly, alcohol use is one such behavioral factor associated with increased risk of disease and decreased functioning among the elderly and a behavioral pattern which remains intractable in the face of intervention efforts.

Despite the etiological importance of alcohol use in the distribution of health and disease patterns among the aged, alcohol use among American elderly is an understudied topic. Although a body of literature which has employed cross-sectional and retrospective designs relevant to issues of alcohol use and aging has appeared over the years, the use of prospective designs which can be used to follow individuals as they bring (or do not bring) alcohol-related problems into old age has been almost non-existent. The following chapter reviews this literature. If, as it appears from the cross-sectional data, many individuals cut back on their alcohol use as they age, while others bring into old age alcohol use patterns more characteristic of the young, a further understanding of the differences in these two groups should highlight processes important to the cessation or creation of alcohol problems in old age. It is hoped that these sorts of analyses (made possible through the use of prospective research designs) will allow health prevention and treatment workers to design intervention efforts to serve those groups of aging drinkers who are at greatest risk of manifesting alcohol-related problems.

A second hoped for contribution of this research will be to provide further insights concerning the changes that occur in recreational or "time out" behavior over the second half of the life course (e.g. MacAndrew and Edgerton, 1969:83-99). Alcohol use is generally relevant to many dimensions of an individual's life: a behavior expressive of a relaxed intimacy, a seal for a new social bond, a ritualized courtesy denoting a cordial business relationship, a means of announcing celebration, or a tonic to salve a one's own or a friend's troubles. The study of alcohol use can thus allow the construction of a portrait of an informant's social networks, how he has built his social identity, his occupational life, and the quality and forms of his social relationships. For example, in conducting these interviews, the researcher was consistently struck

by the fact that as the informants began to discuss intake and meaning of alcohol consumption, mention constantly surfaced of marital troubles, business successes or failures, sexuality, family bonds and relationships with children, relationships with friends, or health problems. How such issues change or stay the same as individuals experience the aging process is of great interest in the further construction of aging theory. That is, the study of changing alcohol use contexts can perhaps tell us a great deal about the processes of social aging as well as of the processes of changing alcohol use patterns. Although a literature has emerged within the field of gerontology which addresses such issues (e.g. particularly in regard to the controversies surrounding the "activity" and "disengagement" theories), data from the present research can be used as a relatively unique "window" on how the social lives of persons change in the face of the aging process.

A third potential contribution of this research lies in the further development of a theory of alcohol use across the life course. As mentioned above, although numerous cross-sectional and retrospective research designs have been employed in the study of alcohol-related behaviors, the use of long-term prospective research designs used to study such behaviors across significant stages of the life course has been quite limited. Further, as will be shown in the following chapter, these prospective designs have been entirely limited to the first half of the life course. Thus, this research allows a pioneering look at how alcohol use patterns have changed or stayed the same as individuals have entered the second half of life. This study can thus be regarded as a necessary complement to the body of literature which has focused on drinkers who have moved from youth to middle age (e.g. Fillmore, Bacon and Hyman, 1979). Questions which might be addressed through this research include the following: How well are current patterns of alcohol use predicted by the

patterns of alcohol use in 1964? Do the prospective data appear to support the picture of decreasing alcohol use with age that emerges from the cross-sectional data? Of the alcohol-related and socio-cultural variables measured in 1964, which are the best predictors of 1983 drinking patterns? Which types of drinkers are most likely to experience alcohol-related problems in old age, and which types of drinkers are least likely to experience such problems? If the longitudinal data do support the notion that a decrease in alcohol consumption does occur in later life, how much of this decrease is due to increased mortality suffered by heavy drinkers? How powerful of a predictor is alcohol use in the manifestation of good or poor health after 19 years? These, and other questions, are of obvious importance and must necessarily be addressed if a theory of alcohol use across the life course is to be constructed. This research project has been designed to make an initial contribution towards addressing some of the issues necessary to the construction of such a theory of alcohol use in the latter stages of life.

The Relationship of Anthropology and Epidemiology

This project is of added interest in that a conscious attempt has been made in the construction of the protocol to use this research as a vehicle for an experimental integration of theory and methods derived from the fields of anthropology and epidemiology. To date, this sort of integration has been avoided, perhaps due in large part to the numerous philosophical and methodological differences which distinguish these two disciplines. However, since at least World War II, events have conspired to make what may seem at first blush a "poor marriage" (to employ the colorful phrase of a senior social epidemiologist in referring to the potential contributions of anthropology to epidemiology) a plausible approach to the conduct of health-related research.

Primary among the factors which have encouraged the cross-pollination of these two fields has been the widespread recognition of the importance of social and behavioral factors in the etiologies of the major diseases which now plague the industrialized nations. This recognition has meant that epidemiologists have had to redefine their research agendas to include risk factors less tangible than proximity to a contaminated well or attendance at a church supper. That is, it now appears that such factors as "social class", "ethnicity", "social networks" and "Type A behavior" are of major etiological importance in the diseases which are the major causes of death among American populations. Yet the exact method by which these factors exert their influence remains, in large part, unelucidated. As even a short review of recent epidemiological journals will reveal, the attempt to precisely determine how such factors play a role in the manifestation of disease is currently intensely pursued by epidemiologists and health care planners. The successful pursuit of such research, however, must begin with the careful conceptualization, observation, and measurement of socio-cultural variables implicated in the etiologies of major disease categories. Such skills are outside the usual training of epidemiologists.

However, the careful conceptualization of behavioral risk categories, derived from real-life observation of humans as they conduct their day-to-day lives, is part and parcel of the anthropological method. This is the sort of basic preliminary work which would contribute most directly in a field fraught with conceptual and methodological confusions, as is the case in the study of the effect of behavioral variables on health and disease. This is not to say that more typical epidemiological research which involve survey techniques employing large numbers of informants will not eventually prove quite useful in behavioral health research. However, such techniques require specific and

well-developed hypotheses to be most successful. Given the tentative state of our current understandings of the effect of behavioral variables on health the testing of such hypotheses, although possible, would seem premature at best. In other words, the most efficient route to the identification of specific and well-developed hypotheses (necessary to the epidemiological construction of an etiological framework) would seem to begin with research strategies and methodologies developed within the discipline of anthropology. Through such contributions towards the building of epidemiological models medical anthropologists might make a direct contribution to the further development of mainline Western medical systems.

Although the preceding has been phrased within the context of behavioral research and health, this approach is also of value in an understudied field such as alcohol use and the aging process. The research protocol which was adopted did not allow the direct behavioral observation of respondents. However, a great deal of attention was devoted to the inductive conceptualization of factors, as reported by the respondents themselves, important to stability and change over the life course. It is hoped that these categories which describe stability and change over the life course can be usefully employed in later empirical tests of any explanatory models which emerge from the analysis of the data.

The relationship between anthropology and epidemiology does not lie only in the contributions that anthropology can make in epidemiological research. Epidemiology has direct contributions to the further development of anthropological theory and methods. For example, the study of health-related behaviors, while of interest in etiological constructions, also provides statistical descriptions of the distribution of such behaviors as social network participation. Not only is epidemiological data derived from research protocols

beyond the rigor of most anthropological research, but it generally describes behaviors of populations heretofore neglected by anthropologists: e.g. urban North Americans. For example, in the case of research projects related to the current work concerning alcohol use and aging, data would likely emerge relevant to the social roles of the aging, the ethnography of contemporary United States culture, the use of recreational substances across the life course, "time out" or recreational behavior, the handling of deviants across the life course, and the long-term effect of alcohol use on social networks and family interactions, among other topics. Clearly, attempts to determine the power of social variables within etiological frameworks of disease and health are of benefit to both the social sciences as well as to epidemiology.

The Anthropological Study of Contemporary United States Culture

Anthropology, the science of man, has been mainly concerned up to the present with the study of primitive peoples. But civilized man is quite as interesting an object of investigation, and at the same time his life is more open to observation and study. Urban life and culture are more varied, subtle, and complicated, but the fundamental motives are in both instances the same. The same patient methods of observation which anthropologists like Boas and Lowie have expended on the study of the life and manners of the North American Indian might be even more fruitfully employed in the investigation of the customs, beliefs, social practices, and general conception of life prevalent in Little Italy on the lower North Side in Chicago, or in recording the more sophisticated folk-ways of the inhabitants of Greenwich Village and the neighborhood of Washington Square, New York. (Park, 1916:92-93)

Park's challenge, published nearly 70 years ago, has only been accepted by anthropologists during the last two decades. Thus, one aspect of this study which makes it of additional interest is that it represents a contribution to the growing literature of anthropological studies of contemporary American culture. Anthropology has traditionally concerned itself with small scale,

"primitive" cultures exotic to the "modernized" cultures of the West. This traditional focus, which has influenced the development of an identifiable body of methodological techniques and theory, has lead some social scientists to question the application of anthropology to large scale, urban, modernizing, "complex" societies. Will the application of anthropology to the study of such societies, ask these researchers, result in a poorly-executed form of sociology?

In the consideration of the above question it is useful to consider Foster and Kemper's (1974) description of three "revolutions" in the substantive focus of anthropology: from tribal, to peasant, and finally to the "complex" societies. The study of contemporary United States culture is clearly within the bounds of this last revolution. These revolutions were not made only for the sake of substantive variety, but rather in the attempt to broaden conceptions of the nature and workings of culture from those achievable within the exclusive study of small scale cultures. To ignore the study of the complex cultures of the world, then, would be to abdicate the vision of anthropology as a "mirror for man" (Kluckhohn, 1949). Put another way, the central question is not what does anthropology have to contribute to the study of complex societies, but rather "...what does the study of complex societies have to contribute to anthropology?" (Despres, 1968). From this perspective the application of anthropology to the study of complex societies is a logical and necessary endeavor.

Another justification for the anthropological study of complex cultures (and particularly so for the contemporary United States) lies within an important property of ethnographic description noted by Goldschmidt (1976), that is, "...all ethnography is self ethnography" (see also Wolf, 1969). By this phrase Goldschmidt meant to convey the idea that ethnographies are implicitly written in comparison to the structure of the ethnographer's home culture.

That is, just as Tacitus employed ethnographic description of the Germanic tribes in the first century A.D. to criticize the decadence of values in the Roman Empire, modern ethnographers have explored within traditional cultures processes of anomie, warfare and conflict, economic relations, and human ecology (among many others) which are also of crucial relevance to the "complex" cultures of the world. To understand ethnographic pursuits and anthropology in the latter part of the 20th century, it is essential to have developed a conscious awareness of the forces which are at work to shape the complex industrial cultures of the world. Simply put, ethnography has largely been an expression of the industrialized nations. To understand this expression one must also understand something of the culture which produced it.

Despite the importance of the anthropological study of modern, complex, urban societies (such as the contemporary United States) the application of classic anthropological methods to meet this goal raises important methodological considerations. Anthropological field methods were initially developed in order to provide descriptions of cultures exotic to those of the industrializing West. Typically (and particularly so in the early days of the discipline) the cultural groups studied by anthropologists were quite finite in population and physically defined within an identifiable environment, hence more manageable than large urban aggregate populations. Researchers often entered such communities alone, and faced with the task of describing the "totality" of the community's lifeway relied heavily upon the methodological approach of participant observation. This technique has come to be regarded as the definitional methodological approach of the discipline. When used as a tool in inductive theory building it becomes powerful indeed in producing compelling descriptions of community life.

However utilization of "classically" anthropological methodologies in the study of "complex" societies has not been without important limitations (Basham and DeGroot, 1977). Such limitations might be illustrated by examining some of the issues which surround the use of typically "face-to-face" anthropological methods in the study of complex societies. Generally speaking, the challenge of describing large scale, urban societies is beyond the means of the single anthropologist (Price, 1972). He/she then often selects a population within that society for description, e.g. ethnic groups, deviant types, etc., who are then conceptualized as a "community" of sorts and accorded an ethnographic description (e.g. Agar, 1973; Fleuret, 1974). This approach introduces some important questions: How representative of the larger group being investigated (e.g. ethnic Italians) is the community studied by the anthropologist (Arensberg, 1965)? Do anthropologists overstudy relatively powerless groups, as it is easier with such powerless populations (Nader, 1974)? How can the anthropologist show the relationship between the "community" to the larger society if he/she limits investigations to those solely within the community of primary interest (Leeds, 1968)? The fact that urban "communities" rarely assume specific social or physical definitional boundaries also presents important conceptual and methodological challenges (Gillin, 1949; Leeds, 1968; Spradley and McCurdy, 1972).

For this particular research project, such issues have been met through the strategy of following a carefully drawn sample representative of a community, rather than studying a "community" directly through more typical anthropological methods. The representativeness of the sample was well documented, many within the sample were powerful and affluent while others were relatively powerless and/or approached poverty. In addition, the representativeness of the behavioral patterns exhibited within the San Francisco

sample to those of the nation at large has also been demonstrated (see Chapter 3 for more information on the above points).

However, the fact that the men studied were all white males (as is the researcher) raises another troublesome set of methodological problems. When the anthropologist works within his or her own culture, problems of familiarity are raised. Subtle clues of personal identity of the anthropologist are opened to informants for "reading" who may then refuse to divulge important data to this "inappropriate" person (Byrne, 1974; Ablon, 1977; Stephenson and Greer, 1981). Emotional ties to one's own ethnic group or the shock of self-realization in studying one's own heritage may interfere with the "science" of fieldwork (Myerhoff, 1978). Problems of reciprocity for informants also become potentially troublesome (Ablon, 1977; Stephenson and Greer, 1981). Finally, the fact that the anthropologist has been exposed since birth to contact with his/her own culture renders many important cultural facts "invisible" by virtue of habituation. Food taboos or prescriptions, for example, might well achieve vivid memorability to the visiting anthropologist in India, who then might never consider the fact that poor Americans never eat their dogs. Of these problems, the fact that some informants might have been hesitant to divulge certain problems associated with alcohol use to a doctoral candidate from the University of California and the problem of "invisibility" of certain cultural traits to the researcher seem to pose the greatest difficulties in this particular research project. My sense is that the first problem was of minimal importance and the very nature of the "cultural habituation" problem makes it difficult for me to present an informed opinion on the matter.

The considerable challenges to be met in the application of anthropological methods and theory in an epidemiological study conducted within contemporary North American culture notwithstanding, medical anthropologists

can bring specific and valuable skills to the execution of such research. First, medical anthropologists are accustomed, perhaps more so than other social/behavioral scientists, to taking into account biological factors in theory construction. This tendency is of obvious benefit in conducting research relevant to alcohol use and the aging process. Secondly, as mentioned above, anthropologists are likely to adopt inductive research designs in the conduct of health-related research. This sort of basic concept-building work, as argued above, is of great value in an understudied field. Related to this issue is the tendency of anthropologists to combine qualitative and quantitative data collecting techniques in their research strategies. Again, reliance on varying levels of data may work to encourage the development of specific hypotheses or models for future testing. Finally, anthropologists, perhaps again especially so among the social/behavioral scientists, are likely to design research protocols to describe the behaviors of persons as they conduct their daily lives within their chosen environments. Although this attempt is more difficult than research protocols based solely on laboratory observation or survey research, it is likely to provide a valuable alternative view to those based solely on more limited research techniques.

Outline of the Dissertation

The remaining chapters of this dissertation will be employed to illustrate the issues briefly outlined in this chapter. Chapter 2 reviews the research conducted to date concerning alcohol use in old age. Methodological issues important to the conduct of this research are discussed in Chapter 3. The quantitative data gathered through this research are described in Chapter 4. Qualitative data concerning alcohol use and aging are presented in Chapter 5. Chapter 6, the final chapter, interprets the findings within the context of the

current literature on alcohol use and aging, suggests further research relevant to alcohol use and aging, forwards an evaluation of this attempt to integrate the disciplines of anthropology and epidemiology, and presents a statement concerning the usefulness of this study in generating data relevant to the study of contemporary United States culture.

CHAPTER 2

Alcohol Use in Later Life: Background Research

This chapter will review the literature germane to issues of aging and alcohol use. This review is organized according to the adopted research designs in order to facilitate interpretation of the findings. Retrospective research designs ("case history research") are oriented backwards in time. Typically in epidemiological research such designs begin with the ascertainment of disease; "cases" are then contrasted to a suitable comparison group to determine differences in past health-related behaviors. Cross-sectional ("prevalence research") is similar to retrospective designs in that, it too, begins with the ascertainment of disease, but comparisons between diseased and non-diseased persons are conducted entirely with reference to a defined period of time. Prospective designs ("incidence research") are oriented forwards in time; individuals are typically followed in such designs according to variations in current health-related behaviors or exposure to disease. Each of these designs has certain advantages and disadvantages. This chapter has been organized to emphasize these strengths and weaknesses of each and so to highlight the strongest findings documented to date in the literature concerning the processes important to alcohol use in old age.

Definitional issues yet remain of central importance to the field of alcohol studies and it may be of some assistance to provide the reader with standard definitions of measures of alcohol-related disfunction. A simple and operationalizable definition of "problem drinking" has been offered by Plaut (1967:37): "...problem drinking is a repetitive use of beverage alcohol causing physical, psychological or social harm to the drinker or to others." This concept has been further developed and operationalized by Cahalan (1970). The

most widely accepted definition of "alcoholism" was set by the World Health Organization and is based on behavioral problems associated with alcohol use combined with the development of "dependence" upon alcohol (World Health Organization, 1952). Quantity and frequency of drinking are sometimes combined to form a summary scale ranging from abstention to heavy drinking. This scale is based on a weighted average of drinking occasions and the amount of alcohol generally taken by drinkers. An example of one such standard scale is discussed in great detail in the following chapter, and so will not be further defined here. Although these measures of alcohol-related behaviors are standard, definitional variety yet persists among researchers. Should confusion emerge in this review of the literature relevant to alcohol use and the aging process regarding the exact meaning of "problem drinker", "alcoholic" or "heavy drinker" as used in a particular study, the reader is encouraged to consult the original source.

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Retrospective Research

The potential value of retrospective studies in generating specific hypotheses for investigation in an understudied field notwithstanding, few researchers have adopted such designs in the study of geriatric alcohol use. Despite the relative scarcity of such research, data from the few projects which have employed retrospective designs have been used to generate a typology of the elderly who manifest problems in their consumption of alcohol, i.e. the early-onset and late-onset geriatric problem drinker (Droller, 1964; Glatt and Rosin, 1964; Bahr, 1969; Glatt, 1978). Droller (1964) was the first to note that the elderly can be grouped according to the early- and late-onset dichotomy. His observation was based on a life-history analysis of seven "alcoholic" cases that he attended in Britain. Droller's construct was quickly

supported by Glatt and Rosin (1964) in a brief letter to the editor of *The Lancet*. In a later article, Glatt (1978) summarized the case histories gathered during the 1960's and 1970's by himself, A. Rosin and P. Jauhar. For this summary, Glatt described two clinical samples of problem drinkers, one an outpatient group (n=103) and the other an institutionalized population (n=92). Again, Glatt found that his samples were characterized by the two groups of early- or late-onset problem drinkers. Bahr (1969) replicated and elaborated upon the findings of Droller, Bahr and Rosin in his study of Skid Row men. Bahr reported data elicited from two samples of disaffiliated men—one a sample of Bowery residents (n=203) another an institutionalized sample of "ailing and elderly Skid Row men" (ibid:646). He found that the early-onset heavy drinkers were less likely to have strong affiliations with family, employment, or voluntary associations. As might be expected, the late-onset heavy drinkers enjoyed substantially higher occupational status throughout their adult lives.

Each of the projects cited (e.g., Droller, 1964; Blatt and Rosin, 1964; Bahr, 1969; and Glatt, 1978) share similar design shortcomings, i.e. an exclusive reliance on clinical or atypical drinking populations, a heavy reliance on informant or significant-other retrospective reports, and (with the exception of the Bahr, 1969 report) the use of opportunistic or convenience sampling techniques. The documentation of significant differences along psychological and social measures between early- and late-onset elderly problem drinkers has, however, been replicated in research which has employed retrospective designs among more typical populations of the elderly (e.g., Abelson and van der Spuy, 1978; Foulds and Hassall, 1969). Further, Zimberg (1974b) reports that the early- and late-onset problem drinking dichotomy is of use in

intervention efforts designed to modify the alcohol consumption of elderly drinkers.

Two retrospective survey research projects, employed among more typical samples of American elders, have been attempted. The research of Christopherson, Bainton, and Escher (n.d.) was predominately cross-sectional but contained a series of retrospective items. The sampling technique was opportunistic and limited to the rural elderly in Arizona. Respondents were asked whether their alcohol use habits had changed or remained the same after achieving the age of 65. The variables of sex and ethnicity seemed to be the most highly correlated with change in alcohol use patterns after passing the age of 65. Women were more likely to increase alcohol intake after age 65 than men, and, correspondingly, men were more likely to decrease their alcohol intake after age 65 than women. Further, blacks and Spanish-speakers seemed to be more likely than anglos to decrease their alcohol intake after the age of 65. The predominant self-reported direction of change in drinking habits for the sample as a whole was towards modification in alcohol consumption. However, at all levels of drinking the majority of respondents maintained pre-retirement drinking levels. No attempt was made by Christopherson, et al., (n.d.) to discover the processes important to stability or change in drinking habits in the face of advancing age.

The Dunham (1981) survey of the residents of a Miami low-income housing project for the aged provides some evidence for the complexity of changing alcohol-use habits when viewed across long periods of time. Dunham's sample (n=310) self-reported seven patterns of alcohol use across the life course. The largest group was that of the life-long abstainers (68%), followed by the "rise-and-sustained" pattern (7.7%), the "rise-and-fall pattern" (6.8%), and the "light-throughout-life pattern" (5.8%). Small groups of elderly reported more unusual

patterns: "light-with-a-late-rise pattern" (2%), "late-starters" (3%), and the "highly-variable patterns" (2.3%). Although Dunham's drinking patterns might have been grouped according to the Droller-Glatt-Rosin categories (with the implicit addition of the non-problem drinkers) the categories suggested by Dunham appear to be a more sensitive description of the types of changes in alcohol use patterns exhibited across the life course.

Cross-Sectional Research

The vast majority of the research relevant to considerations of alcohol use across the life course has adopted a cross-sectional research design. This body of literature allows the estimation of the prevalence of varying levels of alcohol use and alcohol-related problems across age strata, and these rates are customarily reported. Since this literature is so enormous, the goal of this review will not be to exhaustively report the prevalences of alcohol-related behaviors across the life span (even were this possible) but rather to selectively review the research particularly germane to the current study.

The cross-sectional research falls into two general categories: surveys of the alcohol-related behaviors of clinical or institutional populations and surveys of more general populations of drinkers. Aside from the general limitations common to all point prevalence research, the literature which describes the alcohol-related behaviors of clinical or institutionalized populations is also characterized by a unique set of methodological problems of its own. Such limitations include the lack of generalizability of findings to non-institutionalized geriatric problem drinkers (Straus, 1976), the fact that many of the reported prevalence rates of problem drinking for these institutionalized elderly are generated from atypical populations (e.g., Simon, Epstein, and Reynolds, 1968; McCusker, Cherubin, and Zimberg, 1971), and the

wide range of incomparable measures utilized to determine the existence of problem drinking or alcoholism. Furthermore, perhaps due to the fact that this work has generally been framed within a social problems perspective, these reports are almost exclusively descriptive and rarely introduce data relevant to issues of broader theoretical interest. Nonetheless, the prevalence rates and general findings of these surveys are of some value in developing an understanding of the stresses imposed upon the health care system which result from chronic intemperate alcohol use on the part of aged patients.

Certainly the clearest observation to make of this literature must concern the wide range of prevalence rates for alcoholism and problem drinking generated through the study of institutionalized geriatric populations. For example, among geriatric, male, Veteran's Administration (V.A.) admissions in San Diego, the Schuckit series (Schuckit, Miller, and Hahlbohm, 1975; Schuckit and Miller, 1975) obtained an "active" alcoholism rate of 8%, while Funkhouser (1977) reported an alcoholism rate of 55.3% from another series of V.A. geriatric hospital admissions. Alcoholism point prevalence rates for admissions to psychiatric hospitals (male and female, 60 years of age and older) ranged from 12% (Bozzetti and MacMurray, 1977) to 44% (Gaitz and Baer, 1971), although Zimberg (1974a) and Whittier and Korenyi(1961) also reported prevalence rates of 17% and 20% respectively. Further, the Gorwitz, et al. (1970) description of all admissions to Maryland psychiatric facilities yielded an alcoholism admissions rate of 70.1 per 100,000 for persons over the age of 65 for the year July, 1965-June, 1966. These rates varied widely across subgroups of the aged. Of all seniors, white men suffered the highest rates of alcoholism (146 per 100,000), followed by "non-white" males (107.1 per 100,000). Alcoholism was non-existent among the "non-white" female geriatric admissions to psychiatric facilities and low (19.1 per 100,000) for the older white women.

The highest reported prevalence rate for geriatric alcoholism (56%) was generated in a study of male admissions over the age of 70 at Harlem Hospital in New York City (McCusker, Cherubin, and Zimberg, 1971). Interestingly, none of the female admissions over the age of 70 to the same hospital were defined as alcoholic.

In contrast to the body of reports concerned with the drinking practices of the institutionalized aged, the literature which describes alcohol use behaviors among the non-institutionalized aged allow more incisive and less variable statements. In the way of a general summary statement, prevalence surveys among the non-institutionalized elderly have generated comparatively low prevalence rates of problem drinking or alcoholism. A key word in the previous sentence is "comparatively", for the problem drinking or alcoholism prevalence rates for those persons past the age of 65 appear to be significantly lower than the rates generated for younger cohorts.

For example, Knupfer and Room (1964) reported the results of a survey of a sample of 1,268 San Francisco adults interviewed in 1962. Through the use of a quantity-frequency index of drinking practices, Knupfer and Room identified abstaining, light (infrequent and frequent), moderate (infrequent and frequent) and heavy drinkers. By decades of age, the prevalence of "heavy drinkers" steadily decreased from 39% among males aged 21-29 to 19% for those men 60 years of age and older. Conversely, the proportion of abstainers increased from 13% of the men aged 21-29 to 32% of the older men. Cohort effects (both for the older and younger cohorts), decreased stress for the aged, and attenuated social networks and an increase in health concerns for the elderly were suggested by Knupfer and Room as important to this decreasing pattern of alcohol consumption with aging.

Similiarly, Christopherson, Bainton, and Baker (n.d.) described the data generated from a convenience sample of elderly rural Arizona households. Abstinence on the part of these seniors increased from 41.6% among persons aged 65-69 to 60% of those persons over the age of 84. There was an accompanying decrease in heavy drinking from 29.5% of the persons aged 65-69 to 4% of the sample over the age of 85. Over a third of their sample (35.5%) indicated that they drank for "social" reasons, while another quarter (25.5%) mentioned that they took alcohol for its mood changing properties. Another minority of elderly drinkers indicated that they drank as a coping mechanism to deal with personal or interpersonal problems (14.8%). Further, retirement was not found to be an important precipitating event in increasing or decreasing alcohol use. As summarized by the authors (ibid:190):

The data of this study and the specific responses to the question regarding retirement both appear to support the idea of alcohol usage patterns as a predictable continuum carrying over from pre- to post-retirement. When there is a change, it most often is a decline explained by poor health, decline in income, and a contracting of alcohol-use-inducing circumstances.

Johnson (1974) measured the frequency of drinking occasions of persons aged 65 and older of the Upper-East side of Manhattan. Johnson's research is unusual in the literature in that she reported factors associated with alcohol use along with measures of the social and psychological realms of the informant's lives. The Upper-East side of Manhattan is heavily ethnic and primarily a lower or working class urban neighborhood. This research is thus of added interest in that it reports data on the drinking habits of lower class and aged drinkers. Based on a random household survey of 169 elderly in this district, Johnson found that approximately half of the informants were abstainers. The prevalence of heavy drinking was quite low, approximately 1.2%. Poor health, being a woman, and being a Spanish-speaker were associated

with lighter and less frequent drinking patterns. The informants reported that, when they drank at all, they drank for social and therapeutic reasons.

In this context, it may be of interest to briefly describe the alcohol practices survey of Bailey, Haberman and Alksne (1965) conducted a decade earlier than the Johnson study in the nearby Washington Heights area of Manhattan. Bailey, et al., (ibid) took a household sample of the area which contained a subsample of 987 over the age of 65. Of the seniors aged 65-74, an alcoholism prevalence rate of 2.2% was generated. For those residents of Washington Heights over the age of 75 the prevalence rate for alcoholism was 1.2%. The Washington Heights survey is somewhat unusual in that the alcoholism prevalence rate for those seniors aged 65-74 (2.2%) exceeds that for persons aged 55-64 (1.7%), an anomaly explained by "...the number of elderly widowers who acknowledged a drinking problem" (ibid: 29).

Barnes' (1979) description of the drinking habits of a stratified random sample (n=1041) of Buffalo, New York adults is notable in that she attempted to test specific hypotheses concerning the relationships between processes of social aging and drinking habits. Consistent with other research reported here, Barnes found a general decrease in quantity/frequency drinking scores with a concomitant increase in abstention associated with increasing age (for example, heavy drinkers amount to 24% of men aged 50-59, 10% aged 60-69, and 4% above the age of 70). The notion that bereavement--especially that associated with widowhood--is a significant factor for high alcohol consumption in old age was tested by Barnes. She found that heavy drinking was actually more prevalent among the married (3% widowed, 10% married). With sex held constant, elderly male widowers and married men did not differ significantly in heavy drinking rates (17% married, 14% widowers). A test of the "retirement hypothesis" --that the cessation (or "disengagement from") a career predisposes

to heavy alcohol use among men also yielded results which contradicted commonly-held perceptions concerning alcohol use and aging. For the men over 60 heavy drinkers were twice as likely to be found among the employed (12%) than the unemployed/retired (6%). Interestingly, for the men aged 50-59, of whom those not working were generally unemployed and not voluntarily retired, the reverse pattern obtained (heavy drinking among the unemployed, 71%; heavy drinking among the employed males, 36%). Sex differences in drinking habit distributions were pronounced, females exhibiting the same general time trends as the males, but for whom heavy drinking was so rare as to virtually disappear after the age of 60.

In a Canadian study, Smart and Liban (1981) took a household probability sample (total n=993, n=142 over the age of 60) of Durham, Ontario (chosen for its general socio-demographic similarities to the province as a whole). Similar to the previous reports described here, the probability of alcohol dependency and alcohol problems decreased with age. A multivariate analysis was performed on these data, and it was found that social background variables were more powerful predictors of the probability of alcohol dependency symptoms for the young than for those over 60. Further, volume of consumption and frequency of drinking--variables of the highest predictive value for alcohol-related problems among younger cohorts--manifested declining predictive power among the aged. Smart and Liban noted that problem drinking seniors were "...most likely to be male, born outside of Canada, not retired, in the lower income and socio-economic groups and drinking several times a week though not in particularly large quantities" (ibid: 161). Further research concerning factors "specifically related to the elderly" such as health, social isolation, and family relations was recommended by these researchers.

Unique in this series of prevalence reports is a World Health Organization cross-national survey of the alcohol-related behaviors of residents in sampled communities of Mexico, Zambia, and Scotland (reported in Roizen, 1981). Although the age categories employed in Roizen's analysis appear at first glance to be rather crude in regard to the aged (e.g., an age category of 50+), this distinction is probably quite appropriate for "pre-demographic transition" countries.

Of greatest interest in this survey is the remarkable variance in drinking-related behaviors exhibited by the elderly across cultures, thus demonstrating the power of socio-cultural factors in the distribution of alcohol-related behaviors among the aged. For example, in Scotland, drinkers constituted almost the entire population, but the proportion of drinkers showed a slight decline among both male and female aged (for males, 50+, 88% prevalence of drinking). In Mexico (from a sample of rural and urban respondents), declines obtained for the older men after middle age (from 91%, males aged 30-49 to 76%, males aged 50+) but the probability of drinking among women was remarkably consistent across the life course (+ 48%). In Zambia the proportion of drinkers peaked and then remained the same after the age of 30 for men and women (+ 63% men, + 34% women).

Frequency measures (i.e. drinking at least once a week) varied somewhat from the figures for the proportion of drinkers. In Scotland this frequency rate declined after middle age (to 59% for men, 27% for women), while in Mexico the frequency rates peaked for men and women in old age (40% for men, 10% for women). Consistent with the data on probability of drinking, the Zambians more or less stabilized in the prevalence of weekly drinking after the age of 30 (44% males, 22% females). Measures of reported norms or beliefs concerning the appropriateness of alcohol use by the aged followed

the general trends of proportionate drinking for all three countries, although at different proportionate levels. Personal problems associated with alcohol use declined with age in Scotland (to 5%, males; 1%, females after the age of 50 for both sexes), achieved a peak among older men in Mexico (53%) but were non-existent for Mexican women who had attained old age. Such problems were consistent across the life course for Zambian males (25%, 50+) but disappeared for the older Zambian women. Of great interest is the finding that the leveling of social sanctions for inappropriate drinking behaviors (e.g., arrests for public intoxication or alcohol-related job problems) did not precisely correspond with the personal problem measures. That is, both male and female Scots showed a decline with age (2% older men, 0% females 50+), was steady across the life course for the Mexicans (18% males, 50+; 3% females 50+). The Zambians suffered a fairly consistent patterning of the leveling of social sanctions for drinking across the life course (5% Zambian older men, 2% older women).

Relevant to a consideration of the cohort problem is the analysis conducted by Johnson, et al., (1977--reported in Clark and Midanik, 1981) of a series of unpublished national prevalence surveys commissioned by the National Institute on Alcohol Abuse and Alcoholism (NIAAA). From the period 1971-79 eight such surveys were commissioned. These eight surveys showed no significant linear trends in the drinking patterns of the aged--despite the fact that the eight year period allowed for some change in cohort composition of the oldest age strata. Heavy drinkers across this period and in all eight surveys accounted for less than 5% of the aged, moderate drinkers from 3-9%, and lighter drinkers from 19-31%, the remainder being abstainers. Again, these proportions appeared to constitute a significant decline from younger age strata, and show a remarkable degree of consistency of drinking habits

among the elderly as a population during a period of rapid social and economic change.

The Johnson, et al., (1977) analysis is also consistent with a series of reports of national random household probability samples taken during the 1960's (i.e. Cahalan, Cisin, and Crossley, 1969; Cahalan, 1970; Cahalan and Room, 1974). The Cahalan, et al., (1969) national household survey (n=2746) generated data to show that over half of the men over the age of 65 were abstainers or infrequent drinkers. This is a significant increase over earlier age strata. The Cahalan (1970) analysis reports the prevalence of alcohol problems of the national household sample described by Cahalan, et al., 1969. Cahalan (1970) followed a subsample of the earlier study specifically weighted to maximize the response from the heavier drinkers for three years (1964-65, n=2746, 1967, n=1359). Cahalan found that a prevalence rate of 25% among men aged 21-29 in 1967 for seven or more current problems with alcohol existed; past the age of 70 this prevalence rate diminished to approximately 1%. The prevalence rate of seven or more current alcohol-related problems among women aged 60-69 was 1%, after the age of 70 this level of alcohol problems virtually disappeared. Problems associated with alcohol use for women over the age of 60 were slight indeed--for the men 60-69 indices of the prevalence of psychological dependence were consistently below 9%, for specific problems, below 5%. As with the women, beyond the age of 70 the men's alcohol problems nearly disappeared. Significantly, Cahalan found a clustering of higher problem drinking scores among lower class older men, a finding consistent with Smart and Liban's (1981) data. The Cahalan and Room (1974) study, which utilized the 1967 national survey along with an additional 1969 national survey (n=978) and a 1967 San Francisco household sample (n=786) in general reported

findings related to problem drinking across age strata which replicated the work of Cahalan, et al., (1969) and Cahalan (1970).

Prospective Research

The importance of long-term prospective research to the study of aging and alcohol-related problems is apparent, but few such projects have been attempted. The bulk of these prospective research projects concerned with changing alcohol use patterns (e.g., Cahalan, 1970; Clark and Cahalan, 1976; Orford and Edwards, 1977; and Polich, Armor, and Braiker, 1981) are of such short time frames that they are of limited use in understanding the relationship between alcohol use and aging processes. Longer-term prospective studies have been primarily concerned with change in alcohol use patterns from youth to middle age (e.g., Fillmore, et al., 1979; Temple and Fillmore, forthcoming; Vaillant, 1983) and so cannot be generalized to processes of aging and alcohol use. Other long-term panel studies of possible relevance to the study of alcohol use and aging report data from populations whose lifestyle is at wide variance to populations of elders living in the U.S. (e.g., Ojesjo, 1980; 1981). No clinical or community samples have been followed into the second half of life which employ a prospective research design and which explore the full range of alcohol-related behaviors. The one possible exception to the previous generalization is the V.A. Normative Aging Study, currently in progress, but the alcohol measures are limited and the sample is not a representative community sample of seniors (Glynn, 1983).

Of the available long-term prospective research, Vaillant's (1983) is among the most relevant to considerations of alcohol use and aging. Vaillant studied two groups of white males--the "college" and "core city" samples--followed for approximately 40 years. The college sample (n=204) was a group

of highly advantaged, exceptionally healthy college students selected on a non-random basis. The core city sample (n=500) was drawn as a control group for a study of juvenile delinquency. Both samples were subjected to a wide range of demographic, physiological, psycho-social, alcohol use, and psychological measures and both samples were periodically re-studied up to the mid-1970's. Vaillant's central task in his time series analysis of these samples was to further understand the etiology and course of alcoholism. He found that more than half of the alcoholics in his inner city group evolved out of their drinking problems, generally without the assistance of treatment. He also found evidence in the inner city group for sociocultural causality in alcoholism. For example, Irish Americans were seven times more likely to manifest alcohol dependence than subjects of Mediterranean descent. He also found alcoholism running in families, but noted that separation of environmental and genetic factors in such cases is impossible. Although the men in the college sample were approaching or slightly exceeded the age of 60 at the last follow-up, no analysis of how alcohol use patterns change in conjunction with the aging process was offered by Vaillant. Further, the special nature of his samples and the fact that only white males were studied limits generalizability to other groups of the elderly.

Similarly, the Fillmore, et al., (1979) 27-year follow-up of a study of college drinking patterns (Straus and Bacon, 1953) focused on changes in alcohol use problems over time, but only from youth to middle age. Again, their sample was largely male and highly advantaged. In their analysis, Fillmore, et al., (ibid) specifically focused their attentions on early life experiences and environments as well as later life achievements as predictors of alcohol-related problems. Although their analytical path provides a useful model for the current research, whether the factors noted by the authors as important to

stability or change in alcohol-related behaviors are relevant to the latter half of life remains an open question.

The importance of the age variable in explaining the chronicity of alcohol problems was explored by Fillmore and Midanik (forthcoming). Their analysis employed two prospective household probability surveys as a data base; one a national survey first studied in 1964 and restudied in 1974, the other a San Francisco cohort first interviewed in 1967 and followed to 1972. Fillmore and Midanik found that within these samples twice as many of the men in their 40's at Time 1 were likely to report continued alcohol problems at Time 2 as the men in their 20's at Time 1 upon follow-up. Fillmore and Midanik's analysis of this data suggests that while young men are at high risk of serious alcohol-related problems, such problems are not likely to persist over time. As these men age, they are likely to "spontaneously" cut back on alcohol use and alcohol-related problems (see also Tuchfield, 1980; Stall, 1983). However, men in their 40's who manifest a constellation of at least three or more alcohol-related problems are much higher risk to continue to suffer alcohol-related problems over long periods of time. Fillmore and Midanik's analysis may allow a resolution of the contradictory body of findings which emerge when problem drinking surveys of general populations are compared to clinical populations. That is, with the use of prospective designs chronicity of alcohol-related problems (an important aspect of the alcoholism concept) can be found among general populations samples. Further, the finding that young men are highly likely to reduce relatively heavy levels of alcohol use as they approach the age of 30 was replicated in another panel study analysis of young delinquent men conducted by Temple and Fillmore (forthcoming). Again, the general finding that as cohorts move across socially-defined age strata, alcohol use habits exhibit considerable plasticity is of great interest to the present study.

However, the question of whether the processes identified by these researchers hold across the second half of life has yet to be addressed.

Only one report (Schuckit, et al., 1980) has attempted to analyse prospective data in such a way as to provide estimates of the incidence of alcohol-related problems in old age. To generate their data, Schuckit, et al., (ibid) sampled a clinical institutionalized population and employed a small sample of alcoholics to be followed over a three-year period (i.e. 31 alcoholics). Of the "no diagnosis" group five of 113 admissions were later diagnosed as alcoholics, thus providing an estimate of the incidence of alcoholism for a three-year period among an elderly population of 5%. Of the 31 alcoholics to be followed, 11 died during the follow-up period and 2 refused to be interviewed. This left 18 alcoholics available for follow-up, of whom nine each were either diagnosed "active" or "remitted" alcoholics during Time 1. Of the active alcoholics, 20% were diagnosed as "well" at the follow-up, thus allowing a rough estimate of remission from alcoholism for this population over a three year period. However, approximately 20% of the "remitted" alcoholics began drinking "symptomatically" again during the three-year follow-up period, which would negate any decreases which might appear were these data analysed as a second prevalence survey.

Discussion

Patterns of alcohol use among American elderly are an understudied topic, thus permitting a summary of the weight of evidence from the relevant literature to be made in a few sentences. Although clinical or institutionalized geriatric populations are often characterized by a high prevalence of problem drinking or alcoholism, prevalence surveys of more general, non-institutionalized populations yield much lower prevalence rates of alcohol-related problems.

Older men appear to be significantly more at risk for problem drinking or alcoholism than women, the best surveys indicating males are at least two times more likely to experience such problems in later life than are females. Some prevalence data indicated that the lower-class elderly are more likely to experience alcohol-related problems than are more advantaged groups (Cahalan, 1970; Smart and Liban, 1981) although this pattern may be due to the downward social mobility often exhibited by alcoholics or increased social control of the poor, or both. Prevalence data have consistently shown that for United States populations, the elderly are characterized by lower rates of problem drinking and alcoholism than are found among younger age strata. However, it should be kept in mind that preliminary cross-cultural data indicate a wide variability in alcohol use habits and problems among the aged. Retrospective data indicate that a sizeable percentage of geriatric problem drinkers first experience alcohol-related problems in old age. Only one clinical population has been followed to provide an estimate of the incidence of alcoholism among older men (5% for a three-year period, Schuckit, et al., 1980).

Certain hypotheses which are amenable to testing have been forwarded in the attempt to contribute to a further understanding of why non-institutionalized populations of the elderly seem to exhibit a decrease in alcohol consumption and alcohol-related problems when compared to younger cohorts. These hypotheses might be labelled the "mortality hypothesis", the "morbidity hypothesis", the "biological aging hypothesis", the "cohort effect hypothesis", the "maturation hypothesis", and a "social learning" or "socialization to old age hypothesis". The mortality hypothesis might be stated as follows: that heavy drinking segments of a population experience higher mortality, thereby lowering the alcohol problem and alcohol consumption measures of the elderly as a whole through a survivor effect. That is, the prevalence of heavy drinking

and alcoholism appears to be lower among older age strata since those individuals given to heavy drinking die off at an early age. This argument would appear to be supported both by the prevalence surveys of clinical populations as well as by the estimates of excess mortality for heavy alcohol consumption (approximately two times relative risk or mortality than for the general population: Schmidt and de Lint, 1972; Thorarinsson, 1979).

It should be pointed out, however, that mortality surveys have primarily followed only the mortality experiences of heavy drinking segments of the drinking public (e.g., Schmidt and de Lint, 1969; Schmidt and Popham, 1975; Costello, Parsons-Manders, and Schneider, 1979; Robinette, Hrubel and Fraumeni, 1979). More recent work which has also followed the entire range of drinkers as they age (Marmot, et al., 1981) indicates an approximately equal risk of mortality for abstinence from alcohol as for heavy drinkers. Critics of the mortality hypothesis might also suggest that the clinical populations of heavy drinkers which are typically studied in terms of mortality are exhibiting a classic dual dependency on substances and institutions (e.g. Straus, 1974) and so are not necessarily exhibiting profound morbidity which would lead to death due to alcohol consumption alone, but also the effects of poverty, malnutrition, isolation, and neglect. In summation, the exact effects of mortality experiences on a cohort on declining alcohol consumption within that cohort have yet to be precisely determined.

Somewhat related to the mortality hypothesis is the "morbidity hypothesis": that the high prevalence of chronic disease suffered by elderly populations is causal to any patterns of decreased alcohol use exhibited by the aged. This hypothesis has received a fair amount of retrospective empirical support. Both researchers interested in the "spontaneous remission" phenomena (e.g., Tuchfield, 1980; Stall, 1983) and changing alcohol use patterns (e.g., Pell

and D'Alonzo, 1968; Cahalan, 1970; Brody, 1982; Christopherson, et al., n.d.) have reported the importance of health issues in decreasing alcohol use intake. The weight of chronic disease or declining health in forcing a decline in alcohol consumption among elderly populations has yet to be estimated through the use of prospective research designs, however, and so the exact weight of morbidity of forcing a decline in alcohol consumption probably has yet to be accurately judged.

The "biological aging" hypothesis posits that changes associated with biological aging place a strict limit on the amount of alcohol that elders can comfortably or safely consume. Straus (1983:25) has suggested:

The biological aging process includes a number of changes that can influence responses to alcohol. There are hormonal changes. The relative amount of body fat increases while the volume of body water tends to decrease. There are changes in rates of absorption, metabolism and elimination. Storage time may be prolonged. There appear to be changes in tissue sensitivity. Associated with these changes which vary in frequency and intensity from person to person, there is often an increase in the impact experienced from a given amount of alcohol and a decrease in the amount that can be comfortably consumed. Put another way, as many people get older, they experience a decrease in the amount of alcohol that they can drink if they want to maximize the desirable effects and minimize the adverse effects.

Assuming minimal cohort or time period effects on human biological aging processes, this hypothesis could be tested by employing a cross-sectional design which would measure the biological processes thought to impact on alcohol use.

Proponents of the "cohort hypothesis" would argue that the lowered rates of alcohol problems among the current elderly are the result of unique historical effects, such as the socialization to Victorian concepts of "proper" use of alcohol at an early age or the effects of Prohibition, and are not a consequence of any remission phenomena that occurs with aging (Liban and

Smart, 1980). Put another way, proponents of this hypothesis would hold that the patterns of alcohol use characteristic of current elderly are due to historical trends unique to their life span and cannot be generalized to future elderly. Due to the "cohort problem" (to be reviewed in the following chapter) this is a troublesome hypothesis to test. However, assuming minimal time period effects on alcohol use habits within a mature, adult sample, this hypothesis could be addressed using a prospective design (see Wood, 1982). Another solution to this problem is to look for aging effects (independent of a particular cohort's life experiences) through the use of cross-cultural research designs.

Drew (1968) first advanced the notion of alcoholism as a "self-limiting" disease, that is, a behavioral pattern given to extinction in the face of aging processes and maturation. Drew's thesis is, of course, quite similar to the "maturation hypothesis": that increased maturation with aging predisposes for "spontaneous remission" from alcohol problems. Despite the temporal depth of maturation formulation, empirical support for these arguments are scant indeed. However, assuming "maturation" to be a process equally likely to occur within all humans, the variance of patterns of alcohol use behaviors exhibited across sexual, class, and cultural lines would seem to weaken the maturation hypothesis considerably.

"Social learning" or "socialization to old age" models are essentially behavioristic in nature (Mandolini, 1981) and account for changes in the behavior of the aged by differences in the social conditioning of behavior across age strata. In the case of alcohol use among the aged, changes with aging in the frequency of appropriate alcohol-use situations, esteem and economic status, norms of appropriate alcohol use for elders, changes in the structure and nature of social networks with social aging, handling of alcohol-related problems across the age strata, and so on, would be posited as causal in any changes in alcohol

use patterns across the life course (Kastenbaum, 1972; Hochhauser, 1981; Mandolini, 1981; Madsen, 1981). The variations in alcohol use across sexual, class, and cultural lines (e.g., Roizen, 1981) are best explained by arguments based on this hypothesis and could also account for the patterns of alcohol use among the aged reviewed above.

From the preceding discussion it is clear that many issues remain to be resolved if a clear picture is to emerge of how alcohol use patterns change as a concomitant of the aging process. Certainly the research design which would add the most to our understandings of these processes would be a prospective study which follows a cross-sectional sample from approximately mid- to later-life. Such a design could address to at least some degree five of the hypotheses outlined above: the mortality, morbidity, cohort, maturational, and social learning hypotheses. Further, this design would also allow the generation of empirical data concerning how alcohol consumption patterns and alcohol-related problems are brought into old age. This is the design which has been adopted for the research project reported here. A description of the methodological challenges addressed during the course of this research is presented in the following chapter.

CHAPTER 3

Methodological Issues

As outlined in Chapter 1, the purpose of this research project is to measure empirically the types of changes which may occur in alcohol-related behaviors as a concomitant of the aging process. In order to investigate such changes, a sample of San Francisco adult white males aged 30-69 studied in 1964 (n=246) was selected for reinterviewing. Follow-up of this sample occurred during the summer and fall of 1983 -- a 19 year period during which members of the sample moved towards "old" age. The same measures of alcohol consumption (among other items) were employed in 1983 as first used in 1964. This strategy allowed a measure of the change that occurred in alcohol use patterns which occurred as these men moved toward "old age". The fact that the sample is restricted to white males who were middle aged and residents of San Francisco in 1964 may limit somewhat the generalizability of this study. However, this work does allow a beginning look at how alcohol use patterns change as a concomitant of the aging process. Hopefully the findings from this project can be used to guide further research directions relevant to alcohol use in old age.

The 1964 Research Design

During the early and mid-1960's predecessor organizations of the present-day Alcohol Research Group of Berkeley, California conducted a series of community and national surveys concerned with the epidemiology of alcohol use and alcohol problems. A primary concern of this opus of research was to document the sociological and psychological correlates of problematic and non-problematic levels of alcohol use. These surveys were of special value in that

they measured alcohol use patterns within community rather than clinical or "alcoholic" samples (which were previously the primary source of alcohol-related data). The rich data generated by these studies as well as their methodological rigor is impressive for the period and stand to this day as a classic body of research in the alcohol field. The 1964 San Francisco survey is a representative example of this corpus of research.

The 1964 San Francisco study was itself in large part a reinterview effort based on an earlier 1962 San Francisco survey. The sampling procedures for the 1962 study have been described by Knupfer and Room (1964):

The data presented here were collected in a survey of a cross-section of San Francisco adults, selected by an area sampling technique, and interviewed, using a largely precoded questionnaire, during the first half of 1962. In drawing the sample, census tracts of the city were divided into two strata, one composed of densely-populated tracts, the other of those lightly populated. From each of these strata a random sample of census tracts was chosen to yield a total sample of tracts in which each stratum was represented in proportion to its contribution to the population of San Francisco. Following the same procedure, blocks within these tracts were chosen, and the dwelling units within each block. The individuals included in the sample were randomly chosen from the list of adults living in each household selected. This procedure yielded a sample of 1,383 persons of whom 1,268 (92 per cent) were interviewed.

For the 1964 survey all of the heavy drinkers identified in 1962 were chosen for reinterview, plus all of the abstainers who had indicated that at some point in the past they had also been heavy drinkers. Further, half of all other respondents were reinterviewed, as well as all of the spouses of the respondents sampled in 1962. Statistical weighting procedures conducted in the 1964 data allowed an approximation of the original 1962 sample. This sampling procedure generated a sample of 970 interviewed respondents, which included some 320 couples. The completion rate for the 1964 wave of interviews was 70%.

Thus, the 1964 sampling procedures based on the 1962 San Francisco sampling frame generated data relevant to alcohol use habits among men and women all past the age of 23. The 1964 study for the first time included a measure of alcohol-related problems. The inclusion of this measure was a primary criterion upon which the 1964 sample was chosen over the 1962 wave of interviews for restudy. Along with a detailed schedule of items related to alcohol use, alcohol problems, and alcohol use histories, the interview schedule also measured standard demographic characteristics. Further, significant bodies of data concerning life history materials, psychological profiles, health measures, family and marital life concerns, and police and hospitalization records of the respondents were also collected. Each of these measures can be analysed as correlates of the manifestation of alcohol problems in 1964 as well as in the later manifestation of alcohol use patterns as measured in 1983. See Table 1 for a summary of the procedures employed to define the 1962, 1964, and 1984 samples.

TABLE 1: SELECTION OF THE RESPONDENTS AND LOSS TO FOLLOW-UP**1962 San Francisco Household Survey**

n=1,268, 92% Completion Rate of Sampled Respondents

1964 San Francisco Wave

From the 1962 San Francisco Household Survey:

- All heavy drinkers plus current abstainers who were former heavy drinkers
- 50% of all the other 1962 San Francisco respondents
- Addition of spouses of the respondents selected for interviewing in 1964

70% Completion Rate of the 1962 San Francisco Respondents, n=970

1983 San Francisco Wave

From the 1964 San Francisco wave:

- All white males aged 30-59, n=256

Completion rate 33% (n=85) of the 1964 subsample, 31% currently deceased, 36% lost to follow-up/refusals

Epidemiological Measures of Alcohol-Related Behaviors

Five measures of alcohol-related behaviors were selected for an analysis of patterns of change and stability over the 19 year follow-up and will be described in some detail here. These measures were typical frequency of alcohol use, typical quantity of alcohol consumed on a drinking occasion, the most alcohol consumed during the past year and a measure of alcohol-related problems. As mentioned above, the same measures were employed in 1984 and 1964, thus allowing an exact measure of any changes that may have occurred in alcohol-related behaviors as these men moved from approximate "middle" to "later" life.

Frequency of alcohol consumption was measured on an ordinal scale which ranged from absolute abstention to three drinking occasions per day. Similarly, quantity of alcohol use was measured on an ordinal scale which

ranged from one to two drinks per typical drinking occasion to an average of six or more drinks per typical drinking occasion. Both of these scales were more exacting for the heavier or more frequent drinkers. The measure of maximum alcohol consumption during the past year ranged from one to two drinks to 12 or more drinks taken on a specific occasion. With some modification, the 1964 frequency and heaviest drinking scales were translatable to interval level measures.

The measure of alcohol-related problems generated a frequency score problems that informants had in their lives that were alcohol-related. Thus, the quantitative analysis is concerned with the number and not the kinds of alcohol-related problems experienced by the men in this sample as they aged. A qualitative analysis of change in types of alcohol-related problems is presented in Chapter 5. Such problems included trouble with the law, complaints from spouses concerning drinking, troubles on the job due to drinking, alcohol-related health problems, complaints from friends due to drinking, among other problems. In 1964 the informants were asked if they ever in their lives experienced such alcohol-related problems, a procedure that could not be meaningfully repeated in a follow-up study for obvious reasons. For the follow-up, then, it was decided to ask informants whether the same problems had happened during the previous year. Analysis of this variable took into account this departure from typical procedure. That is, it becomes problematical to interpret, say, a decrease in number or type of alcohol-related problems from 1964 to 1983 since the time frame for the 1964 wave of data collection was so much greater. The alcohol-related problems scale was treated for the purposes of analysis as an interval level scale.

A set of variables, defined and measured during the 1964 wave of interviews, were also tested in the analysis for correlational association with

the selected alcohol-related behaviors. These included income, education, age, and number of reasons given for drinking. The age measure was defined in ten year increments; cohorts were defined by the inclusion of men aged 30-39, 40-49, 50-59, and 60-69 in 1964. This measure thus allowed the study of change and stability in drinking behaviors within four distinct age groups over a 19 year period, as well as a comparison of two sets of cohorts at the same approximate age but at different points in time (e.g. a comparison of the cohort aged 30-39 in 1964 and so aged 49-58 in 1983 with the cohort aged 50-59 in 1964). This strategy was of use in a test of the cohort hypothesis, discussed in the previous chapter.

Respondents were also administered a set of 14 questionnaire items in 1964 which measured agreement with reasons commonly given for drinking alcoholic beverages. The reasons for drinking measured motivations based on psychological dependence (e.g. drinking "...because I need it when tense and nervous"), social pressures to drink (e.g. drinking because "...other people are drinking"), and drinking as a response to stress (e.g. drinking "...to forget my worries"). The number of positive responses was computed for each respondent, this 1964 measure was correlated with the selected alcohol-related behaviors in 1964 and in 1983. An analysis to change in types of reasons for drinking was also conducted and presented in Chapter 5. A complete list of the questionnaire items which measured reasons for drinking is found in Appendix 1.

The demographic measures of educational achievement and income were standard for the period and were employed for the 1983 analysis. Copies of the demographic and alcohol-related measures as employed during the interviews can be found in Appendix 1.

The 1983 Reinterview

During the conduct of health-related research some compromise is generally made between the demands of research rigor and the resources available to meet those demands. This research project is no exception to the above rule. Although it would have been preferable to re-interview the entire 1964 sample of 970 respondents, the resources to conduct such a reinterview were not available. The decision was then made to re-interview only the white males aged 30-69 from the 1964 sample (now all past the age of 49) since these men were among the heaviest drinkers in the 1964 sample. If change and stability in alcohol consumption patterns were to be the focus of this follow-up, it seemed intuitively sensible to look first at a demographic segment of the 1964 San Francisco sample that drank most heavily at the first measurement.

According to the strict Human Subjects procedural criteria imposed on this project, non-intrusive methods were employed to discover the present-day whereabouts of the respondents. A search was initially made through the State of California Mortality Statistics files to discover which of the informants had died over the past 19 years. The resources did not exist for this search to be made through other state mortality files, which meant that respondents who had died since 1964 in other states were lost to follow-up. The mortality search process accounted for 31% of the 1964 sub-sample of white males aged 30-59. A second method that proved quite useful in tracing respondents was the use of Bay Area telephone directories, a follow-up technique which produced the present-day addresses of approximately half of the surviving 1964 white male respondents. A third method proved to be essential in locating the whereabouts of respondents who had since moved from the Bay Area; i.e. the reliance upon Driver's Licence Bureau data. Finally, Polk City Guides, Real

Estate Directories, the use of old telephone numbers, inquiries directed through old employers and unions, as well as inquiries directed to former neighbors allowed the identification of the present-day addresses of a fair percentage (6%, 5 respondents) of the 1983 reinterviewed subjects. In conducting these follow-up procedures, the purpose of the research project was not divulged except when absolutely necessary and then only to indicate that a respondent had been part of a "classic health survey".

Once a current address for a respondent had been secured, a letter of introduction was sent to the respondent asking for his permission to be interviewed. A stamped, addressed post card was enclosed with the letter which informed the researcher of the respondents' decisions. If after a two week period a respondent had not replied to the letter, a second copy of the first letter was sent. Again, after two weeks, if no response was given a telephone call was attempted. For those respondents who refused to be interviewed after the first letter, a second letter was sent which was written with the goal of persuading the informant to reconsider his decision. Unfortunately, most of the respondents who refused after the first letter did not change their minds after receiving the second letter. In no case did the interviewer appear at a respondent's home unannounced in the hopes of securing an interview. Two of the interviews were obtained by proxy (interviews with the respondents' wives). In one case an informant was gravely ill and in another case the wife volunteered to serve as a proxy interviewee after her husband's refusal to be interviewed. One interview was self-administrated due to the fact that the informant has been deaf since World War II. Copies of the letters sent to the informants are found in Appendix 2.

For those respondents who agreed to be interviewed, a call was made in order to find a mutually agreeable time to conduct the interview. Interviews

generally took between an hour and an hour and a half (although in a small number of cases the interview stretched past two hours). Every effort was made to conduct the interviews in a warm and friendly spirit, and this effort almost always met with success. For those respondents who lived more than an hour outside of the San Francisco Bay Area, interviews were taken over the telephone (15%, 13 respondents). The author conducted all of the interviews.

The time spent on the reinterview represented a significant decrease from the interviewing time in 1964. It was decided early on in the construction of the research methodology to attempt to keep the interview experience as short as possible. This decision was made for two reasons. These were to increase the likelihood of participation in the research and to protect those respondents who had now reached an age where participation in a 3 hour (or longer) interview might represent a significant burden. Also, the suspicion existed that the quality of data generated through a relatively short interview would be superior to that generated by a much longer and much more wearing interview experience.

The decrease in interviewing time dictated that certain sections of the 1964 interview had to be deleted. The omitted sections included significant portions of the life history materials, the demographic measures, the psychological profiles, and the majority of the items concerned with family and marital life. It was assumed for the purposes of this study (with the exception of the family life and psychological profile items) that the readministration of these measures would only serve to replicate data from the 1964 study. Sections that were re-employed in the 1983 interview were the general health measures, some abbreviated family history items, the alcohol quantity and frequency measures, the problem drinking measures, a special schedule of items for abstainers (employed when appropriate), measures of

beliefs concerning the appropriateness of alcohol use, an open-ended item concerning alcohol use in the family of origin, and some job history/retirement questions. A set of open-ended items that were new to the 1983 interview measured the respondents' perceptions of changes in their alcohol use patterns since 1964. This selection of measures from the 1964 survey permitted the investigation of changes in alcohol-related behaviors over this 19 year period without imposing a burdensome interviewing experience on the respondents. Further, the deleted 1964 measures can be analysed for their predictive value in the manifestation of varying levels of alcohol use at Time 2. A copy of the 1983 interview schedule is found in Appendix 1. Coding of the data from the 1983 re-interviews followed exactly the instructions set forth in the 1964 survey coding book.

Profile of the 1983 Sample

The men reinterviewed in 1983 were all white and aged 30-69 in 1964 and thus aged 49-88 in 1983. The modal age range for the sample in 1983 was from 59-68. The majority of the men were middle class. Typically, respondents lived in middle class urban or suburban neighborhoods such as the Sunset District of San Francisco. Despite the fact that the majority of these men were middle class, some respondents appeared to live close to the poverty line and others lived in magnificent mansions in Pacific Heights. Most of the men were currently married (74%). Almost one-half of the men lived only with their wives, while another 35% lived in multi-generational households. Only 19% lived alone. Eighty-four percent claimed to be in excellent or good health, although one man in the sample was hospitalized at follow-up with a serious illness, and other was permanently deaf. Fifty-one percent of the men were retired as of 1983. Thus, the typical reinterviewed respondent was a man

in his 60's, currently retired from a middle-level management position, who lives with his wife in the Sunset District of San Francisco. Aside from a surprisingly large number of Jewish refugees from the Holocaust (5 men), there appears to be little about this sample which would distinguish it from the general population of white American males of comparable ages.

Methodological Limitations of the Study Design

In a recent essay, Bahr, Caplow, and Chadwick (1983) point out some of the numerous "pitfalls" that attend longitudinal research. Although their essay primarily addressed the needs of community-level research, their hard won experience is relevant to the design adopted for this research as well. Bahr, Caplow, and Chadwick (1983:262-262) conclude:

We earlier promised guidelines for conducting replication. Based on our Middletown experiences, we offer the following suggestions. First, clearly establish the baseline of original findings to be replicated. When, where, and by whom the original study was conducted are critical to the replication. It is important to identify the data-collection methods and techniques used in the baseline study as well as the data available. Such information about the baseline study guides the replication and assists the discipline to evaluate its success. If the original data are available, an essential part of the replication is their reanalysis, applying the categories and theoretical orientation of the original investigators as well as different analytical perspectives.

Second, resist the temptation to expand the replication to include topics absent in the baseline study. There is much to be said for creating new baselines for future replications, but pursuing tangential topics diverts attention and resources from the task at hand.

Third, where extensions are justified, efforts at longitudinal linkage, using techniques of retrospective or life-history reconstruction along with collection of comparable data from respondents representing two or more generations of the same family, probably deserve higher priority than additional cross-sectional surveys. In retrospect,

Middletown III would have profited from much more 'filling in' of the 40-year gap between studies and less extension of the portrait of the contemporary city.

Fourth, researchers should control the urge to update the data-collection instruments. Changing items in questionnaires or categories in observation protocols dilutes the possibility of verifying an earlier finding or documenting the social change that has occurred since the earlier study.

Finally, much more attention should be paid to the interplay between community variables, such as the statistical series begun by the Lynds and updated by the Middletown III researchers, and the data on individual attitudes and experiences. Individual lives are enacted in community contexts. Community research typically underemphasizes the life-span change highlighted in longitudinal studies, and longitudinal work generally is deficient in assessing the impacts of community variables on the changes identified in the individuals monitored over time. It is probably easier for the replicator of community studies to pay attention to generational change and add longitudinal elements to studies of specific cities or regions than for researchers, who must periodically follow-up respondents wherever their idiosyncratic lifeways lead them, to pay attention to the effects of the multiplicity of community contexts experienced by their subjects.

Most of the "pitfalls" enumerated by Bahr, Caplow, and Chadwick (*ibid*) were avoided in the construction of the research protocol. First, the establishment of a baseline was a simple process: numerous archival materials were retained by the Alcohol Research Group office concerning the 1964 study. These materials included the codes for the identification of the respondents, the original interview booklets and interviewer comments on the respondents, the coding book and instructions, the original data set now reserved on computer tape, as well as the numerous publications based on the 1964 research project. Further, the primary staff members who oversaw the fieldwork and analysis of the 1964 San Francisco survey are all still associated with the Alcohol Research Group office and were available for consultation when questions arose.

Regarding Bahr, Caplow and Chadwick's second recommendation, the scope of the study was enlarged somewhat in the 1983 follow-up, but this was done to correct one of the intrinsic weaknesses of follow-up research design; i.e. the inability to account for change that occurred during the follow-up period. The enlargement was a series of retrospective items which were designed to measure such change over the follow-up period. This strategy was consistent with Bahr, Caplow, and Chadwick's third recommendation. Aside from the deletions made in the original interview instruments (as described above), no changes in the wording or ordering of interview items were made. As much attention as possible has been paid to "community-level" variables in the conduct and analysis of this research, but as Bahr, Caplow, and Chadwick point out, the adoption of this follow-up design has made this a challenging process. This attempt is further compromised by the fact that the original 1964 San Francisco study was not designed as a community study.

Two other methodological objections are usually raised concerning the use of long-term prospective research designs. These are most commonly known as "loss to follow-up bias" and the "cohort problem". Loss to follow-up bias occurs when individuals are selectively lost from a sample over time; that is, when loss from an original sample occurs on a non-random basis according to characteristics of age, sex, social class or some other variable of interest. As other researchers have pointed out, however, along with the question of the mere existence of bias in follow-up, the significance of the bias and its importance in analysis is also of central interest in survey research (e.g. Suchman, 1962:102; Hawkins, 1965:461-462). To test for the possibility of loss to follow-up bias in this research, 1983 respondents were compared to the 1964 sample of white males between 30-69 along the variables of the alcohol-

related behaviors, age, number of reasons for drinking, income, education and religion (sex and ethnicity were controlled for in the research design).

When the 1983 respondents were compared to the men lost to follow-up, age and education were the only variables found to be statistically different from Time 1 (age cohort membership, chi square significance= .008; education, chi square significance= .005). The variables of religion (chi square p value less than .6472), number of reasons given for drinking (chi square significance= .41), income (chi square significance= .16) did not seem to be profoundly affected at Time 2 by loss to follow-up bias. It appears that the reason for the power of age in introducing bias in the follow-up is due to the heightened loss of the most elderly cohorts to death over the years, while bias was introduced into the education distribution was due to the inordinate loss of men who had less than a high school education. Loss to follow-up bias will be discussed in great detail in Chapter 4, making an extensive discussion of this point unnecessary here. Suffice it to say, however, that loss to follow-up appears to be of negligible importance in the analysis of the alcohol-related behavioral variables selected for study (frequency, chi square significance= .47; quantity, chi square significance= .28; most quantity, chi square significance= .32; problems, chi square significance= .18).

Although a summary measure of socio-economic status did not achieve strict statistical significance at the .05 level, it may be that a trend towards bias does exist in the loss of lower class respondents. A similar trend also may exist in the alcohol-related problems measure. Both trends seem to be highly influenced by heightened mortality and the "disappearance" of the heavy problem drinking and lower class respondents. It may be that a core group of heavier problem drinking and lower class respondents had a greater probability of loss to follow-up, accounting for the possible trends toward bias for both

the of these variables. In any event, it is clear that the effect of any trends as noted above which may work to bias the data set would be in the direction of a somewhat conservative estimate of the problems associated with alcohol use in the latter half of life. That is, if it is true that those members of the sample who were the heaviest problem drinkers were at a slightly higher risk for dropping out of the sample over the years, then the estimates of alcohol-related behaviors at Time 2 would most likely be conservative. However, despite the possibility of a trend towards bias within the variables of socio-economic status and problem drinking, it does not appear that loss to follow-up poses a particularly strong effect to be considered in the analysis of the data generated by this 19 year follow-up.

Another point related to the topic of loss to follow-up bias concerns the constitution of the 1964 sample. As will be recalled from the description of the 1964 study, the baseline sample consisted of all of the heavy drinkers and abstainers who had once been heavy drinkers identified in the 1962 survey, half of the remaining 1962 sample as well as the inclusion of the spouses of 1962 respondents picked for follow-up in 1964. Thus, the selection of the white males aged 30-69 from the 1964 sample results in a mixed bag of respondents for follow-up: a heavy weighting of heavy drinkers and former heavy drinkers, a 50% sample of the remaining 1962 respondents, and a group of husbands of 1962 respondents weighted according to their wives' drinking habits in 1962. There were no significant differences between subsample contributions to the 1964 and 1983 waves of data collection (chi square significance= .96). The heavy 1962 drinkers accounted for 25% of both the 1964 and 1983 samples, the former heavy drinkers who were abstainers in 1962 accounted for 3% of the 1964 sample, 5% of the 1983 sample. Of the 1964 male respondents 27% had been original 1962 respondents, the same percentage were drawn from 1962

respondents in 1983. Husbands of 1962 respondents constituted 43% of the 1964 sample, 44% of the 1983 sample. Residual categories of respondent types made up the remaining 2% of the 1964 sample, none of whom were available for follow-up in 1983. Weighting procedures were available to generalize the findings of the 1983 follow-up to the 1962 sample. These procedures were not employed for the analysis presented here, due largely to the fact that these procedures would require the questionable assumption that husbands of the 1962 respondents (44% of the 1983 sample) should be weighted according to the drinking habits of their wives. Further, 25 of the 1983 respondents were members of subsamples that were overweighted for follow-up in 1964, which means that only 13 members of the 1983 sample were "oversampled".

The second methodological problem often mentioned in association with long-term prospective studies is less easily resolved. This methodological challenge is best known as the "cohort problem". As outlined by Maddox and Wiley (1976), this problem has the following characteristics:

We can summarize the 'age-period-cohort problem' and the typical way it is conceptualized as follows: 1) the assessment of age, period, and cohort effects begins with the operational definitions of age as chronological age, cohort as date of birth, and period as date of observation; 2) there is a formal dependence among these definitions; effect estimates based on them are formally confounded; 3) these problems that arise from this confounding can be confronted in two ways--by eliminating one of the three factors or by constructing a three-factor model with special restrictions that circumvent the usual consequences of dependence among the three components" (ibid:21)

In other words, when conducting longitudinal research, attributing causality to changes in behavior over time becomes hazardous since age, time period and cohort effects constitute a perfect triple confound. Given the fact of this perfect triple confound, it is extremely difficult to extract specific age, cohort, or time period effects as each factor is generally confounded by the other

two variables. To give an example relevant to alcohol studies, it is not permissible to attribute age-differentiated changes in drinking habits to aging processes alone, as these changes could also reflect the influences of time period effects which have acted on the sample between Time 1 and Time 2 or the cohort effects that the sample experienced during their early socialization and later life experiences. An analysis of drinking habits by cohort would be confounded by period of measurement and aging effects. Similarly, an attempt to discern the effects of the period of measurement on drinking behavior would be confounded by age and by cohort membership. Clearly, this perfect triple confound between age, cohort, and time period effects has profound implications for research and theory building concerned with the changes that occur as a concomitant of the aging process.

The fact that the cohort problem has yet to surrender itself to a simple resolution has led some researchers to suggest some workable approaches to the problem (e.g. Nydegger, 1981; Wood, 1982). Among these have been the use of "time lag" and "sequential" designs (see Schaie, 1965, Schaie and Gribbin, 1975; Baltes and Schaie, 1973). Time lag designs require that each cohort be tested at a different time in the attempt to allow an estimation of cohort effects on behavior. This design does not allow a separation of time of measurement effects and cohort effects, however. One type of sequential design has been called the "cohort sequential" design. In this design at least two cohorts are followed across time in the attempt to isolate aging and cohort effects, although the confound of time period effects still remain. This design thus works best when time period effects are assumed to be negligible.

For this project, the solution suggested by Maddox and Wiley (1976:21) has been adopted: the elimination of one of the three factors of aging, cohort, or time period effects. In practise, the solution will resemble the "cohort

sequential" solution to the cohort problem suggested by Schaie. That is, for the purposes of this research it has been assumed that the time period effects of this sample have been insignificant, and so will be ignored as part of the analytical strategy. Put another way, it will be assumed that while there may have been some societal or cultural change which would affect the drinking habits of these men as they matured over this 19 year period, the effect of such change on their drinking habits was minimal. This assumption is based partly upon national survey data and partly on the fact that the respondents themselves indicated in a retrospective measure of their perceptions of reasons for change and stability in alcohol-related behaviors that time period effects were of minimal importance in any changes that they made since 1964. Concerning the empirical survey data, both Johnson, et al., (1977:14) and Armor, et al., (1977:10) report in their analysis of a series of national Harris polls conducted from 1970-76 that no significant time trends emerged in alcohol consumption patterns for males. As summarized by Johnson, et al., (1977:16):

The slight trend towards more drinking observed for men...does not appear to hold up when age groups are examined. At least, if there are any trends, they are certainly not pronounced. Again, the large fluctuations in the youngest and oldest age groups are most likely due to the small number of cases in each survey.

Further, as outlined above, at the end of the follow-up interview a series of retrospective questions concerning the reasons for change in alcohol use patterns was asked of the informants. Of the three factors; e.g. aging effects (loss of social networks, retirement, health concerns), cohort effects (early socialization, socialization to alcohol use habits during World War II), and time-period effects (change in the meaning of alcohol use during the follow-up period, inflation), time period effects were mentioned only infrequently. The working assumption of minimal time-period effects allows

the investigation of aging and cohort effects on alcohol consumption. The comparison of this analysis to other prospective research designs relevant to issues of alcohol use and aging and which analyse data from other aging samples, will permit some evaluative judgements as to whether the methodological assumption of minimal time period effects was appropriate.

Analytical Strategy

The adoption of prospective research designs allows the researcher to choose among a bewildering number of research directions. This is particularly true when such designs are employed in conjunction with a data set as rich as that described here. Should the researcher attempt to identify which levels of alcohol consumption seem to be the most healthy over the long haul, or which levels pose the greatest danger to health? Is the attempt to search for aging or cohort effects on alcohol consumption of prime importance? Are the correlates of significant change in alcohol consumption over long periods of time the most useful knowledge to be drawn from this data set? Should one compare the correlates of varying drinking patterns at Time 1 and Time 2? Are health policy questions of paramount importance or does one address the more theoretical issue of the differential use and meaning of alcohol use across the life course?

Given the complexity of analytical directions which are possible when addressing a prospective data set, a statement which explicitly outlines the analytical strategy to be followed seems necessary. This statement must be consistent with the general goal of this research: to contribute to an understanding of how alcohol consumption patterns change or stay the same in the face of the aging process. A secondary goal of this research is to identify those factors which seem to influence stability or change in alcohol

consumption from mid to later life. To address this research agenda a set of analytical directions have been selected. The first direction will be to describe the prevalence of varying patterns of alcohol use at Time 1 and Time 2. That is, how different are the prevalences of varying levels of alcohol-related behaviors in 1983 from such behaviors expressed in 1964? Tables which describe the frequency of such behaviors at Time 1 and 2 as well as the amount and direction of change that has occurred over the years within this sample will be presented. Correlations of the prevalence levels with a set of alcohol-related and demographic variables will also be reported. Primary attention in these tests of association will be devoted to an examination of how the strengths of association changed or stayed the same over time.

The second analytical direction to be followed will be to describe patterns of change and stability in alcohol-related behaviors over time. This section will attempt to distinguish those drinkers who increased their alcohol use over the years from those who decreased their alcohol consumption over the years, and from those respondents whose alcohol consumption stayed essentially the same over time. Further, an attempt will be made to identify those factors which seem to be associated with varying directions of change over time. That is, how strong are the correlates of such factors as income, education, number of motivational reasons given for drinking or age cohort membership on varying patterns of change in alcohol use at Time 1?

Since age and change over time are two of the primary variables of interest to this research an attempt was also made to test for changes within and between cohorts in the alcohol-related behaviors selected for study. Analysis of this change will follow the prevalence and incidence analyses outlined above. The results of these analyses are presented in Chapter 4. Finally, a summation of the major findings of this study is presented in Chapter

5, along with a statement which outlines new research directions which would appear to be fruitful in the attempt to broaden our understandings of alcohol use patterns among the aged.

Statistical tests used in these analyses were consistent with the fact that the samples compared were paired (not independent) and the data were based on ordinal or interval level scales. Chi-squares, Wilcoxon matched-pairs signed ranks test, matched t-tests and correlational tests are appropriate statistical tests given the goals and nature of data for this research.

Emphasis was placed on exploration during the conduct of this research, with the hope of providing some well-defined hypotheses upon which future research might be based. For this reason an analysis of qualitative data is given in Chapter 5. This analysis is derived from responses made by the respondents themselves to a series of open-ended questions concerning reasons for change and stability in alcohol use over time. These data are amenable to being used for the inductive construction of hypotheses pertinent to the study of alcohol use and aging.

Many of the methodological issues discussed above compromise the interpretation of the findings and cloud the application of findings to theory building. Significant among these issues are that the 1983 follow-up is restricted to white male residents of San Francisco aged 30-69 in 1964, the cohort problem, the relatively small sample size, and the possibility of bias due to loss to follow-up or of oversampling of the heavier 1964 drinkers. For these reasons this research project was conceptualized from the initial stages as a pilot study which served an exploratory function. Consistent with this goal, some "findings" are reported in the following chapters which did not achieve commonly accepted levels of statistical significance (e.g. $\alpha=.05$). Such "findings" are reported due to their intrinsic interest or due to the suspicion

that if tested against the experiences of another sample the statistical tests would achieve significance. To limit the discussion of findings to those tests which did achieve statistical significance would, at this stage of our understandings of alcohol use and the aging process, seem to inhibit theory building.

CHAPTER 4

QUANTITATIVE MEASURES OF CHANGE AND STABILITY IN ALCOHOL-RELATED BEHAVIOR OVER TIME

The purpose of this chapter is to present the findings concerning change and stability in certain selected drinking behaviors from 1964 to 1983 as manifested by the men in this sample. The alcohol-related behaviors selected for analysis here include frequency of alcohol use, quantity of alcohol use, maximum quantity of alcohol taken during the past year, and alcohol-related problems. Interpretation of the findings according to the questions raised in the first two chapters is reserved for the final chapter.

A standard format will be followed in presenting the analyses for each of the four drinking behaviors. First are the aggregate analyses, beginning with a consideration of the possible effects of loss to follow-up bias, followed by an examination of changes in proportions across levels of the drinking variables, socio-demographic correlates of the drinking variable at Time 1 and socio-demographic predictors of the drinking variable at Time 2, and an analysis by age and cohort. Second are the analyses of individual stability/change, also including socio-demographic predictors of direction of change over time and an analysis of stability/ change by age and cohort.

For the purposes of the analysis, it is important to clarify the differences between the "two" 1964 samples. The 1964a sample (n= 246) consists of all the men interviewed in 1964 between the ages of 30 and 69; the 1964b sample (n= 85) consists of the men interviewed in 1964 and successfully followed in 1983. Comparison of the 1964a and 1964b samples allows consideration of the

possible effects of loss to follow-up bias. The 1964b and 1983 samples will be referred to collectively as the "longitudinal" or the "follow-up" sample.

FREQUENCY OF ALCOHOL USE

Analysis of Loss to Follow-up Bias

Table 2 presents the distributions of this sample by levels of typical frequency of alcohol use as measured in 1964 and 1983 are presented in Table 2. When specific frequency levels of the 1964a and 1964b sub-samples are collapsed into larger categories differences between these categories are seen to be negligible. Distributions were collapsed to three levels: two to three drinking occasions per day to nearly daily drinking (levels 1-3), three to four drinking occasions per week to two to three drinking occasions per month (levels 4-6) and a category which contains monthly drinkers and less frequent drinkers (levels 7-9). Differences are minuscule, as indicated by the underlined percentage figures in Table 2. In short, it appears that bias introduced by loss to follow-up is not an important consideration in the analysis of this variable. A chi-square test of independence between the 1964a and 1964b samples was insignificant (chi square= 7.7, d.f.= 8, significance= .47).

Much of the discussion which follows concerning change and stability in frequency of alcohol consumption will employ the collapsed categories defined above. The category of highest frequency will be referred to as the "most frequent" level (levels 1-3). The phrase "medium frequency" will refer to the collapsed categories of three to four drinking occasions per week to two to three drinking occasions per month (levels 4-6). The last collapsed category, "least frequent", includes those drinkers who drank only monthly or less (levels 7-9).

TABLE 2: TYPICAL FREQUENCY OF ALCOHOL CONSUMPTION; 1964 AND 1983 FREQUENCY DISTRIBUTIONS; BY ABSOLUTE FREQUENCY AND PERCENTAGES

	<u>1964a</u>	<u>1964b</u>	<u>1983</u>
1. 2-3 times per day	9.3% (23)	5.9% (5)	10.6% (9)
2. 1 time per day	22.4 (55)	20.0 (17)	29.4 (25)
3. Nearly every day	11.0 (27)	16.5 (14)	3.5 (3)
	<u>42.7%</u>	<u>42.4%</u>	<u>43.5%</u>
4. 3-4 times per week	11.8 (29)	10.6 (9)	10.6 (9)
5. 1-2 times per week	17.5 (43)	16.5 (14)	12.9 (11)
6. 2-3 times a month	10.2 (25)	12.9 (11)	0 (0)
	<u>39.5%</u>	<u>40.0%</u>	<u>23.5%</u>
7. About once a month	3.7 (9)	2.4 (2)	4.9 (4)
8. At least once a year	4.9 (12)	5.9 (5)	7.1 (6)
9. Abstainers	9.3 (23)	9.4 (8)	21.2 (18)
	<u>17.9%</u>	<u>17.7%</u>	<u>32.9%</u>
TOTAL	100.1% (246)	100.1% (85)	100.2% (85)

Change in Proportions of Frequency Levels Within the Longitudinal Sample

Of central concern to this analysis is a consideration of the differences and similarities exhibited within the longitudinal sample in frequency of drinking at Time 1 and Time 2. A comparison of the most frequent level within the longitudinal sample reveals that very little change in the proportion of the heaviest drinking occurred over this 19 year follow-up period. In contrast, the medium frequency proportion decreased by 41%. Put another way, the proportion of men falling within the medium drinking range was 1.7 times greater in 1964 than in 1983. The greatest change in the proportion of all

drinking levels, however, occurred among the least frequent drinkers. The men in the longitudinal sample were 1.9 times more likely to fall within the lowest level of frequency of drinking in 1983 than they were in 1964. This increase is primarily the result of an increase in the proportion abstention: in 1964 the proportion of men who were abstainers was 9.4%, in 1983 this rate rose to 21.2%. These men were thus 2.3 times more likely to be abstainers in 1983 than they were in 1964.

Socio-Demographic Correlates of Frequency of Alcohol Use in 1964

Correlational tests were computed between the 1964 drinking frequency and the variables of income, education, age, and number of reasons given for drinking alcoholic beverages measured in 1964. The use of the correlational test employed here (Spearman's rho) is appropriate to ordinal level data and does not assume a normal distribution -- useful properties in the analysis of these data. It should also be noted that rho squared measures the proportionate reduction in error in predicting ranks of the dependent variable given the ranked independent variable.

In general it may be said that income level and the summary score of number of motives for drinking were most strongly correlated with 1964 frequency of alcohol use (income level, $\rho = .36$, significance = .00; motivation score, $\rho = .26$, significance = .000). Both the income and motivation rho values were positive; as levels of income and number of reasons for drinking rose, frequency of drinking rose.

Socio-Demographic Predictors of Frequency of Alcohol Use in 1983

Knowing that certain socio-demographic variables were correlated with frequency of alcohol use in 1964 raises the question of their power in predicting

frequency of alcohol use in 1983. The socio-demographic variables employed for this analysis were measured in 1964, these were used to predict frequency of drinking in 1983. As with the previous section, Spearman's rho was employed as the test of association.

Although income and number of reasons for drinking were significantly correlated with frequency of alcohol use in 1964, these variables were not significantly correlated with the 1983 frequency of alcohol use (income level, $\rho = .19$, significance = .09; motivation score, $\rho = .10$, significance = .20). Conversely, in 1964, age (defined in 10 year increments) was not significantly associated with frequency of drinking ($\rho = -.08$), while in 1983 age was negatively correlated with drinking frequency ($\rho = -.18$, significance = .05). The increasing power of association between age and frequency of alcohol use means that variation in frequency of alcohol use among "middle aged" men is not as strongly associated with age as it is among these same men now well into the second half of life. The negative correlation between age and frequency of drinking means that greater age is associated with lower frequency of drinking. With the exception of age, correlations were stronger in 1964 between the socio-demographic variables and frequency of drinking than they were in 1983.

Change in Proportion of Levels of Frequency of Alcohol Use By Age and Cohort

Since one of the primary variables of interest for this research is that of age, it is informative to attempt to separate age and cohort effects on drinking habits. The proportions of a dichotomized measure of frequency of alcohol use by age are given in Table 3. Due to the small sample size, the variable frequency of alcohol use was dichotomized into levels of nearly daily drinking or more (level 1) or 3-4 drinking occasions per week or less (level 2).

Only the percentage of nearly daily drinking or more is given in Table 3, the percentage of men drinking at lower levels may be obtained by subtraction. Particular attention should be given in the interpretation of this table to differences between the 1964a and 1964b samples due to the possibility of loss to follow-up bias.

TABLE 3: PERCENTAGE OF MEN DRINKING ON A NEARLY DAILY BASIS OR MORE BY AGE, LONGITUDINAL SAMPLE

1964a (n=246)				
Age	30-39 (n=60)	40-49 (n=84)	50-59 (n=78)	60-69 (n=24)
	35%	45%	46%	46%

1964b (n=85)				
Age	30-39 (n=28)	40-49 (n=34)	50-59 (n=18)	60-69 (n=5)
	39%	44%	56%	0%

1983 (n=85)				
Age	49-58 (n=28)	59-68 (n=34)	69-78 (n=18)	79-88 (n=5)
	46%	47%	39%	20%

From Table 3 it can be seen that if there are any cross-sectional age trends from the 30's to the late 60's in this sample, these are not profound. The lack of such trends across age levels may be related to the stability over time of the proportion of drinkers at the higher frequency levels described in Table 2. In the 1964a sample, for example, there was an 11 percent increase in the frequency of drinking from men in their 30's to men in their 60's. If the experiences of the two oldest age groups since 1964 can be used as an extended gauge of frequency trends over the life course for the men in this

sample, then it would seem that there is a decrease in frequency of alcohol use as men enter their 70's.

Tests of difference were conducted within the longitudinal sample to test for aging effects on frequency of alcohol use. These tests were accomplished by statistically comparing, for example, the entire range of frequency scores of the men aged 30-39 in 1964 to the scores of the same men aged 49-58 in 1983. With the exception of men in their 50's in 1964, none of the age groups in the longitudinal sample were significantly different in the frequency of alcohol use in 1964 from that in 1983 (50's, Wilcoxon $z = -1.7$, significance = .10). A one-tailed test of significance was used due to the fact that a tendency towards decrease in frequency of alcohol use over time has already been established.

Of additional interest is a comparison of different age cohorts at the same age, thus testing for effects unique to particular cohorts. This test was accomplished by comparing the 1964a cohort of men aged 50-59 to the 1983 cohort of men aged 49-58 as well as the 1964a cohort of men aged 60-69 with the 1983 cohort of men aged 59-68. The 1964a sample was used due to the small sizes of the age groups in the longitudinal sample. Table 3 demonstrates that differences are slight for the two sets of cohorts for whom there are data at roughly comparable ages; men in this sample drank at approximately the same frequency when at the same approximate age (chi-square tests between the 1964b and 1983 samples were not significant).

Patterns of Individual Change and Stability in Alcohol Use Frequency

Although an analysis of change and stability of proportions of levels of frequency of alcohol use at the aggregate level is informative, few conclusions can be drawn concerning individual change in frequency of alcohol consumption

over time when analysis is restricted to aggregate data. Using the same levels of "most frequent", "median frequency" and "least frequent" defined in Table 2, the exploration of individual change over time within the longitudinal sample is summarized in Table 4.

Since this table format also will be used in describing the changes that occurred in other alcohol-related behaviors, an explanatory note describing the table format may be helpful to the reader. The crosstabulation table distinguishes those individuals who have exhibited change in their alcohol-related behaviors from those who have shown no change at Time 2. The underlined diagonal row of three cells contains the individuals who have been stable in their alcohol use over the years. The three cells in the bottom left hand corner contain information concerning those individuals who have increased the frequency of drinking occasions over time; the top right hand corner of three cells contains information concerning those individuals who have decreased frequency of alcohol consumption over the years. The top line of each cell (in parentheses) gives the absolute frequency for each cell, the second line the percentage of the 85 individuals followed in this study (corner percentages), and the bottom line contains a percentage figure of the row total. The marginal figures give absolute frequencies, corner and row percentage figures for the table.

**TABLE 4: CHANGE IN FREQUENCY OF DRINKING;
LONGITUDINAL SAMPLE; Absolute Frequencies,
Corner Percentages and Row Percentages**

Absolute F Corner % Row %	<u>1983 FREQUENCY</u>			
	Most Freq	Median Freq	Least Freq	Total
<u>1964b FREQUENCY</u>				
Most Freq	(24) <u>28%</u> 66%	(7) 8% 19%	(5) 6% 14%	(36) 42% 100%
Median Freq	(12) 14% 35%	(13) <u>15%</u> 38%	(9) 11% 27%	(34) 40% 100%
Least Freq	(1) 1% 7%	(0) 0 0	(14) <u>17%</u> 93%	(15) 18% 100%
Total	(37) 44%	(20) 24%	(28) 33%	(85) 100%

Of immediate interest to this study is a computation of the proportions of individuals who have either been stable or changed frequency of drinking over the years (obtained by a consideration of the corner percentage figures). Table 3 shows that the majority of the respondents (60.0%) were stable in their alcohol use habits. The fact that the 1964 frequency of drinking was the single most powerful predictor of 1983 frequency level emphasizes the majority pattern of stability in drinking frequency over time ($\rho = .46$, significance = .00). Further, a Wilcoxon matched pairs test of difference conducted within the longitudinal sample proved to be statistically insignificant (Wilcoxon $z = -.09$, significance = .93).

Regarding changes in patterns of frequency of alcohol use among these men, 25% of the sample decreased the frequency of drinking while another 15% increased their frequency. Thus, the men who changed their frequency of drinking were 1.7 times more likely to decrease than increase frequency of alcohol consumption (ratio of the percentage of men who decreased frequency of drinking by the percentage of men who increased frequency of alcohol use). In this context, it is noteworthy to report that the 1964 frequency level of alcohol use had the greatest power to predict pattern of change within the longitudinal sample of any such variables tested here ($\rho = .20$, significance = .03). This association means that the greatest decreases in frequency of alcohol use occurred among the less frequent 1964 drinkers.

Another point of interest is the consideration of probability of change in frequency of alcohol use by Time 1 1964 frequency levels. This discussion will employ a measure of continuity of drinking in the longitudinal sample, a concept discussed in some detail in Fillmore and Midanik (forthcoming). Percentages of drinkers who remained at the same frequency levels at follow-up are compared. This analysis is based on a comparison of the row percentages for specific frequency levels at Time 2, as reported in Table 4. Such comparisons provide a measure of the degree of continuity evident within specific drinking levels and give some information concerning the prediction, say, of the highest frequency drinking levels over long periods of time.

Table 4 demonstrates that the extreme levels of drinking frequency at Time 1 are the most stable over time. Two-thirds of the most frequent drinkers in 1964 remained at the same level in 1983; 93.3% of the least frequent drinkers in 1964 remained at that same level in 1983. Drinkers at the medium level in 1964 were less predictable: roughly a third each increased use, were stable, and decreased frequency of drinking. If drinking at a nearly daily level

or more is considered to be a behavioral risk for the development of alcohol-related problems during the latter half of life, the most frequent drinkers in 1964 were approximately ten times more likely to be at potential risk for alcohol-related problems than were the least frequent drinkers. The least frequent drinkers in 1983 were 6.7 times more likely to have been among the least frequent drinkers in 1964 than among the 1964 most frequent drinkers.

Although these data are incalculable from the collapsed frequency categories reported in Table 4, the incidence of drinking at the highest frequency of alcohol use at Time 2 (two to three drinks per day) was 10.6%. However, two-thirds of the 9 men drinking at this highest frequency level in 1983 had also been drinking on at least a nearly daily basis in 1964 (levels 1- 3, Table 2).

Socio-Demographic Predictors of Change and Stability in Frequency of Alcohol Use

Within the longitudinal sample tests of association were computed between the variables of age, income, number of motives for drinking, and education, and a variable measuring increase, decrease or stability in frequency of alcohol consumption. The variables of age and income were positively correlated with the direction of change in frequency of alcohol use over this time period (age, $\rho = .21$, significance = .03; income, $\rho = .20$, significance = .04), indicating that the greatest decreases in alcohol frequency occurred among the younger and less affluent members of the sample. The association between education and change in frequency of alcohol use approached significance ($\rho = .17$, significance = .06), which means that greater decreases in alcohol frequency of drinking occurred among those men with the least education. 1964 frequency of use was positively associated with direction of change ($\rho = .19$, significance = .03), indicating that less frequent drinking is predictive of declines over time.

Individual Change and Stability in Frequency of Alcohol Use by Age

Another way to consider the amount of individual change that occurred over time within the longitudinal sample is to consider individual change and stability by age. This is reported in Table 5, and, as with Table 4, absolute frequencies, corner percentages and row percentages are reported. Due to the small sample sizes of the age groups, the variable of frequency of alcohol use was dichotomized for the purposes of presentation. Even so, results from the men aged 60-69 in 1964 are not discussed here since this group only includes five men.

There does appear to be a trend towards greater stability in frequency of drinking among the older age groups. For example, among the men aged 30-39 in 1964, 57% were stable 19 years later, for the men aged 40-49 those who were stable increased to 73%, while 83% of the men aged 50-59 in 1964 were stable. This pattern of increasing stability appears to be a function of the increasing probability of the more mature men continuing at the lower frequency levels from Time 1 to Time 2.

Also, the ability to predict the heavier drinkers at Time 2 given the Time 1 frequency of use appears to increase among the more mature males. This discussion concerns the degree of continuity in frequency of alcohol consumption, e.g., the ratio of the probability of those drinking at the highest frequency level at Time 2 who were also drinking at that level at Time 1, compared to the probability who were drinking at the highest frequency level at Time 2 but were not at Time 1. Continuity steadily increases from 1.3 (men aged 30-39, 1964) to 2.8 (men aged 40-49, 1964) to infinity (men aged 50-59, 1964--no Time 1 light drinkers were heavy drinkers at Time 2).

TABLE 5: CHANGE IN FREQUENCY OF ALCOHOL CONSUMPTION BY AGE; Absolute Frequency, Corner Percentages and Row Percentages

Age 30-39, 1964, n=28

Absolute Freq
Corner %
Row %

1983

1964	1	2
	6	5
1	21%	18%
	55%	45%
	7	10
2	25%	36%
	41%	58%

Age 40-49, 1964, n=34

Absolute Freq
Corner %
Row %

1983

1964	1	2
	11	4
1	32%	12%
	73%	27%
	5	14
2	15%	41%
	26%	74%

Age 50-59, 1964, n=18

Absolute Freq
Corner %
Row %

1983

1964	1	2
	7	3
1	39%	17%
	70%	30%
	0	8
2	0%	44%
	0%	100%

Age 60-69, 1964, n=5

Absolute Freq
Corner %
Row %

1983

1964	1	2
	0	0
1	0%	0%
	0%	0%
	1	4
2	20%	80%
	20%	80%

1=Nearly daily drinking or more; 2=3-4 drinking occasions per week or less

Finally, no clear trends can be said to exist concerning the direction of change among those men whose frequency of alcohol use changed from 1964 to 1983. Among the youngest men, there was a probability of .72 of decrease among the men who changed frequency of alcohol use, for the men aged 40-49

in 1964 the probability of decrease was .8. This ratio is incalculable for the men in their 50's in 1964 due to the fact that none of the men increased frequency of alcohol use.

Summary of Findings Concerning the Longitudinal Analysis of Frequency of Alcohol Use

Summarizing the findings concerning change in frequency of alcohol use within the longitudinal sample: First, it appears that very little change occurred in the proportion of men drinking at the most frequent levels over this time period, although there were decreases in the proportion of men drinking at the medium level and increases in the proportion of men drinking at the least frequent levels. In particular, an important increase in the proportion of abstainers was noted--the men in the sample were 2.3 times more likely to be abstainers in 1983 than they were in 1964.

Income level and number of reasons given for drinking were both positively and significantly associated with frequency of alcohol use in 1964 but were not strongly associated with frequency of drinking in 1983. Age was negatively associated with frequency of alcohol use in 1983, despite the fact that this measure did not achieve statistical significance in 1964. The variable that was the strongest predictor of 1983 drinking frequency and of the pattern of change between 1964 and 1983 was the 1964 frequency of drinking.

The men in this sample were, for the most part, stable in their alcohol use patterns over the years (60% of the sample being stable). However, the men who did change their alcohol consumption, they were 1.7 times more likely to decrease than to increase frequency. The men at highest risk of drinking at the most frequent level were those men who were drinking at that level in 1964.

Comparisons of changes within age levels at Time 1 and Time 2 and between two cohorts were attempted. Statistically significant change was noted for the men aged 50-59 in 1964 upon follow-up and no differences were discovered between the two different cohorts for whom we have behavioral data at the same approximate age. An increasing probability of stability in alcohol use frequency was noted among the older men.

QUANTITY OF ALCOHOL USE

Analysis of Loss to Follow-up Bias

Table 6 presents the frequency distributions for quantity of alcohol consumed during a typical drinking occasion in 1964 and 1983. Again, as was the case with frequency of alcohol use, when specific quantity levels are collapsed the differences between the 1964a and 1964b samples diminish. However, it appears a slight trend towards bias was introduced due to the inordinate loss of the heaviest drinkers at follow-up (level 1, mode 5 or 6 drinks per occasion). The possibility of bias is suggested despite the fact that the chi-square test of independence between the 1964a and 1983 samples was insignificant (chi-square= 9.8, d.f.= 8, significance= .28). The effect of this bias would be to generate conservative estimates of change in alcohol use habits over time from Time 1 to Time 2.

The proportions for the collapsed 1964 and 1983 quantity categories are given in the underlined percentage figures. As with the analysis of frequency of drinking, much of the discussion which follows will employ these collapsed categories. Readers should be aware that the collapsed categories at the lower quantity levels also include men whose possible range of alcohol consumption reached 5 or 6 drinks. Levels 1-3 will be referred to in the

discussion as the "heavy drinkers", levels 4-6 as the "moderate drinkers", and levels 7-10 as the "light drinkers".

TABLE 6: QUANTITY OF ALCOHOL CONSUMPTION, 1964 AND 1983 FREQUENCY DISTRIBUTIONS; BY ABSOLUTE FREQUENCY AND PERCENTAGES

	<u>1964a</u>	<u>1964b</u>	<u>1983</u>
1. Mode 5-6 drinks	12.6% (31)	5.9% (5)	3.5% (3)
2. Mode 4, range 5-6	7.3% (18)	9.4% (8)	4.7% (4)
3. Mode 4 only	.4% (1)	0% (0)	0% (0)
	<u>20.3%</u>	<u>15.3%</u>	<u>8.2%</u>
4. Mode 3, range 5-6	13.4% (33)	14.1% (12)	12.9% (11)
5. Mode 3, range 4	2.4% (6)	3.5% (3)	1.2% (1)
6. Mode 3 only	.8% (2)	0% (0)	0% (0)
	<u>16.6%</u>	<u>17.6%</u>	<u>14.1%</u>
7. Mode 1-2, range 5-6	17.1% (42)	14.1% (12)	9.4% (8)
8. Mode 1-2, range 3-4	22.0% (54)	24.7% (21)	29.4% (25)
9. Mode 1-2 only	14.2% (35)	17.6% (15)	23.5% (20)
10. Abstainers	9.8% (24)	10.6% (9)	15.3% (13)
	<u>63.1%</u>	<u>67.0%</u>	<u>77.6%</u>
TOTAL	100% (246)	100% (85)	100% (85)

Change in Proportions of Quantity Levels Within the Longitudinal Sample

A consideration of the changes that occurred in the proportions of quantity levels within the longitudinal sample reveals that the greatest change occurred at the heavy drinking level. The men in this sample were 1.9 times more likely to fall within the heavy drinking range in 1964 than in 1983. Little change in proportion of moderate drinking (1.2 times more likely to be a

moderate drinker in 1964 than 1983) or light drinking is apparent (.9 times as likely to be a light drinker in 1964 as 1983). As already pointed out, a moderate increase in the proportions of abstention was reported by these men (1.4 times more likely to be an abstainer in 1983 as 1964).

Socio-Demographic Correlates of Quantity of Alcohol Use in 1964

Correlational tests between 1964 quantity of alcohol use and income, age, education and the number of reasons for drinking were computed (Spearman's rho). Of these variables only number of reasons given for drinking was positively correlated with Time 1 quantity of use (rho= .39, significance= .000): greater number of reasons for drinking was associated with heavier alcohol use. Income and age showed trends toward association with 1964 quantity levels (income, rho = .12, significance= .13; age, rho= -.12, significance= .14).

Socio-Demographic Predictors of Quantity of Alcohol Use in 1983

The same correlational tests were computed for the 1983 wave of data as were computed for the 1964 wave. Age increased strength of association at the 1983 measurement to the level of statistical significance (rho= -.21, significance= .03). The strength of the association between drinking quantity and number of reasons given for drinking decreased somewhat by 1983, although this relationship remained both positive and significant (rho= .22, significance= .03).

Change in Proportions of Levels of Quantity of Alcohol Use by Age and Cohort

Table 7 presents the summary of changes that occurred in the proportions of the quantity drinking levels by age. Due to the small sample size, quantity

levels were dichotomized for presentation, although only the proportions of men who typically took 3 or more drinks (levels 1-6, Table 6) are given. The reported statistical tests were conducted on the entire range of values for this variable. Again, interpretation of this table should take into account differences between the 1964a and 1964b subsamples. Furthermore, the small size of the eldest age group precludes analysis.

TABLE 7: PERCENTAGE OF MEN WHO TYPICALLY TAKE MORE THAN 3 DRINKS; 1964 AND 1983

<u>1964a (n=246)</u>					
Age	<u>30-39</u> (n=60)	<u>40-49</u> (n=84)	<u>50-59</u> (n=78)	<u>60-69</u> (n=24)	
	45%	38%	28%	33%	
<u>1964b (n=85)</u>					
Age	<u>30-39</u> (n=28)	<u>40-49</u> (n=34)	<u>50-59</u> (n=18)	<u>60-69</u> (n=5)	
	36%	35%	33%	0%	
<u>1983 (n=85)</u>					
Age		<u>49-58</u> (n=28)	<u>59-68</u> (n=34)	<u>69-78</u> (n=18)	<u>78-88</u> (n=5)
		36%	18%	17%	0%

It is clear from a reading of the table that if there are any cross-sectional age trends in quantity of alcohol use within this sample, these should probably be considered moderate in nature. In the 1964a sample, the proportion of the heavier drinking levels decreased from 45% among the youngest age group to 33.3% for the men aged 60-69. In the 1983 sample this rate decreases further to approximately 17% for men in their 70's and disappears for men in their 80's.

One-tailed tests for change across time for individual age groups (e.g., a test of difference between the men aged 30-39 in 1964, aged 49-58 in 1983;

Wilcoxon matched pairs test, longitudinal sample) were significant for the men in their 40's and 50's in 1964 (50's, Wilcoxon $z = -1.9$, significance = .06; 40's, Wilcoxon $z = -2.1$, significance = .03). The chi-square tests of difference for the different cohorts at the same age (e.g. men aged 50-59 in 1964, 1964a sample, compared to men aged 49-58 in 1983) were all insignificant.

Patterns of Individual Change and Stability in Quantity of Alcohol Use

Of additional interest to the purposes of this study is a consideration of the individual change that occurred over the years in quantity of alcohol use. These data are summarized in Table 8. It can be seen that stability in quantity of alcohol use over time is nearly twice as common as change; approximately 64% of the sample reported the same general quantity of drinking in 1983 as they did in 1964. However, the men who were stable in their alcohol use habits over the years were drawn predominantly from the ranks of those who were light drinkers or abstainers in 1964. Nonetheless, the majority pattern of stability probably accounts for the fact that quantity of drinking in 1964 was the single most powerful predictor of 1983 quantity ($\rho = .5$, significance = .00).

**TABLE 8: CHANGE IN QUANTITY OF ALCOHOL USE;
LONGITUDINAL SAMPLE; Absolute Frequencies,
Corner Percentages and Row Percentages**

Absolute F Corner % Row %	<u>1983 QUANTITY</u>			
	Heavy	Moderate	Light	Total
<u>1964b QUANTITY</u>				
Heavy	(2)	(5)	(6)	(13)
	<u>2%</u>	6%	7%	15%
	13%	39%	46%	100%
Moderate	(1)	(3)	(11)	(15)
	1%	<u>4%</u>	13%	17%
	7%	20%	73%	100%
Light	(4)	(4)	(49)	(57)
	5%	5%	<u>58%</u>	67%
	7%	7%	86%	100%
Total	(7)	(12)	(66)	(85)
	8%	14%	78%	100%

Of the changers, 25.9% of the entire sample decreased and 10.6% increased quantity of alcohol use. Thus, the men who changed quantity of alcohol use were 2.4 times more likely to decrease quantity of drinking than to increase. A test of difference within the longitudinal sample proved to be highly significant (Wilcoxon matched pairs test, $z = -2.5$, significance = .02).

Risk of being among the heaviest drinkers in 1983 controlling for 1964 drinking levels is predictable according to 1964 drinking levels. Men who were at the heaviest drinking levels in 1964 were 2.1 times more likely to continue drinking at those levels than were either the moderate or light drinkers (ratio of the row percentages, heavy drinkers divided by light and moderate drinkers). Furthermore, light drinkers in 1964 were 1.9 times more likely to be drinking at the same levels at Time 2 than were the 1964 heavy drinkers, but only 1.2

times more likely to be 1983 light drinkers than the 1964 moderate drinkers (comparison of the row percentages, light drinkers divided by heavy and moderate drinkers). The lack distinction between light and moderate drinkers controlling for Time 1 quantity levels is due to the strong decreases among the moderate drinkers: 73% of the moderate drinkers in 1964 were light drinkers in 1983.

Although these data are not calculable from the collapsed categories reported here, the incidence of drinking at the heaviest quantity level at follow-up (level 1, Table 6) was 2.4% (2 men), although only one of these men could be considered a light drinker in 1964. Most apparent in this table, however, is the stability of the light drinkers: 57.7% of the entire sample could be considered a light drinker in 1964 and continued drinking at that level in 1983.

Socio-Demographic Predictors of Change and Stability in Quantity of Alcohol Use

Tests of association were computed between increase, decrease, or stability in quantity of alcohol use since 1964 and a set of socio-demographic variables measured in 1964. Of the five variables tested (Time 1 quantity of drinking, age, income, number of motivations for drinking, and education) only education and Time 1 quantity of alcohol use were significantly correlated. Education was positively associated with change in quantity of alcohol use over time ($\rho = .24$, significance = .02): fewer years of education were associated with a decrease in alcohol use over time. 1964 quantity of use was also positively associated with the pattern of change ($\rho = .57$, significance = .000) an association which indicates that lower 1964 quantity of drinking is predictive

of decrease in use. The association between change in quantity and number of reasons for drinking approached significance ($\rho = .17$, significance = .06).

Individual Change and Stability in Quantity of Alcohol Use by Age

Table 9 reports the turnover rates by age. Due to the small age group sizes, quantity of alcohol use was dichotomized. Results from the eldest group were not analysed due to the small number of men successfully followed.

As was the case with frequency of alcohol use, there appears to be a trend towards an increasing stability of quantity of drinking over time among the older men. For the men aged 30-39 in 1964, 57% were stable, 71% of the men aged 40-49 in 1964 were stable in quantity, as were 83% of the men in their 50's in 1964. As was the case with frequency of alcohol use, however, increasing stability among these men appears to be due, at least in part, to the increasing proportion of stable light drinkers among the older men.

TABLE 9: CHANGE IN QUANTITY OF ALCOHOL USE BY AGE, LONGITUDINAL SAMPLE, Absolute Frequencies, Corner Percentages, and Row Percentages

<u>Age 30-39, 1964, n=28</u>			<u>Age 40-49, 1964, n=34</u>		
Absolute F	Corner %	Row %	Absolute F	Corner %	Row %
	1983			1983	
1964	1	2	1964	1	2
	4	6		4	8
1	14%	21%	1	12%	24%
	40%	60%		33%	67%
	6	12		2	20
2	21%	43%	2	6%	59%
	33%	67%		9%	91%

<u>Age 50-59, 1964, n=18</u>			<u>Age 60-69, 1964, n=5</u>		
Absolute F	Corner %	Row %	Absolute F	Corner %	Row %
	1983			1983	
1964	1	2	1964	1	2
	3	3		0	0
1	17%	17%	1	0%	0%
	50%	50%		0%	0%
	0	12		0	5
2	0%	67%	2	0%	100%
	0%	100%		05	100%

1= Usually takes more than 3 drinks; 2=Usually takes less than 3 drinks

Continuity of drinking at the heavier level likewise appeared to vary according to age. Among the youngest men, those who drank at the higher quantity level in 1964 were 1.2 times more likely to be drinking at the heavier level at Time 2 than men who were at Time 1 light drinking levels. For the men in their 40's in 1964, the Time 1 heavier drinkers were 3.7 times more likely to be drinking at the heavier level at Time 2 than that Time 1 lighter

drinkers, and the ratio reached infinity for the men in their 50's at Time 1 (none of the Time 1 light drinkers were heavy drinkers at Time 2).

Further, there appears to be a trend by age towards a decrease in quantity of alcohol use among the men who changed quantity between 1964 and 1983. A comparison of the men in the youngest age group who changed drinking habits reveals that as many men were likely to increase consumption as decrease, giving a change ratio of 1. Among the men aged 40-49 in 1964 men were 4 times more likely to decrease consumption than to increase; of the men aged 50-59 in 1964, 3 men decreased quantity and none increased.

Summary of Findings Concerning the Longitudinal Analysis of Quantity of Alcohol Use

In summary, then, it appears that the greatest change in quantity of drinking between 1964 and 1983 occurred at the heaviest levels of alcohol consumption. The men in this sample were 1.9 times more likely to be heavy drinkers in 1964 than in 1983. Differences between the proportions of light and moderate drinking were slight, although a moderate increase in the rate of abstention was noted.

In 1964 only number of reasons for drinking was positively associated with quantity of use. In 1983 number of reasons for drinking continued to be associated with quantity of alcohol use, although age and 1964 quantity level were also significantly associated with the 1983 quantity measure. Of these three, 1964 drinking pattern was the strongest predictor of 1983 quantity of drinking.

Most of the men (64%) in this sample were stable in their drinking quantity over the years. Of the men who did change alcohol quantity patterns, they were 2.4 times more likely to decrease than increase quantity. Men who

were the heaviest drinkers were more likely to continue heavy alcohol consumption in 1983 than men who were originally light or moderate drinkers. The most apparent finding in a consideration of the individual change occurring over the years concerning quantity, however, is the general stability of the light drinkers. 86% of the men who were light drinkers in 1964 were also light drinkers in 1983. Only education and 1964 quantity of alcohol use were significantly correlated with change or stability in quantity of drinking between 1964 and 1983.

A moderate cross-sectional age trend may exist towards lighter drinking patterns with increasing age. Statistically significant differences were discovered between two of the four age groups upon follow-up and none between different age cohorts at the same approximate age. Under the assumptions of this research, this finding would indicate that aging trends are more important than cohort effects in explaining decreases in quantity of alcohol use at higher ages.

It appears that an increasing trend towards stability in quantity of drinking may be associated with greater age. However, of the men who changed quantity between 1964 and 1983, a trend by increasing age towards decrease may exist.

MAXIMUM QUANTITY OF ALCOHOL TAKEN DURING THE PAST YEAR

Analysis of Loss To Follow-Up Bias

Table 10 presents the frequency distribution for the most drinks taken on one occasion during the past year for the years 1964 and 1983. As has been the case with the two previously discussed variables, when drinking levels are collapsed into larger categories, the differences between specific drinking levels become minimal, as indicated by the underlined percentages. It does not

appear that loss to follow-up bias is of any great importance in the analysis of this variable, the chi-square test of difference between the 1964a and 1964b samples being insignificant (chi-square= 7.0, d.f.= 6, significance= .32).

Levels 1-3 will be referred to here as the "heavy event drinkers", levels 4 and 5 as the "moderate event drinkers", and levels 6 and 7 as the "light event drinkers". These collapsed categories will form the basis of much of the following discussion.

TABLE 10: MAXIMUM QUANTITY OF ALCOHOL TAKEN ON ONE OCCASION DURING THE PAST YEAR, 1964 and 1983, BY ABSOLUTE FREQUENCY AND PERCENTAGES

	1964a	1964b	1983
1. 12 or more drinks	21.1% (52)	14.1% (12)	1.2% (1)
2. 10-11 drinks	7.7% (19)	9.4% (8)	5.9% (5)
3. 8-9 drinks	8.9% (22)	11.8% (10)	7.1% (6)
	<u>37.7%</u>	<u>35.3%</u>	<u>14.2%</u>
4. 6-7 drinks	18.7% (46)	15.3% (13)	17.6% (15)
5. 4-5 drinks	19.5% (48)	23.5% (20)	18.8% (16)
	<u>38.2%</u>	<u>38.8%</u>	<u>36.4%</u>
6. 2-3 drinks	14.2% (35)	16.5% (14)	29.4% (25)
7. Less than 2 drinks	9.8% (24)	9.4% (8)	20.0% (17)
	<u>24.0%</u>	<u>25.9%</u>	<u>49.4%</u>
TOTAL	100% (246)	100% (85)	100% (85)

Change in Proportions of Maximum Alcohol Consumption Within the Longitudinal Sample

Comparison of the 1964 and 1983 proportions of maximum alcohol consumption levels reveals that the greatest change occurred at the heaviest

levels of use. That is, the men in this sample were 2.5 times more likely to have taken 8 or more drinks on a specific occasion in 1964 as they were in 1983. Little change in the proportion of moderate event drinking is evident (1.1 times more likely to be at the moderate event drinking level in 1964). Important change also appears to have occurred at the lightest event drinking level: men were .5 times as likely to have only taken 3 or less drinks as a maximum quantity in 1964 as in 1983 (1.9 times more likely to be among the light event drinkers in 1983 as in 1964).

Socio-Demographic Correlates of Maximum Alcohol Consumption in 1964

Correlational tests were computed between the variables of income, education, age, number of reasons for drinking and 1964 maximum quantity. Age, income, and number of reasons for drinking were significantly correlated with 1964 maximum quantity (age cohort, $\rho = -.18$, significance = .05; income, $\rho = .23$, significance = .02, reasons for drinking, $\rho = .40$, significance = .00). Age was negatively correlated with maximum quantity: greater maturity was associated with lighter event drinking. Income was positively associated with maximum alcohol consumption; higher income was predictive of higher maximum alcohol use. Number of reasons for drinking was positively correlated with maximum alcohol consumption; that is greater number of reasons for drinking was associated with higher event drinking.

Socio-Demographic Predictors of Maximum Alcohol Consumption in 1983

The 1964 socio-demographic variables were tested for their predictive power concerning 1983 maximum drinking. In 1983, age increased correlation with maximum alcohol use ($\rho = -.31$, significance = .002) while all of the other 1964 correlational associations faded to statistical insignificance. As was true

for frequency and quantity of alcohol use, 1964 maximum quantity was highly correlated with 1983 maximum drinking ($\rho = .47$, significance = .000). That is, the maximum amount of alcohol use in 1964 was highly predictive of 1983 maximum alcohol intake.

Change in Proportion of Levels of Maximum Quantity of Alcohol Use by Age and Cohort

Table 11 summarizes the changes that occurred in the proportion of heavy maximum event drinking from 1964 to 1983 by age. Only the heavier levels of event drinking are reported here (a maximum of 3 or more drinks on one occasion during the past year), the change in proportion of the lighter level can be obtained by subtraction from 100%. Again, results concerning the oldest age group are not reported here due to the small number of respondents successfully followed in 1983.

Cross-sectional trends in maximum event drinking appear to be marked. In the 1964a sample the proportion of drinking more than 3 drinks on one occasion during the past year progressively decreased 24% from men in their 30's to men in their 60's. Further decreases are evident among men in their 70's and 80's for the 1983 sample.

Each of the age groups showed significant differences in maximum event drinking levels, according to the one-tailed tests of difference within the longitudinal sample (e.g. a test of comparison for the entire range of maximum quantity scores between men aged 30-39 in 1964, aged 49-58 in 1983--50's, Wilcoxon $z = -1.9$, significance = .06; 40's, Wilcoxon $z = -2.4$, significance = .02; 30's, Wilcoxon $z = -2.2$, significance = .03). None of the chi-square tests of difference for the different cohorts at the same approximate age were

significant (e.g. a test between the 1964a men aged 50-59 and the 1983 men aged 49-58).

TABLE 11: PERCENTAGE OF MEN WHO TOOK 3 OR MORE DRINKS DURING THE PAST YEAR DURING ONE OCCASION BY AGE; 1964 AND 1983

<u>1964a (n=246)</u>					
Age	<u>30-39</u> (n=60)	<u>40-49</u> (n=84)	<u>50-59</u> (n=78)	<u>60-69</u> (n=24)	
	87%	75%	73%	63%	
<u>1964b (n=85)</u>					
Age	<u>30-39</u> (n=28)	<u>40-49</u> (n=34)	<u>50-59</u> (n=18)	<u>60-69</u> (n=5)	
	86%	68%	78%	0%	
<u>1983 (n=85)</u>					
Age		<u>49-58</u> (n=28)	<u>59-68</u> (n=34)	<u>69-78</u> (n=18)	<u>79-88</u> (n=5)
		68%	53%	33%	0%

Patterns of Individual Change and Stability in Maximum Event Drinking

Table 12 summarizes individual change in maximum event drinking within the longitudinal sample. As can be seen from the underlined diagonal corner percentages, slightly over half (51%) of the longitudinal sample were stable in maximum quantity during the past year. Only 6% of the sample increased maximum event drinking while 43.5% of the sample decreased. Decrease in maximum quantity among men who changed consumption was thus the dominant direction of change: the changers were 7.3 times more likely to decrease than to increase. A test of change between the 1964 and 1983 samples was highly significant (matched t-test= -5.31, significance=.000) and re-emphasizes the strong trend towards lighter event drinking manifested by these men from 1964 to 1983.

Continuity at the heaviest drinking level varied according to the Time 1 level of maximum alcohol consumption. Men who were at the highest drinking levels at Time 1 were 6.5 times more likely to remain at that level than the Time 1 light drinkers were to commence heavy event drinking at Time 2. Further, the Time 1 heavy event drinkers were 4.9 times more likely to be among the Time 2 heavy drinkers than were the Time 1 moderate drinkers. Similarly, continuity of light drinking varied controlling for Time 1 maximum drinking levels. The Time 1 light event drinkers were 3.7 times more likely to remain light event drinkers than were the heavy Time 1 event drinkers to be among the light event drinkers at Time 2. The Time 1 light drinkers were also 1.8 times more likely to be among the Time 2 light drinkers than were the Time 1 moderate drinkers.

Although this figure is not calculable from the collapsed figures given in Table 12, the incidence of the heaviest event drinking (level 1, Table 10) was 1.2% and that individual was already drinking at level 3 (maximum 8-9 drinks) in 1964.

**TABLE 12: CHANGE IN MAXIMUM QUANTITY OF ALCOHOL
TAKEN ON ONE OCCASION DURING THE PAST
YEAR; LONGITUDINAL SAMPLE;
Absolute Frequencies, Corner Percentages and Row
Percentages**

Absolute F Corner % Row %	<u>1983 MAXIMUM QUANTITY</u>			
	Heavy	Moderate	Light	TOTAL
<u>1964b MAXIMUM QUANTITY</u>				
Heavy	(9)	(14)	(7)	(30)
	<u>11%</u>	17%	8%	36%
	<u>30%</u>	47%	23%	100%
Moderate	(2)	(15)	(16)	(33)
	2%	<u>18%</u>	19%	39%
	6%	<u>45%</u>	49%	100%
Light	(1)	(2)	(19)	(22)
	1%	2%	<u>22%</u>	26%
	5%	9%	<u>86%</u>	100%
TOTAL	(12)	(31)	(42)	85
	14%	37%	49%	100%

Socio-Demographic Predictors of Change and Stability in Maximum Event Drinking

Tests of association were also computed between increase, decrease, or stability in maximum event drinking and a set of socio-demographic variables measured in 1964. Of the five variables tested (age, number of reasons given for drinking, income, education, and 1964 maximum quantity) income, education and 1964 maximum event drinking were significantly correlated with pattern of change and age approached significance (income, $\rho = .18$, significance = .05; education, $\rho = .23$, significance = .02; 1964 maximum quantity, $r = .55$, significance = .00; age, $\rho = .17$, significance = .07). Each of these associations is positive; therefore lower Time 1 education, income and maximum quantity were associated with declining maximum event drinking over the years.

Individual Change and Stability in Maximum Event Drinking by Age

Table 13 reports the turnover rates by age. Due to the small sample size, maximum event drinking was dichotomized--proportions of men drank three or more drinks as a maximum quantity during the past year are given in Table 13. Also, results from the eldest group of men are not analysed due to the small sample size.

Distributions within these age groups support the proposition that a trend towards decreasing stability in maximum drinking patterns exists among the more mature men in this sample. For example, 75% of the youngest men and 74% of the men in their 40's at Time 1 were stable in maximum consumption at Time 2 while 55% of the men in their 50's in 1964 were stable. Thus, there was a 20% decline in stability of maximum event drinking among the older men. This pattern appears to be the result of a declining probability of remaining at or entering the higher maximum drinking level at the Time 2 measurement.

The probability of continuity of drinking at the heavier level at Time 2 controlling for Time 1 drinking practices may increase among the older men. Continuity of drinking at the heavier level compared to Time 1 light drinkers who took up heavy event drinking for the youngest men is at 3: for the men in their 40's in 1964, 3.8 and infinity for the following age group (none of the Time 1 light event drinkers were heavy event drinkers upon follow-up).

For the men who changed maximum quantity, there may be a trend towards decrease. If there is no trend towards increasing decrease among changers, it is certainly fair to say that decrease was the predominant direction of change among the men whose maximum quantity changed. For the youngest men the ratio of decrease to increase is 6, for the men aged 40-49 the ratio

is 3.5 and for the men aged 50-59 in 1964 eight men decreased maximum quantity and none increased.

TABLE 13: CHANGE IN MAXIMUM QUANTITY OF ALCOHOL USE TAKEN DURING THE PAST YEAR BY AGE, Absolute Frequencies, Corner Percentages and Row Percentages

<u>Age 30-39, 1964, n=28</u>			<u>Age 40-49, 1964, n=34</u>		
Absolute F	Corner %	Row %	Absolute F	Corner %	Row %
1983			1983		
1964	1	2	1964	1	2
	18	6		16	7
1	64%	21%	1	47%	21%
	75%	25%		70%	30%
	1	3		2	9
2	4%	11%	2	6%	27%
	25%	75%		18%	82%
<u>Age 50-59, 1964, n=18</u>			<u>Age 60-69, 1964, n=5</u>		
Absolute F	Corner %	Row %	Absolute F	Corner %	Row %
1983			1983		
1964	1	2	1964	1	2
	6	8		0	2
1	33%	44%	1	0%	40%
	41%	57%		0%	100%
	0	4		0	3
2	0%	22%	2	0%	60%
	0%	100%		0%	100%

1=Maximum of 3 or more drinks; 2= Maximum of 3 or less drinks

Summary of Findings Concerning the Longitudinal Analysis of Maximum Event Drinking

In summation, it is clear that significant decreases were made by the men in the longitudinal sample in maximum alcohol consumption taken during the previous year. The proportion of the heaviest event drinking levels was 2.5 times greater in 1964 than in 1983; the proportion of the lightest event drinking levels was nearly twice as high in 1983 as in 1964. Age, income, and number of reasons given for drinking were significantly correlated with maximum quantity in 1964, but by 1983 these relationships had (with the exception of age) faded to statistical insignificance.

Half of the men in this sample were stable in their maximum alcohol consumption from Time 1 to Time 2. For the men who changed, however, decrease was 7.3 times more likely to occur than increase. Income, education, and 1964 maximum quantity were positively correlated with the pattern of change, while age approached significance.

The results from the analysis of stability and change by age were among the clearest of all of the drinking variables studied here. A strong cross-sectional age trend towards decreasing maximum alcohol use was noted. Aging trends were, without exception, statistically significant. A decrease in stability in maximum alcohol consumption was noted among the older men. Further, a trend by age towards decrease among the men who changed maximum event consumption from 1964 to 1983 was also described.

ALCOHOL-RELATED PROBLEMS

Analysis of Loss to Follow-Up Bias

Table 14 presents the frequency distributions for number of alcohol-related problems. Respondents were asked in 1964 and 1983 whether they had

been drunk for more than 1 day at a time, had a hangover, had complaints from their spouses concerning alcohol use, had complaints from friends concerning alcohol use, had trouble on the job due to drinking, had alcohol-related health problems, been arrested for drunk driving, or felt that they should cut down on alcohol use, among other problems. The number of positive responses to these questions were tabulated and form the basis for the frequency distributions presented in Table 14. Thus, this table refers to numbers and not kinds of alcohol-related problems. As will be recalled from the methodology chapter, the 1964 survey measured lifetime prevalence of specific items, the 1983 follow-up measured incidence of alcohol-related problems during the past year. Comparisons between the 1964 and 1983 samples should be made with this fact in mind, since the period of measurement in which alcohol-related problems might emerge was so much greater for the 1964 wave of interviews.

As indicated by the underlined percentage figures, loss to follow-up does not seem to be an important consideration in the analysis of this variable, although loss may have been greater among those men who admitted having five or more problems in 1964. It appears that due to this loss the chi-square test of difference between the 1964a and 1964b samples reached the highest level of significance of all such tests made of the drinking variables at Time 1 and Time 2 (chi-square= 11.4, d.f.= 8, significance= .18). The effect of any bias introduced by this loss, if it is of any importance, would be towards generating conservative estimates of change in alcohol-related behaviors over time. The categories of "no problems" (level 1), "one problem" (level 2), and "2 or more problems" (levels 3-9) will be used in the discussion of the proportions of alcohol-related problems in 1964 and 1983.

**TABLE 14: NUMBER OF ALCOHOL-RELATED PROBLEMS; 1964
AND 1983 FREQUENCY DISTRIBUTIONS;
BY ABSOLUTE FREQUENCY AND PERCENTAGES**

	1964a	1964b	1983
1. No problems	30.1% (74) <u>30.1%</u>	30.6% (26) <u>30.6%</u>	60.0% (51) <u>60.0%</u>
2. One problem	27.6% (68) <u>27.6%</u>	25.9% (22) <u>25.9%</u>	15.3% (13) <u>15.3%</u>
3. Two problems	17.9% (44)	21.2% (18)	17.6% (15)
4. Three problems	11.0% (27)	16.5% (14)	3.5% (3)
5. Four problems	4.9% (12)	3.5% (3)	3.5% (3)
6. Five problems	5.7% (14)	1.2% (1)	0% (0)
7. Six problems	.8% (2)	0% (0)	0% (0)
8. Seven problems	1.6% (4)	1.2% (1)	0% (0)
9. Eight problems	.4% (1)	0% (0)	0% (0)
	<u>42.3%</u>	<u>43.6%</u>	<u>24.6%</u>
TOTAL	100% (246)	100.1% (85)	99.9% (85)

Change in Proportions of Alcohol-Related Problems Within the Longitudinal Sample

The most marked change in the problem score frequency distribution between 1964 and 1983 occurred among those men who had no problems and those who had two or more problems. The men in this sample were .51 times more likely to have no alcohol-related problems in 1964 as in 1983. Put another way, during 1983 men were two times more likely to deny having alcohol-related problems than they were up to 1964. Men were 1.7 times more likely to have only one problem in 1964 as in 1983 and 1.8 times more likely to have two or more alcohol-related problems in 1964 as in 1983.

Socio-Demographic Correlates of Alcohol-Related Problems in 1964

Correlational tests between the variables of income, education, age, and number of reasons given for drinking and the 1964 problem drinking scores were computed. Income ($\rho = .18$, significance = .05) and number of reasons given for drinking ($\rho = .47$, significance = .00) were found to be positively correlated with the 1964 number of alcohol-related problems. These findings indicate that higher income and greater number of reasons given for drinking were associated with greater probability of having alcohol-related problems.

Socio-Demographic Predictors of Alcohol-Related Problems in 1983

Correlational tests were performed in order to identify 1964 predictors of alcohol-related problems in 1983. This line of analysis is of particular interest due to the unequal time periods of measurement during which alcohol-related problems were counted for the 1964 and 1983 interviews. Age and education were found to be significant predictors of the number of Time 2 alcohol-related problems (age, $\rho = -.30$, significance = .003; education, $\rho = -.17$, significance = .06) while number of reasons for drinking decreased strength of association somewhat from the 1964 association ($\rho = .24$, significance = .02). Age and education were negatively associated with alcohol-related problems; younger age and lower educational standing were predictive of having alcohol-related problems in 1983. Number of reasons for drinking was positively associated with the number of alcohol-related problems; greater numbers of reasons for drinking at Time 1 was predictive of greater number of alcohol-related problems at Time 2. The 1964 number of alcohol-related problems is the best predictor of the 1983 measure of such problems ($\rho = .47$, significance = .00).

Change in Proportion of Alcohol-Related Problems By Age and Cohort

Table 15 addresses the topic of changes that occurred in the proportion of alcohol-related problems by age. Due to the small sample size the variable of alcohol-related problems was dichotomized; only the proportion of men who had alcohol-related problems in 1964 and 1983 is given in Table 15. The proportions of men without such problems can be obtained by subtraction from 100%. Due to the small sample size, results from the eldest group of men were not analysed.

From Table 15 it can be seen that there is a strong cross-sectional trend towards a decline in problem drinking with advancing age. In the 1964a sample declines obtained by 25% from the men in their 30's compared to the men in their 60's in 1964. For the two oldest age groups measured in 1983 further decreases in alcohol-related problems were observed.

All of the age groups were significantly less likely to experience an alcohol-related problem during the year of follow-up than they did previous to 1964 (e.g., comparison of men aged 50-59 in 1964, aged 69-78 in 1983; 50's, Wilcoxon $z = -3.2$, significance = .002; 40's, Wilcoxon $z = -2.4$, significance = .02; 30's, Wilcoxon $z = -1.9$, significance = .06). Comparisons of the two sets of different cohorts for whom we have data at the same approximate ages were insignificant statistically (e.g., comparison of the men aged 50-59, 1964a sample, with the men aged 49-58, sample).

TABLE 15: PERCENTAGE OF MEN HAVING AT LEAST 1 ALCOHOL-RELATED PROBLEM, 1964 and 1983, IN PERCENTAGES

1964a (n=245)					
Age	30-39 (n=60)	40-49 (n=84)	50-59 (n=78)	60-69 (n=24)	
	75%	74%	68%	50%	
1964b (n=85)					
Age	30-39 (n=28)	40-49 (n=34)	50-59 (n=18)	60-69 (n=5)	
	71%	74%	79%	0%	
1983 (n=85)					
Age		49-58 (n=28)	59-68 (n=34)	69-78 (n=18)	79-88 (n=5)
		50%	47%	22%	0%

Patterns of Individual Change and Stability in Alcohol-Related Problems

Table 16 describes individual change in alcohol-related problems in 1983 and previous to 1964. It can immediately be seen that, in contrast to the other dependent variables considered here, change in the number of alcohol-related problems was more likely to occur than stability. The interpretation of this finding is somewhat problematical--it may be that change was more likely to occur due to the fact that the time frame was shorter upon follow-up or that the experience of alcohol-related problems is more likely to motivate drinkers to cut back on alcohol consumption than variation in the other drinking behaviors considered here. Further, the percentage of men who were stable in the number of alcohol-related problems at Time 2 is not appreciably different from those who were stable in maximum event drinking.

In any event, 46% of the sample were stable while 44.8% of the sample decreased and 9.5% increased the number of alcohol-related problems during 1983. Therefore, the men who changed were 4.7 times more likely to decrease

than to increase alcohol problems. As might be expected, a matched t-test test of difference in problem drinking within the longitudinal sample was highly significant ($t = 4.72$, significance = .00).

TABLE 16: CHANGE IN THE NUMBER OF ALCOHOL-RELATED PROBLEMS; LONGITUDINAL SAMPLE; Absolute Frequencies, Corner Percentages and Row Percentages

Absolute F Corner % Row %	<u>1983 PROBLEMS</u>			
	Two or More	One	None	TOTAL
<u>1964b PROBLEMS</u>				
	(14)	(10)	(13)	(37)
Two or More	<u>17%</u>	12%	15%	44%
	<u>38%</u>	27%	35%	100%
	(5)	(2)	(15)	(22)
One	6%	<u>2%</u>	18%	26%
	23%	<u>9%</u>	68%	100%
	(2)	(1)	(23)	(26)
None	2%	1%	<u>27%</u>	30%
	8%	4%	<u>89%</u>	101%
TOTAL	(21)	(13)	(51)	(85)
	25%	15%	60%	100%

The proportion of alcohol-related problems controlling for the number of 1964 alcohol-related problems varied. As can be seen by a comparison of the row percentages in Table 16, the probability of having 2 or more alcohol-related problems during 1983 was 4.9 times greater for those men who already had had that many problems prior to 1964 than for the men who had not had alcohol problems previous to being interviewed in 1964. For the men who already had one alcohol-related problem previous to 1964 the probability was 2.9 times greater that they would have two or more alcohol-related problems

at follow-up than for those men who had not experienced an alcohol-related problem previous to 1964. A bit of recomputation of the Table 15 figures reveals that having had one alcohol-related problem by 1964 places the drinker at 4.4 times the risk of having an alcohol-related problem during the year previous to the Time 2 reinterview.

Although not calculable from the collapsed categories given in Table 16, the incidence of having two or more alcohol-related problems in 1983 was 8.3%. However, 71% of these men incident for alcohol-related problems in 1983 (5 out of 7 men) had already experienced one alcohol-related problem by 1964.

Socio-Demographic Predictors of Change and Stability in Alcohol-Related Problems

Correlational tests were computed between the 1964 measures of age, income, number of reasons given for drinking, and education and the direction of change in alcohol-related problems during 1983. Of these tests, income ($\rho = .19$, significance = .04), number of reasons for drinking ($\rho = .19$, significance = .04) and number of 1964 problems ($r = -.56$, significance = .00) were statistically significant. Income and number of reasons for drinking were positively correlated with alcohol-related problems; lower income and fewer reasons given for drinking were associated with a decrease in 1983 problem drinking. Time 1 problem drinking scores were negatively correlated with Time 2 drinking scores; having greater number of alcohol-related problems prior to 1964 is predictive of a decrease in the number of alcohol-related problems experienced during 1983.

Individual Change and Stability in Alcohol-Related Problems by Age

Table 17 addresses the changes that occurred on an individual basis by age in alcohol-related problems. Due to the relatively small sample size, the variable of alcohol-related problems was dichotomized into 1 or more problems and no alcohol-related problems. Results from the eldest age group were not analysed due to the small sample size.

A possible trend toward declining stability in alcohol problems may exist between these age groups. For those men aged 30-39 in 1964, 64% changed number of problems upon follow-up. For the next oldest age group, 68% changed, while 44% of the men aged 50-59 in 1964 changed. This trend towards a greater probability of change among the more senior cohorts appears to be a direct result of a declining number of alcohol-related problems among the more mature men.

Further, there also appears to be a trend in continuity of having at least one alcohol problem at Time 2, controlling for alcohol problems at Time 1. The risk of having at least one problem at follow-up controlling for Time 1 problem drinking score is 2.4 for the men aged 30-39 in 1964 (comparison of the men who were problem drinkers at Time 1 and those who were not, but who have at least one alcohol-related problem in 1983). This ratio increases to 5.4 for the men aged 40-49 in 1964 and reaches infinity for the men in their fifties in 1964 (none of the Time 2 problem drinkers had been problem drinkers at Time 1).

There also appears to be a strong trend towards a decrease in alcohol-related problems among the men who changed their problem drinking scores, controlling for age. For the youngest men the ratio of men who decreased

the number of problems that they experienced with alcohol use to those who increased problems is 4, for the men aged 40-49 in 1964 this ratio increases to 10.1, for the men in its fifties in 1964 three men decreased problems and none increased.

TABLE 17: CHANGE IN NUMBER OF ALCOHOL-RELATED PROBLEMS BY AGE, LOGITUDINAL SAMPLE, Absolute Frequency, Corner Percentages and Row Percentages

Age 30-39, 1964, n=28

Absolute F
Corner %
Row %

	1983	
1964	1	2
1	12 43% 60%	8 29% 40%
2	2 7% 25%	6 21% 75%

Age 40-49, 1964, n=34

Absolute F
Corner %
Row %

	1983	
1964	1	2
1	15 44% 60%	10 30% 40%
2	1 3% 11%	8 24% 89%

Age 50-59, 1964, n=18

Absolute F
Corner %
Row %

	1983	
1964	1	2
1	4 22% 29%	10 56% 71%
2	0 0% 0%	4 22% 100%

Age 60-69, 1964, n=5

Absolute F
Corner %
Row %

	1983	
1964	1	2
1	0 0% 0%	0 0% 0%
2	0 0% 0%	5 100% 100%

1= 1 or more alcohol-related problem, 2= No alcohol-related problems

Summary of Findings Concerning the Longitudinal Analysis of Problem Drinking

In summation, important changes occurred in the prevalence of alcohol-related problems between the period previous to 1964 and during the year previous to interviewing within the longitudinal sample. Approximately twice as many men had alcohol-related problems previous to 1964 as they did in 1983 and twice as many men denied having alcohol related problems during 1983 as did previous to 1964. Income and number of reasons for drinking were found to be positively correlated with number of alcohol-related problems in 1964. For the 1983 wave of interview data, age cohort, education and number of motivational reasons were significantly correlated with number of alcohol-related problems while the income relationship faded to statistical insignificance. As with the other variables considered here, the 1964 number of alcohol-related problems was the best predictor of the number of 1983 alcohol-related problems.

More men changed the number of alcohol-related problems by 1983 than remained stable, although this finding is problematical to interpret. Of the men who changed the number of problems, a decrease in alcohol-related problems was 4.7 times more likely to occur than an increase. Having had at least one alcohol-related problem by 1964 placed these men at 4.4 times the risk of having at least one such problem in 1983. Income, number of reasons for drinking and the number of 1964 alcohol-related problems were significantly correlated with increase, decrease, or stability in the number of alcohol-related problems upon follow-up.

A strong cross-sectional trend towards a decrease in alcohol-related problems was evident within this sample. All of the age groups were significantly less likely to have alcohol-related problems upon follow-up. It appears that declining stability in the experience of having alcohol-related problems exists across age groups, concurrent with an increase in continuity among the problem drinkers among the older men. For the men who changed there is also a clear trend towards a decrease in alcohol-related problems with advancing age.

CHAPTER 5

QUALITATIVE DATA CONCERNING REASONS FOR CHANGE AND STABILITY IN ALCOHOL-RELATED BEHAVIORS OVER TIME

The previous chapter was devoted to an analysis of quantitative measures of alcohol-related behaviors. This chapter will present an analysis of qualitative data concerning reasons for change and stability in alcohol-related behaviors over time. This analysis is given to put some "qualitative meat" on the "statistical bones" described in Chapter 4. That is, the qualitative data presented here will provide a fuller picture of the processes which influenced stability and change in informants' drinking habits over the years. Further, these data are given as a basis for the construction of explanatory hypotheses, suitable for later testing, concerning change and stability in drinking as a concomitant of the aging process. As such, this chapter presents one model for the integration of typically qualitative, anthropological techniques within research protocols designed to answer epidemiological questions.

The qualitative analysis will address two primary topics. The first of these is a discussion of the proportionate change in agreement with a standard list of reasons for drinking asked of these men in 1964 and repeated in 1983. In many respects the discussion of the first topic will resemble the quantitative analysis presented in Chapter 4. The second topic concerns reasons, given by the respondents themselves, as to why change or stability occurred in their drinking behaviors over the years. This second approach to the study of change in reasons for drinking is more typical of anthropological methodologies, and as such, is the most valuable model for the integration of epidemiology and

anthropology. Not surprisingly, it is also the richest data set presented in this report concerning change and stability in alcohol-related behaviors over time.

Change and Stability in Types of Reasons Given for Drinking

As will be recalled from Chapters 3 and 4, men were asked in 1964 and 1983 whether a number of reasons commonly given for drinking were also motivating factors in their own alcohol consumption. The types of reasons included measures of psychological dependency (e.g., "because I need it when tense and nervous"), use of alcohol as a stress reducer (e.g., "to forget my worries") and reasons grounded in social life (e.g., "because other people are drinking"). Further, a set of probes were attempted concerning reasons for drinking too much. These reasons were again measures of psychological dependency (e.g., "I drink too much when in an especially bad mood"), use of alcohol as a stress reducer (e.g., "I drink too much when I just want to forget everything"), and social reasons for drinking (e.g., "I drink too much on New Year's Eve"). A summary of proportionate change and stability in these reasons for drinking is presented in Table 18.

**TABLE 18: CHANGE IN TYPES OF REASONS FOR DRINKING,
1964 AND 1983, FREQUENCY DISTRIBUTIONS**

	<u>1964a</u>	<u>1964b</u>	<u>1983</u>
<u>I Drink:</u>			
1. because it makes social occasions more enjoyable	126 (51%)	44 (52%)	37 (44%)
2. because it helps me to relax	136 (55%)	50 (59%)	38 (45%)
3. to liven things up when they are dull and boring	25 (10%)	7 (8%)	9 (11%)
4. because it makes me feel good	69 (28%)	26 (31%)	26 (31%)
5. to be sociable	138 (56%)	45 (53%)	42 (49%)
6. because I need it when tense and nervous	40 (16%)	11 (13%)	9 (11%)
7. to forget my worries	17 (7%)	4 (5%)	5 (6%)
8. to cool off when I'm feeling angry	7 (3%)	1 (1%)	5 (6%)
9. because other people are drinking	75 (31%)	28 (33%)	33 (39%)
<u>I sometimes drink too much:</u>			
10. at a party	162 (66%)	56 (66%)	43 (51%)
11. when in an especially bad mood	22 (9%)	4 (5%)	3 (4%)
12. when I just want to forget everything	21 (9%)	3 (4%)	6 (7%)
13. when I am with people who make me feel uncomfortable	16 (7%)	5 (6%)	6 (7%)
14. on New Year's Eve	119 (48%)	36 (42%)	34 (40%)

Table 18 shows that, as has previously been the case, loss to follow-up bias is not an important consideration in the analysis of change in reasons given for drinking. At the same time, however, little statistically significant change has occurred within the longitudinal sample regarding reasons for drinking. Of the nine reasons for drinking, only one test of difference was significant (Sign test, longitudinal sample, significance= .05). The reason that was significantly different in 1964 from 1983 concerned using alcohol as a way to relax, one of the "stress reduction" items (item #2). In this case nine individuals started using alcohol as a stress-reducer in 1983 who did not in 1964 and 21 individuals ceased using alcohol as a stress reducer by 1983. Thus, of the changers, men were 2.3 times more likely to cease using alcohol as a stress reducer than to begin using alcohol this way.

Of the five reasons given for drinking too much, one item was statistically different in 1983 from 1964. This concerned drinking too much at parties (Sign test, longitudinal sample, significance= .02). By 1983, 20 individuals who drank too much at parties in 1964 ceased doing so and another seven who were not drinking too much at parties had initiated this behavior. Therefore, of the changers, these men were 2.9 times more likely to cease drinking too much at parties than to begin drinking too much at parties.

One final point that should be considered in an interpretation of the findings concerning reasons for drinking is that statistical significance is not patterned. That is, one measure each of the stress and social reasons for drinking were statistically significant. None of the psychological reasons were statistically different at Time 2. Had the two statistically significant tests all been measures, say, of drinking as a reaction to stress, these findings would be a great deal easier to interpret. Certainly an interesting topic for future research would be to explore why reasons for drinking, in aggregate, appear

to have been stable over time while alcohol consumption itself significantly declined.

Assuming that patterned change in reasons for drinking did occur among these men from 1964 to 1983, two explanations for the lack of patterned statistical significance come to mind. First, it may be that the relatively small sample size has obscured patterns of statistical significance. Second, the potential for measurement error is well within the range of possibility. Since 1964 many health education efforts have been initiated to inform the general public of the "symptoms of alcoholism". Many of these "symptoms" are included in this instrument (e.g. a drink helps me to forget my worries, among others). Therefore, men may have assumed that the instrument was really measuring whether they were alcoholics, and knowing that their alcohol consumption was not at an alcoholic level, responded negatively to items that were, in fact, positive in their experience. Despite these methodological problems, further study of change in the reasons that men give for drinking over time holds important theoretical and health policy implications. Refinement and further testing of the measures of reasons for drinking would be an important contribution to the alcohol literature. It is hoped that the qualitative data summarized here will provide some directions for further research in this area.

Reasons Cited by the Respondents for Change and Stability in Alcohol Use

The respondents for the 1983 wave of interviews were asked a set of open-ended questions regarding reasons for change or stability in alcohol consumption from 1964 to 1983. First, men were asked whether they thought that their alcohol use had changed at all. If they thought that change had occurred, then they were asked whether they had increased or decreased

drinking. Finally, these men were asked why they thought their alcohol use had stayed the same or changed. The attempt was made to elicit four reasons for change and stability over time; some respondents were able to identify four such reasons while most (58%) were not. Respondents were asked whether alcohol use in general had changed, as such the distributions reported here are not comparable to the quantity or frequency distributions described in Chapter 4.

The respondents' reasons for change and stability were coded according to their own categories, which were later grouped according to a set of larger categories imposed by the author (e.g., "social", "health", "stress", etc. reasons for change). Both the respondents' and the author's categories are given in the following tables, the author's categories being underlined.

Originally it was thought possible to compare statistically the men who decreased, were stable, or increased alcohol consumption according to the larger categories imposed by the author. However, an examination of the content of the respondents' reasons for stability and change makes it clear that such tests are not possible. That is, even in the case where a larger category is present for both the increasers and decreasers (e.g. social reasons), the reasons why social factors prompted an increase in use are so different from those that prompted a decrease that comparison of proportions of the larger categories is clearly not appropriate. Description and analysis of the reasons that these men gave for change and stability in alcohol use will therefore proceed independently according to whether they increased, decreased or were stable over time. In the description of individual cases professional affiliations and other identifying characteristics have been altered to further protect respondents' anonymity.

Reasons Given for Increase in Drinking over Time

Table 19 summarizes the 42 reasons given by 15 men for why they thought their alcohol use increased from 1964 to 1983.

TABLE 19: RESPONDENTS' REASONS FOR INCREASED USE OF ALCOHOL FROM 1964 TO 1983, FREQUENCY DISTRIBUTIONS

Social

1. Financial Situation	4
2. Increased Drinking within Social Networks	7
3. Maturation of Nuclear Family	5
4. Increased Use Part of Job	2
5. Reaction to Retirement	2
6. More Leisure Time	6
Total	26 (62%)

Stress

7. Increased Psychological Stress	3
Total	3 (7%)

Health

8. Health Concerns, M.D. Orders to Drink More	2
9. Reaction to Chronic Pain	2
10. Incapacitated in 1964, Now Can Drink	2
Total	6 (14%)

Change in Style of Drinking

11. Change in Type of Alcohol, e.g. Wine to Vodka	1
12. Increase to Daily Use	4
13. Has Become Alcoholic	2
Total	7 (17%)
<u>TOTAL RESPONSES</u>	<u>42 (100%)</u>

The men who claimed an increase in use of alcohol gave a mean 2.8 reasons for their change in consumption. Thus, although most of the following discussion is in terms of specific reasons for increased drinking, most of these

men had more than one reason for increasing use. For example, one of the retired respondents has increased the frequency of alcohol use to include lunchtime drinking since he no longer has to be on the job in the afternoon. He also mentioned that since he retired he has a great deal more leisure time, part of which he spends in long poker games which includes some alcohol use. Further, since his children are all now self-supporting he has more money and time for activities that include drinking. So this informant has increased his drinking due to a combination of increased leisure time, a reaction to retirement, maturation of the nuclear family, and finances.

Although most of the social reasons for increased drinking are self-explanatory, some of these reasons merit further discussion. The first of these concerns increased drinking within respondent's social networks. For example, one of the respondents became romantically linked with "an alcoholic" about ten years ago. He became intensely involved before he realized that his friend drank at a dangerous level. To his alarm, he has become increasingly aware that, over the years, he has approximated his friend's alcohol consumption rather than serving as a moderating effect on his friend's drinking. They socialize with another, rather wealthy couple, and he admitted that it was not uncommon for the four of them to be forcibly evicted from restaurants. One of the group recently lost his driver's license due to driving while intoxicated and another his job due to drinking. The respondent recently decided that he has become an alcoholic and is in the process of trying to get his friend to quit drinking as well. This is a delicate procedure for the respondent. Although he highly values the relationship, he feels that the relationship will not survive the shock of both of them ceasing to drink. Does he give up a 10-year relationship or keep drinking at a level dangerous to his health? As a contingency he has taken to only drinking white wine during the week, and

then keeping up with his friend's vodka consumption during the weekends. He also said that he plans to get professional help to cut down on his drinking in the near future. Other, less dramatic, examples of the influences of social network drinking patterns on respondents' drinking can also be found in this series of interviews.

A second process of interest to the increasing use of alcohol across the life span is the maturation of the nuclear family. One informant, currently a wealthy lawyer, exemplifies this pattern. He mentioned that at the first interview he and his wife were quite preoccupied with raising their four children and were strapped financially, as most families with young children are. Even if they had the money to provide alcoholic beverages while entertaining, most of their friends were also just starting their families and finding the freedom to drink beyond strict moderation was difficult under these circumstances. Now, however, all of his children are either independent or in college, and the respondent and his wife have both the time and the money to engage in social activities that involve heavier drinking. A second informant also appears to have had his alcohol intake influenced over the years by the maturation of his family, but expressed this influence in terms of finances. Although not a wealthy man, he felt it best if he paid to have his children sent to parochial school instead of the public schools. This was an enormous drain on his budget and now that his children are independent he has money for luxuries such as alcohol.

The lawyer described above can also be cited as an example of another factor for increasing alcohol use over time. This is the increasing likelihood of having alcohol use become an important part of one's career as promotions occur. This man pointed out that when he was a junior partner he brought his lunch in a brown paper bag and ate while he worked. Now he is expected

to entertain clients at posh private clubs as part of a typical business negotiation, and alcohol is invariably part of the meal. As a moderating factor, he also mentioned that he certainly enjoys drinking, but has to be careful in his position never to overdo it.

Another social process of interest to increasing alcohol use is that of adjustment to retirement. One man, formerly a high-level bank executive, has noticed a distinct increase in his alcohol use since retirement. He has taken informal steps to decrease this use, in part because of his wife's concerns. He feels that retirement has definitely increased the potential for alcohol use because he is socializing more, there is less pressure in his life and he has become more indulgent with himself. He mentioned that retired men are more prone to "enjoy themselves, kick back, and enjoy the fruits of their labor". Enjoying the rewards of retirement, for this man, includes alcohol use. Another informant feels that he is drinking more as a reaction to retirement since he has become completely bored since he quit working. As he put it, "Society pushes you aside. You are an old man, go away". His drinking, he claims, is due to the lack of a social life and of recreational activities rather than to any increase in leisure and social life.

One informant's experiences over the years illustrates how psychological stress and chronic pain can increase alcohol use. This gentleman recently retired from the Navy, but spent much of the last 20 years in the Bay Area. He mentioned during the discussion that his family had many problems during the 1960's and 1970's--one son became a drug addict and another was hospitalized numerous times over the years for a psychological problem. At one point this Naval officer and his family returned home to a stripped house--the furniture had been taken to pay for their son's drugs. During this period of heavy psychological stress for the respondent, he seriously injured his back which

placed him in continuous pain up to the present. He found that the pain medications didn't work particularly well unless combined with a few drinks. This effect, he also discovered, soon wore off which necessitated the use of larger amounts of alcohol to cut his back pain. Over the years he has been able to sort out his family problems, but now has found that with retirement he has lost contact with old friends. He has found trying to construct a new social life for himself quite stressful. He is worried now about his alcohol intake and fearful as well of having nothing to do in his retirement. As he put it, "Guys who have more time and don't have anything to do, go down to the West Portal (a bar-RS). They talk about the Giants and soon they are real heavy alcoholics. They are just looking for companionship. Where else are they to go?".

Health concerns were also mentioned by other two men as a factor in their increased drinking. One informant was diagnosed as hypertensive shortly after he started a very stressful job. His physician suggested that when he arrived home after work, he lock himself in his study, mix himself a drink, lay on the floor and listen to music for 30 minutes as "relaxation therapy" for hypertension. Now, he mixes himself a drink or two before dinner, "...like Pavlov's dog, it has become a habit. It goes good with food." This respondent has since become quite interested in health matters and has continued to explore ways to fight stress in his life. He also jogs and takes vitamins. He did express some concern about his alcohol use, however, and my suspicion is that a year later I would have found a significant decrease in his alcohol consumption. As he put it, "I've knocked off salt, caffeine, nicotine, and I'm almost ready to get rid of alcohol, too".

Reasons Given for Stability in Drinking Over Time

Table 20 summarizes the 64 reasons why 23 men felt that their alcohol use had been stable from Time 1 to Time 2.

The men who claimed stability from 1964 to 1983 gave a mean of 2.8 reasons for their stability in alcohol use over time. As with the men who increased use, although these reasons are discussed separately, the reader should keep in mind that these men were generally able to identify more than one reason for not changing over time.

The greatest single reason given by these men for not changing alcohol use was that no reason had emerged over the years to force such an increase or decrease. As one of the men put it, "I never drank so why should I start? That's not a good answer, but there are certain things in your life that you just don't change. Certain doctors have told me I'd be smart to take a drink with my wife, but I tell them I can't live forever. Also they told me to stop my coffee in the morning. I said that they can admit me to the hospital and that's when it will stop. The question is, do you drink or don't you drink? I don't." Another gentleman expressed a similar opinion: "Why should it change? Nothing has happened. My pattern was set years ago. And I don't drink to cope with problems--when I have a problem I don't dwell on it. I don't take my problems to bed with me at night. Nothing has occurred to change it."

TABLE 20: RESPONDENTS' REASONS FOR STABILITY IN DRINKING FROM 1964 TO 1983, FREQUENCY DISTRIBUTIONS

No Reason to Change

1. No Reason to Change	23
2. Increase in Use Not Enjoyable	7
Total	30 (47%)

Social

3. Significant Other Intervention	2
4. Early Socialization	4
5. No Social Pressure to Drink	2
6. Religious Beliefs	2
7. Structure of Life Prevents Change	2
Total	12 (19%)

Fear of Problems

8. Health Concerns	6
9. Strong Dislike of Alcohol-Related Problems	5
10. Former Problem Drinker, Quit Before 1964	1
Total	12 (19%)

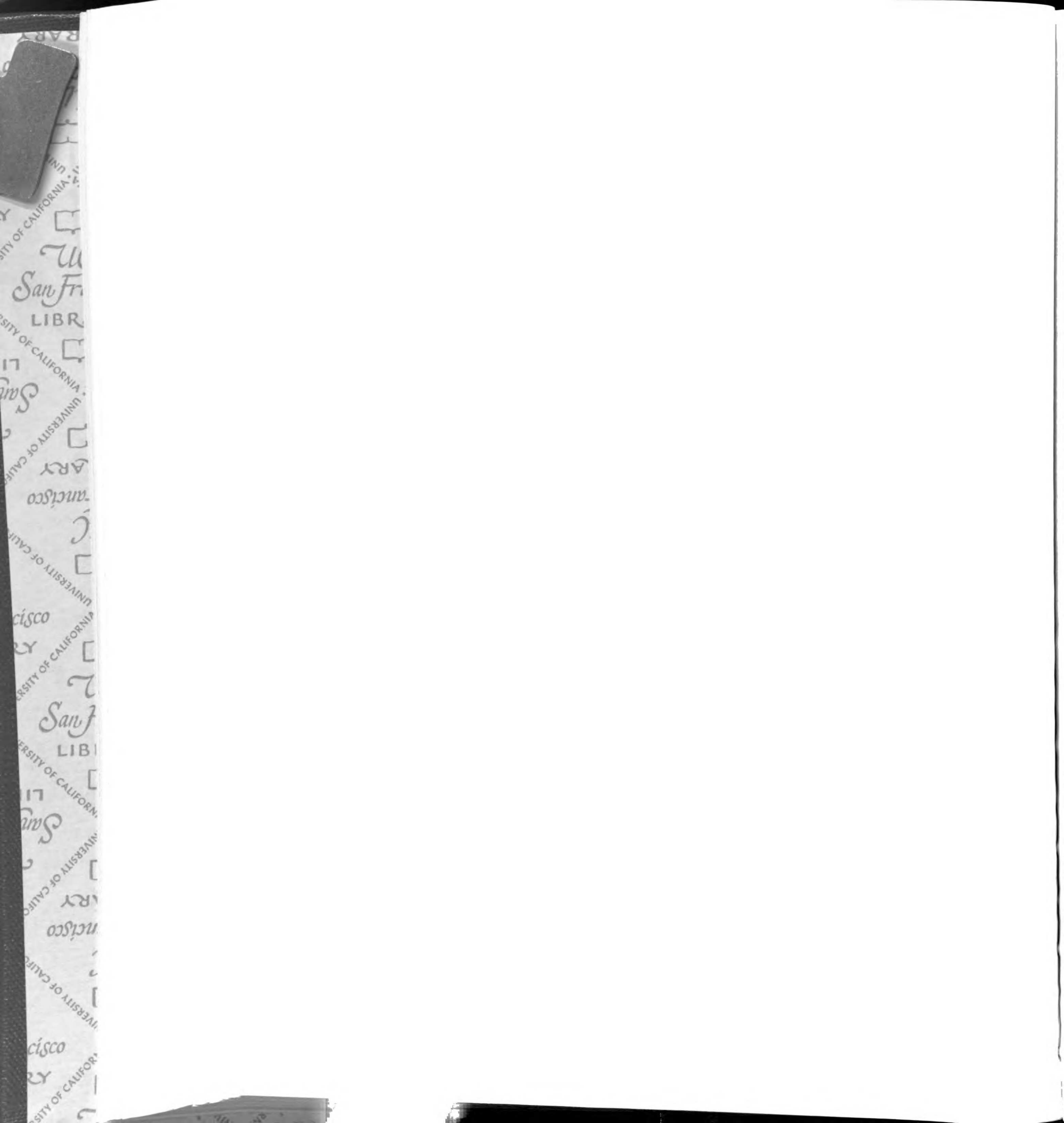
Psychological

11. Stable Personality	7
12. Doesn't Like Taste of Alcohol	1
Total	8 (13%)

Change in Style, Not Intake

13. Changed Type of Alcohol, Not Total Intake	1
14. Eliminated Spree Drinking, Increased Daily Use	1
Total	2 (3%)

<u>TOTAL RESPONSES</u>	<u>64 (100%)</u>
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Of the social reasons for stability, two men mentioned that significant other support was important to their stability. By this they meant that individuals close to them would intervene if they began drinking at a dramatically heavier rate. This was expressed succinctly by the man who exclaimed of heavy drinkers that his wife would "kill him" if he drank that much.

Most of the men who cited early socialization experiences as a factor in their stability were abstainers, and many of these men cited religious reasons for their abstinence. Many of these individuals had strong statements to make of their concerns of the "glamorization" of alcohol on television as well as in everyday business and social life.

A stable personality type and stable life structure were attributed by one individual as causal in his ability to keep his drinking patterns over the years. As he put it, "I'm a stable person. Around this office I'm known as 'Mr. Consistent' among my peers. While there are occasions where there is reason to drink, there is always the constant reminder that you have to keep your wits about you. The best CPA's are stable and that's the people with whom I live." Another man indicated that he consciously structured his life so that he was not expected to drink immoderately. He declined to go into business for himself because he did not want to have to entertain business clients on a regular basis. He said that he did not mind paying for clients' drinks when he put it on his employer's tab, but if he was expected to drink with his clients during lunch, then he was annoyed. He felt that having to drink was an inescapable part of being an independent businessman and so he was better suited to remain as an employee of a large business firm.

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Another set of six men indicated that they feared health problems if they drank at a higher level. These fears were rarely stated in specific terms, but these men generally felt that alcohol use beyond light levels was not especially good for health. Another set of men indicated that they had strong feelings about individuals who drank problematically and were unwilling that they themselves should have such problems. For example, one man was raised in a family with a heavy drinking father. His father wanted the respondent to become a professional baseball player, and so forbade his son to drink or smoke. This informant adopted an athlete's training rules as part of his lifestyle. Also, he mentioned that, "...seeing my dad coming home on weekends and taking it out on my mother is one of the reasons that I don't drink much." These early experiences kept this man from having a drink until he was in his 40's. Further, he has read a great deal concerning the health and social detriments of alcohol use and has purposely sought out friends who do not often drink.

Reasons Given for Decrease in Drinking Over Time

Table 22 summarizes the 144 reasons that 47 men gave for decreasing alcohol consumption over the years.

The men who claimed that they decreased alcohol consumption over the years gave a mean of 3.1 reasons for decrease in use. As was the case with the increasers and the men who were stable, men experienced these reasons for decrease concurrently, although the discussion will treat reasons for decrease separately.

TABLE 21: RESPONDENTS' REASONS FOR DECLINING ALCOHOL CONSUMPTION FROM 1964 TO 1983, FREQUENCY DISTRIBUTIONS

Social

1. Financial Situation	8
2. Job Problems with Drinking	4
3. Significant Other Intervention	5
4. Social Networks Decreased Use	19
5. Has a Demanding Job	5
6. Maturation of the Family	2
7. Less Opportunity to Drink	5
8. Religion	4
9. Reaction to Retirement	8
Total	60 (42%)

Health

10. Health Concerns	12
11. Physiological Need Less	6
12. Health Problems	13
13. Weight Control	3
Total	34 (24%)

Fear of Problems

14. Growing Distaste of Alcohol-Related Problems	10
15. Fear of DWI Arrest	1
16. Family Problems (not the R's) with Alcohol	1
17. Need to be a Good Example for R's Children	1
Total	13 (9%)

Psychological

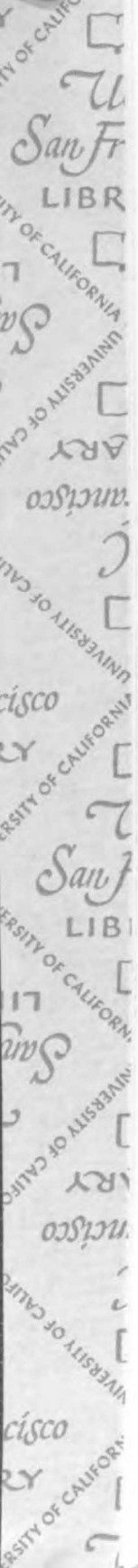
18. Maturation	11
19. Less Stress in Life	5
20. Significant Accident	2
21. No Longer Cares for the Taste	4
Total	22 (15%)

Change in Style of Drinking

22. Gradual, Unplanned Decrease	7
23. Joined AA, Treatment for Alcoholism	5
24. Changed Type of Alcohol, e.g. vodka to wine	3
Total	15 (10%)

<u>TOTAL</u>	<u>144 (100%)</u>
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Among the social reasons for decreased alcohol use was a decrease in drinking within the respondents' social networks, thereby serving to moderate these men's alcohol use. One man, currently a successful realtor, mentioned that his alcohol use decreased significantly after he divorced his wife. His wife was apparently a fairly heavy drinker and every day after work they had a few drinks before dinner. His wife also cultivated friendships with a "sophisticated" crowd and social events with these friends involved a fair amount of alcohol use. Now that he no longer lives with his wife and no longer sees his "sophisticated" friends, his drinking has decreased significantly. Another man played in an orchestra at a dance hall. This man considered playing in the orchestra a hobby, an activity that was enjoyed with a group of musician friends. They often had to play until the early hours of the morning and during a typical evening the respondent drank as many as four beers. Beer was traditionally provided gratis to the musicians. Over the years, however, their music became less and less popular, and the dance halls that were willing to book the orchestra were farther and farther away from the Bay Area. Finally, this gentleman had to give up playing in the orchestra since the commutes became too lengthy and he arrived home much too late at night. With the end of his musical career, the respondent's drinking decreased to mealtime consumption.

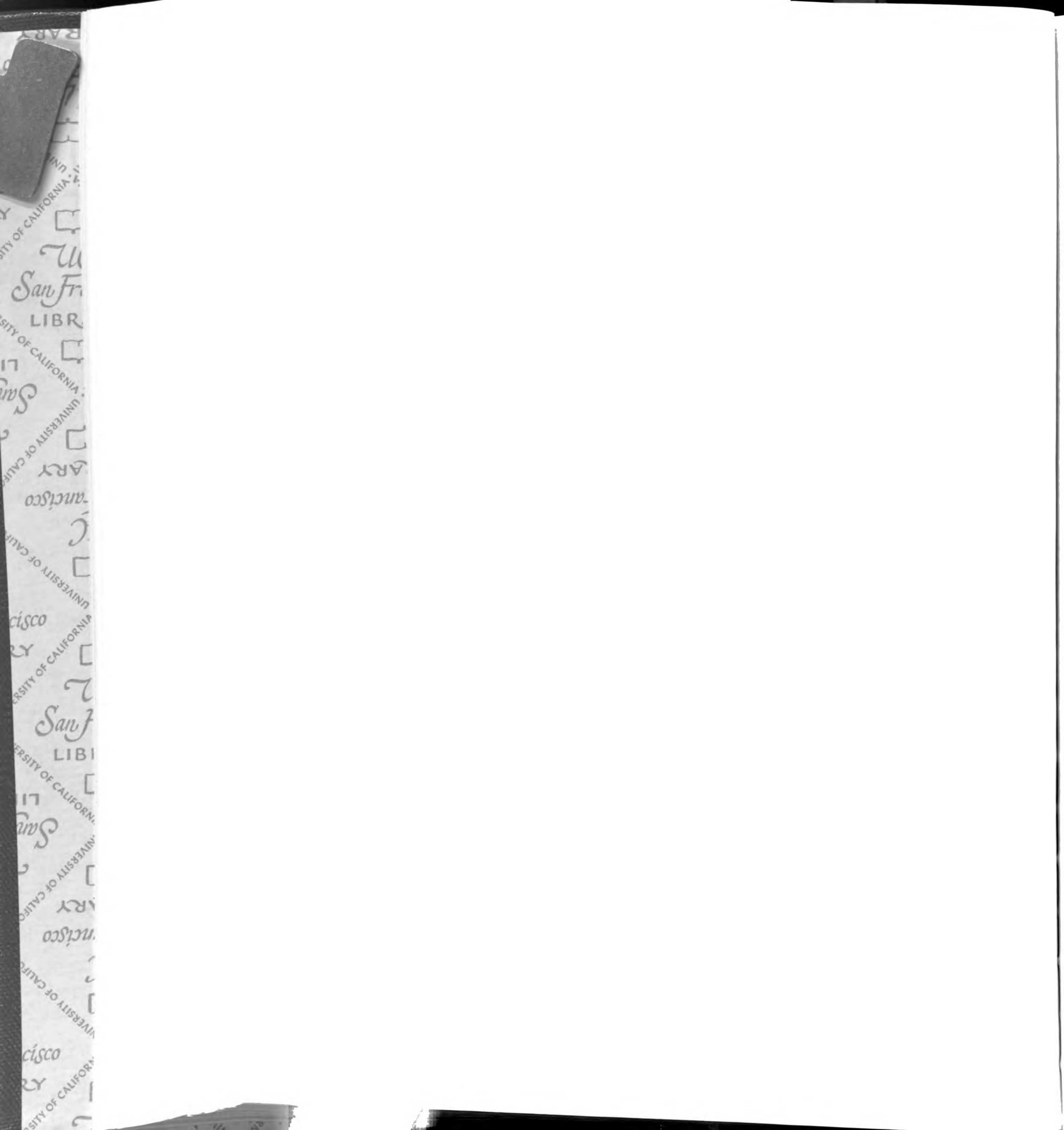


Some men mentioned that intervention from significant others, most generally spouses, was important in their decreases in alcohol use. One man said that, "My wife was against it. I was drinking too much. I was drinking on the job. That was bad. I got warnings about it and could have been fired. If I had been fired, then I would have lost my pension, too." His wife saw to it that he was "introduced" to her network of friends. These friends drank a good deal less than her husband's friends from work, and having a social outlet with individuals who drank moderately helped this man to cut back on his alcohol consumption. This case can also be used as an example of the effect of job-related alcohol problems on declines in consumption.

A group of five men said that the demands of their jobs caused a decline in their alcohol consumption over the years. One man, a stock broker, said that he simply could not function if he were to arrive at work without a clear mind because he had been drinking the night before. He also expressed concern about many of his colleagues who drank heavily as a means of dealing with the stress of working in the financial markets. Other men in this category expressed similar sentiments; e.g., that as they experienced advancements in their careers the demands of the new positions made immoderate alcohol use a dysfunctional behavior.

The men who mentioned "maturation of the family" as a reason for their decreased alcohol consumption felt that their children were now of an age where their alcohol use would be seen as an example. Whether this would still hold if the children were completely on their own remains an open question.

Some men felt that retirement was a factor in their decreased drinking. One respondent ran a charitable foundation and had to do a great deal of socializing, which included a great deal of drinking. However, with retirement



he did not have to socialize nearly as much and so had fewer occasions to drink. As he put it, "When you are working, whether you want to or not, you have to socialize. There's less opportunity to drink after retirement." Connected with retirement, he also found that he has been able to escape much of the stress in his life, which has also contributed to a decline in drinking. Another man, a blue collar worker, also felt that retirement contributed to his lessening alcohol use. When he worked he used to stop off at a bar after work with his co-workers, an activity that would now be contrived at best, since he is no longer working.

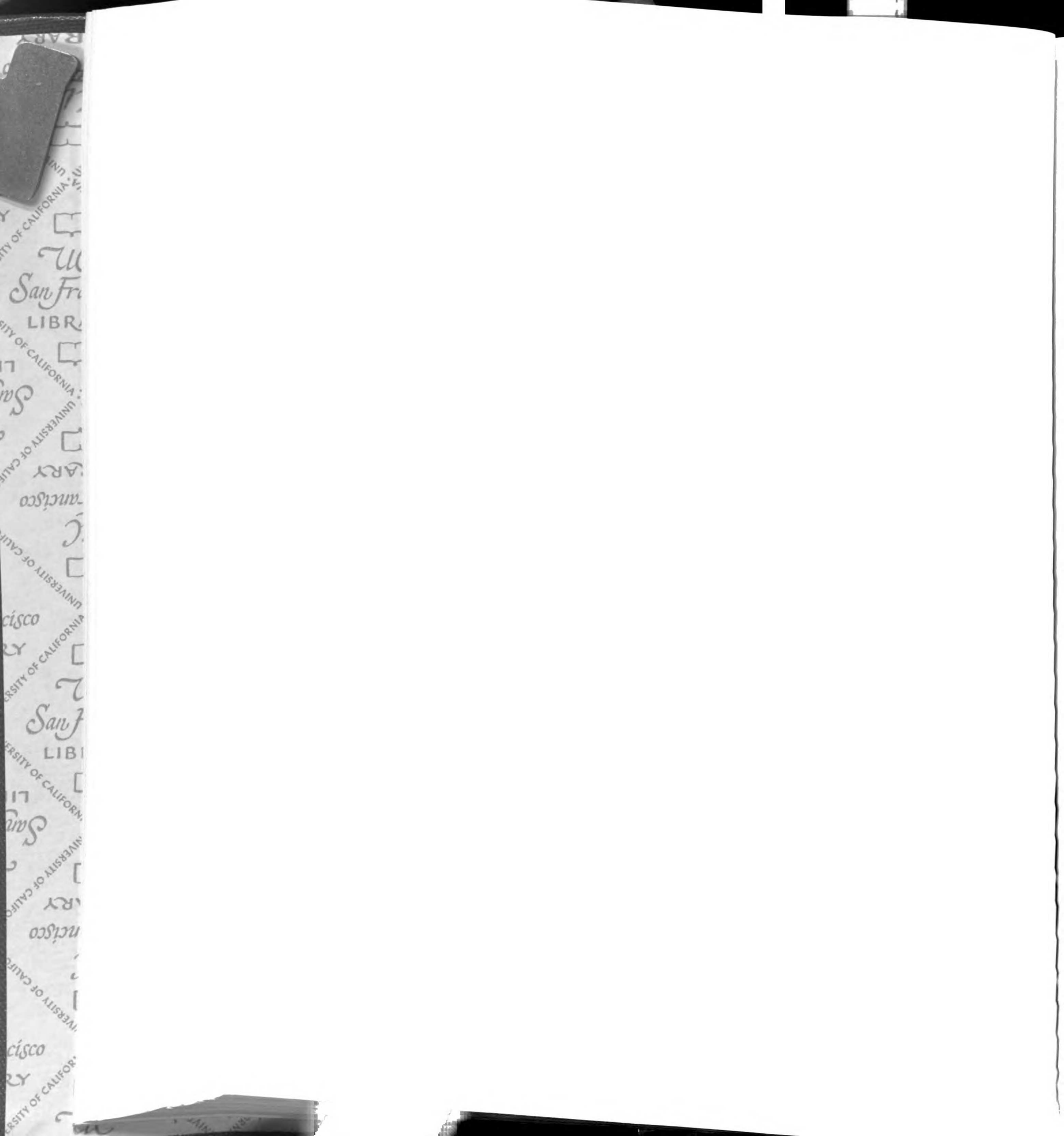
Health concerns and health problems were the two more common reasons cited by these men for a decrease in alcohol use. As was the case with the men who were stable, many of the men who expressed concern about the health effects of alcohol use did so in the most general terms. These men felt that a certain amount of alcohol use was unhealthy, and decided to cut back on its use. As one man put it, "There are so many things that you don't have control over in your life, such as cancer, that to not take control over the things that you can is just ridiculous." Some men suffered health problems that made it difficult to drink. For example, one man, who had been a skilled tradesman, contracted arthritis and had to take medications which made drinking impossible. He mentioned specifically, however, that having to quit using alcohol had not affected his social life. He feels that his friends respect him even more for being able to quit. As he put it, "People don't realize that you can have a good time without drinking at parties. You can fit right in. But it's just like those cigarettes. I quit once for seven years just by making up my mind to quit. You can do it with the booze, too." Interestingly, some men stated that their need for alcohol decreased as they aged. These

statements were rarely specific in nature, but rather were assertions that the physiological need for alcohol lessens as one ages.

A group of men experienced a growing disdain of problem drinking as they aged. Many of these men had themselves been heavy drinkers and felt that they could no longer continue drinking problematically. One man, a self-identified alcoholic, felt that he and his wife could not continue drinking and expect to be able to take care of themselves in old age. He wanted, "a future life, my health, money in the bank. So we got together and decided to quit." With that decision, he and his wife managed to quit drinking. Of other problem drinkers the respondent said, "There, but for the grace of God, go I."

Some men felt that they had undergone a process of "maturation" over the 19 year period and that this process was important in their ability to lower their alcohol consumption. For example, a minister remembered that drinking was governed in his earlier years by, "the social mores of the period, peer pressure. Alcohol was more accepted. With more maturity you don't need alcohol to have a good time. We've matured and the society has changed." This statement also includes one of the rare references to a time period effect on drinking behavior. Other men stated that as they aged they have become a lot less receptive to being pressured into taking a drink.

A few men volunteered stories of "significant accidents" that were important in their ability to drink less. These sorts of accidents have long been noted in the "spontaneous remission" literature (Stall, 1983; Stall and Biernacki, forthcoming). The significance of these accidents is attributed by the individual who experiences it, and serves to prompt a re-examination of the drinker's view toward his alcohol consumption. One man, for example, had an "alcoholic" friend who insisted that he take one drink too many. The respondent felt that it would be rude not to accept the drink, and sure enough,



became inebriated. When he made it home his daughter saw him in that condition and was treated to the sight of the next day's hangover, as well. Right then and there he decided that he would never drink heavily again. As he put it, "It's funny, but one little thing like that can embarrass you so much that you say 'no more, never again'."

Interestingly, a group of men were able to decrease their alcohol use over this period although they had not consciously planned to do so. One of these men said that, "alcohol just doesn't do a thing for me, I never cared for the taste anyhow. I even mix drinks for friends and not one for myself. It just doesn't appeal to me anymore." Another man, when pressed on this point, gave a remarkably similar quote, but added that since he never cared for alcohol in the first place it was only natural that over the years his drinking would decrease. Also, he pointed out that his friendships were never based on drinking and this was another reason for him to stay away from alcohol-soaked social circles. Another group of men changed the type of alcohol that they consumed during the years 1964 to 1983, resulting in a total decrease in alcohol intake. Generally health reasons were cited, along with the belief that it has become less fashionable to order "heavier" drinks.

Summary of Findings

Comparisons were made between types of reasons for drinking at Time 1 and Time 2. Of the 14 tests of difference five comparisons were statistically different at Time 2. These included drinking as a means of relaxation and drinking too much at parties. In each of these tests, respondents were less likely to respond affirmatively at Time 2 to these measures than at Time 1. Statistical significance was not patterned: one stress item and one social item

were significantly different in 1983 from 1963 and none of the psychological reasons for drinking were significantly different at follow-up.

To complement the statistical analysis, an inductive qualitative analysis was conducted on the data concerning reasons identified by the respondents themselves for reasons as to why their alcohol use changed or stayed the same over time. Among the men who felt that their alcohol use had increased over the years, increased drinking within social networks, maturation of the nuclear family, alcohol use as an increasingly important part of one's professional life, and reactions to retirement were among the most frequent reasons mentioned as important factors in that increase. The men who felt that their alcohol use had been stable over the years cited most frequently not having a reason to change, as well as significant other intervention, general lifestyle structure preventing change, health concerns, and stable personality types as important to continuity in alcohol consumption over time. Chief reasons such as finances, decreased use of alcohol within social networks, significant other intervention, health concerns and problems, growing distaste of alcohol-related problems associated with aging, maturation, and a gradual unplanned decrease were given by the men who felt that they decreased over the years.

An interpretation of the meaning of the reasons cited above within broader socio-cultural processes is an important consideration in the further development of explanatory models concerning changes in drinking behaviors across the life course. The interpretations suggested here, although based on the inductive analysis, are suggested for further empirical testing. For example, the mention of maturation of the family as important to changes in alcohol consumption is intriguing. What seems to be the crucial factor here is the search for new activities to take the place of those formerly associated with raising children. It appears that most typically men have expanded leisure

activities as child rearing activities decline. Some of these men, for reasons not now understood, expand their leisure activities in ways that include drinking. In contrast, while some men cited maturation of the family as important to declines in drinking behavior, these men were primarily concerned about the example that they were setting for their maturing children. Whether this would still be a factor once the children left home remains an open question.

A second reason for change and stability in alcohol use over time mentioned by these men included the influence of social networks. Whether men felt that their alcohol use increased, decreased or stayed the same, they felt that the pattern of alcohol consumption within their network of friends was an important consideration in their alcohol consumption over the years. Often this reason was expressed in terms of important relationships outside the family being, or not being, based on activities associated with alcohol use. It may be that, over time, men search out a group of friends with whom they feel most comfortable. Willingness to drink, and even the quantity of drinking, appears to play a part in this process of finding a group of friends with whom one can feel comfortable and who become, over time, important persons in these men's lives. This solidifying of social relationships over time, in which alcohol use plays a part, may be partly behind the modal response given by the men who did not change their alcohol use: that nothing occurred to make it change. That is, it would not be expected that these men would experience pressure to drink from their social networks unless most of friends began to drink more heavily or unless their social network relationships were severed. Yet little was said specifically about how social networks informally regulate drinking behaviors. That is, what the consequences within a social network might be if a member were suddenly to begin drinking too much or too little, within the informal bounds of that network. Certainly further inductive,

observational research concerning the effects that social networks have on drinking behaviors seems warranted.

Another reason cited for an increase in alcohol consumption was that of increases in consumption based on changes in career requirements as promotions occur. Specifically, it appears that for the upwardly mobile men in this sample, increasing situational pressure to drink was an important reason for increase in use. This pressure was most typically expressed in terms of business life, but it may be that as one climbs the class structure increasing pressure to consume alcohol as part of daily life increases. One counterbalancing factor, however, is that some of the men who felt that they were expected to drink more frequently than when they were starting their careers also said that they had to be careful not to drink too much. This change in alcohol consumption is thus based on differing expectations placed on the individual given certain socio-economic statuses.

Some men mentioned their reaction to retirement was important in their increases in consumption; others that this reaction was important in decreases in consumption. Why these men had such different reactions to ending their professional life is an intriguing question. Personality factors may certainly play a role in this variation, but it may also be that the construction of well-developed leisure skills that do not involve alcohol use may be implicated among the men whose alcohol use stayed the same or decreased after retirement. Again, the effects of strong social network ties, not particularly grounded in alcohol-related activities, would seem to help these men weather the initial stress of retirement without a significant increase in alcohol consumption.

Thus, an inductive qualitative analysis of the reasons why these men, themselves, felt that their alcohol use had changed or stayed the same over

time was useful in identifying a set of variables which help to explain changing patterns of alcohol use across the latter half of life. It is interesting to note that many of the reasons identified by these men (e.g. maturation of the nuclear family, drinking patterns within social networks, etc.) have heretofore been neglected in the alcohol use and aging literature as important explanatory variables. Further, it is clear that the variables identified by these men are amenable to operationalization within future research strategies designed to explore changes in alcohol consumption as a concomitant of the aging process. For the time being, however, refinement of understanding concerning these processes would best be based on inductive, qualitative research strategies, since theory concerned with how these processes affect alcohol use is most tentative. This sort of research would be of great value to both the fields of anthropology and epidemiology, since it would define how social factors associated with the aging process within American culture impact on alcohol use. Not only would such work be pertinent to developing further understandings concerning the use of alcohol across the life course but might also serve as a model by which social factors are defined within etiological investigations.

CHAPTER 6

Summary and Discussion

The previous two chapters are rich in detail concerning change and stability in alcohol-related behaviors among men moving from approximate "middle" to "later" life. Interpretation of these findings requires a summary of the major trends in alcohol-related behaviors manifested by these men over the 19 year follow-up period.

Summary

With the possible exception of frequency of alcohol use, it can be concluded that a strong moderating trend was evident in the alcohol-related behaviors studied here. The ratios of proportions of men being at the higher levels of alcohol-related behaviors ranged from .97 to 2.49 (1964 divided by 1983, longitudinal sample; frequency= .97; quantity= 1.87; most quantity= 2.49; problems= 1.77). Similarly, the ratios of proportions of men being at the lower levels of the alcohol-related behaviors studied here ranged from .51 to .86 (1964 divided by 1983, longitudinal sample; frequency= .53; quantity= .86; most quantity= .52; problems= .51). The mean score of these ratios would indicate that men were 1.8 times more likely to score at the higher ranges of these alcohol-related behaviors in 1964 than in 1983 and .61 times more likely to score at the lower range of these alcohol-related behaviors in 1964 than in 1983. The declines described here in the proportions of heavier drinking and a moderation in alcohol-related problems are congruent with the cross-sectional surveys relevant to alcohol-related behaviors across the life course (e.g. Cahalan, 1970).

Of the correlational tests conducted on the 1964 data set, the number of reasons given for drinking was consistently positively associated with the set of drinking variables; that is a higher number of reasons given for drinking was correlated with higher scores on the behavioral alcohol-related scales. Income was also found to be positively correlated with three of the four drinking behaviors studied here (frequency, most quantity, problems) and this relationship approached significance for quantity of use.

In 1983 both age and Time 1 behavioral measures were consistently significantly correlated with alcohol-related behaviors. More mature cohorts were associated with declines in alcohol-related behaviors and higher Time 1 behavioral scores were predictive of higher Time 2 behavioral scores. With the notable exception of age, associations between the set of five socio-demographic variables and the drinking variables were weaker in 1983 than in 1964.

Clear trends also emerged in a consideration of the change and stability of the proportions of alcohol-related behaviors controlling for age. Certainly it can be concluded that no changes existed between the two sets of cohorts for whom we have behavioral data at the same approximate age, tests of difference between these two sets of cohorts being consistently statistically insignificant. However, of the twelve tests of difference between specific age groups at Time 1 and Time 2, nine of these tests were statistically significant. Tests of difference were, without exception, significant for the men aged 50-59 in 1964 at follow-up, indicating that the period between the 50's and the 70's may be of particular importance in the moderation of alcohol-related behaviors that occur concurrently with the aging process. These patterns would indicate that (within the assumptions of this research) aging trends are considerably more powerful than cohort effects in terms of shaping alcohol

use behaviors across long periods of time during the second half of the life course.

Individual change in alcohol-related behaviors echoed the general findings of the aggregate analysis. For example, the men who changed their drinking behaviors at Time 2 were between 1.6 and 7.3 times more likely to decrease rather than to increase levels. Furthermore, men who scored higher on these measures at Time 1 were between 5 and 6 times more likely to decrease scores on these alcohol-related behaviors at Time 2 than were the men who scored at the lower range on these same measures at Time 1 to increase behavioral score row percentages at Time 2. Similarly, the men at the middle ranges of the drinking scores were between .75 and 10.9 times more likely to decrease rather than to increase scores over this time period, generating a mean decrease in scores of 5.65.

Despite the significant decreases described above, it is important to note that (with the exception of the measure of alcohol-related problems) a majority of these men were approximately stable in their alcohol-related behaviors over time. Further, it is clear that the men at the lowest levels of alcohol-related measures were the most likely to exhibit continuity in alcohol-related behaviors from Time 1 to Time 2. Correlates of change in the alcohol-related behaviors by Time 2 consistently included the Time 1 behavioral measure, and the Time 1 measure was consistently the best predictor of drinking behaviors at Time 2.

Socio-demographic correlates of direction of change in drinking behaviors were also computed. Income was significantly correlated with the direction of change for three of the four drinking variables (frequency, most quantity and problems) while education (quantity and most quantity) and number of reasons for drinking (quantity and problems) were significantly correlated with

two of the drinking variables. Each of these associations was positive; lower levels of the socio-demographic variables were predictive of declines in the Time 2 alcohol-related behavioral scores. As previously mentioned, however, the best predictor of the direction of change in drinking was consistently the Time 1 alcohol-related behavioral measure.

An attempt was made to test for trends controlling for age in terms of individual stability in levels of alcohol-related behaviors, continuity of scoring at the heavier alcohol-related levels, and probability of decrease among the men who changed alcohol use patterns from Time 1 to Time 2. Of these, only an increased probability of continuity of heavy drinking among the more mature men was consistently observed. Although trends were noted in stability and probability of decrease for specific alcohol-related behaviors, these were not apparent in more than two of the four alcohol-related behaviors.

Thus, both the proportionate measures of drinking behaviors and measures of individual change over time generated through this research replicate the cross-sectional evidence for a decrease in alcohol use occurring in conjunction with the aging process. Despite these significant decreases, stability in drinking behaviors was, if anything, more evident than change. Time 1 levels of alcohol use and alcohol-related problems were highly predictive of the existence of levels of alcohol use and related problems at Time 2. No differences were found to exist between the two sets of cohorts for whom we have behavioral data at the same approximate ages, while the majority of the age groups were significantly different at follow-up from the Time 1 levels of alcohol-related behaviors. Given certain assumptions, it may be concluded that the changes evident within this sample over the 19 year follow-up period were due to aging, and not cohort, effects.

A qualitative analysis was performed on change and stability in the types of reasons for drinking and alcohol-related problems as measured within the longitudinal sample. Few statistically significant differences were noted in types reasons for drinking or in types of alcohol-related problems from Time 1 to Time 2. However, many reasons were suggested by the respondents in 1983 for change and stability in drinking from 1964 to 1983. These reasons can be grouped according to social, psychological, health concerns, stress, fear of alcohol-related problems, change in style of drinking and having no reason to change. Of the men who changed patterns of use, they were most likely to count social and economic reasons among their motivations for change in drinking. Important reasons mentioned by these men included the maturation of the nuclear family, increased expectations for drinking as part of career advancement, level of alcohol use within their social networks and their reactions to retirement.

Discussion

The findings summarized above are in need of interpretation in terms of the questions raised in the first two chapters. That is, an interpretation in terms of issues within the literature concerning alcohol use and aging, the feasibility of integrating the disciplines of anthropology and epidemiology within the bounds of this research project, and the usefulness of data which measure behavioral change across long periods of time to address questions of interest to scholars studying contemporary United States culture. I will begin with a comment on the relevancy of this study to specific issues of importance within the alcohol literature.

As noted at the end of the second chapter, certain hypotheses have been implicitly and explicitly proposed to explain decreases in the prevalence

of alcohol consumption and associated problems which may occur as a concomitant of the aging process. Certain of these hypotheses (e.g. the morbidity, mortality, cohort and the socialization to old age hypotheses) might be addressed through the adoption of research designs similar to that employed for this research project. For example, the death certificates for each of the respondents who were found to be deceased upon follow-up could be collected. The actual numbers of deaths might be used as a test of the mortality hypothesis (e.g. that increased mortality among the heaviest drinkers from middle to old age is causal of a decrease in the prevalence of heavy drinking among older age strata). This data set might also be used to determine health risks for certain broad categories of disease for equally broad categories of alcohol-related behaviors (e.g. the risk of cardiovascular disease among light drinkers/abstainers). Data generated through the current project would not support the "mortality hypothesis" due to the fact that the surviving respondents from the 1964 survey showed significant decreases in alcohol consumption and related problems. Since decreases in alcohol-related behaviors occurred among the living, it becomes more difficult to assert that declines in the cross-sectional data concerning alcohol-related behaviors are due to mortality effects alone. Further, loss to follow-up (which included those who died over the 19 year follow-up period) was not a powerful factor in differences between the 1964 and 1983 waves of data collection, indicating that mortality effects for the sample as a whole were not profound. However, these findings do not preclude the possibility that mortality among heavy drinkers plays an effect on the declines observed within cross-sectional surveys in the prevalence of heavy drinking. Clearly more work needs to be done to adequately test this hypothesis.

A test of the cohort hypothesis (e.g. that decreases in the prevalences of heavy drinking or alcohol-related problems among the oldest age strata are due to unique historical effects on a particular "generation") was attempted within the bounds of the limited data generated through this research. No significant differences were found to exist between the two sets of cohorts for whom we have data at comparable ages concerning the alcohol-related behaviors selected for study. In contrast to this finding, a high degree of differentiation between specific age groups at Time 1 and Time 2 was observed. The data from this research, then, would indicate that cohort effects on patterns of alcohol use are of minimal importance in the latter half of life.

The morbidity hypothesis (e.g. that the increasing prevalence of chronic disease among older age strata are causal in decreases in alcohol consumption and related problems) is directly testable through the adoption of such a design. Respondents, upon follow-up, could be asked to evaluate their general health status, as well as to list any current health problems from which they might be suffering. Further, respondents might be asked in a retrospective measure what factors seemed to them to have influenced their alcohol use over the years. This measure could specifically include a health effects item. Associations with self-reported health levels, numbers and kinds of current health problems and the respondents' perspectives on the effects of their health on their alcohol use with current drinking levels (not to mention the patterns of change between 1964 and 1983) should prove to be an interesting test of the morbidity hypothesis.

The "socialization to old age" hypothesis (e.g. that decreases in the prevalences of alcohol-related behaviors among the oldest cohorts is due to changes in role statuses and expectations placed on elders within our culture) is also testable to some degree through the use of prospective research designs.

For example, the qualitative data would support this hypothesis. The reinterviewed men identified such factors as maturation of the nuclear family (with the consequent "empty nest"), changes in career expectation due to promotions, and their reaction to retirement as important to changes in alcohol consumption over the years. These factors are all consistent with a "socialization to old age" hypothesis. This hypothesis, however, would better be best tested through the use of a prospective design which followed individuals much more closely through time than did this project. Organization of the research protocol should also be oriented towards the identification of ongoing processes of socialization to old age and the associated sequela relevant to alcohol use, which this project was unable to do. Any attempt to test this hypothesis should also devote careful attention to the differing patterns of change in frequency and quantity of alcohol use that occurs in conjunction with the aging process. Critics of this hypothesis would argue that frequency of drinking should also decline significantly with age if the expectations placed on elders are in the direction of less alcohol consumption or if loss of certain roles with social aging decreases the opportunities for drinking. Findings from this research project can only be regarded as suggestive, however, a research project which would clearly address this hypothesis would be of great value.

Thus, of the six explanatory hypotheses which have been forwarded in the alcohol and aging literature to explain the decreases evident in the prevalence scores among older age strata in cross-sectional surveys (the mortality, morbidity, biological aging, cohort, maturational, and the socialization to old age hypothesis), the mortality and cohort hypotheses were not supported by data generated through this research, while the morbidity and socialization to old age hypotheses remain viable explanatory hypotheses. It should be stressed here, however, that this project did not directly test

these hypotheses and the findings from this research can only be regarded as suggestive in a consideration of these hypotheses. Neither the biological aging nor the maturational hypotheses could be addressed in any fashion through the data generated by this research, although the maturation hypothesis seems an unlikely explanatory model in light of cross-sectional and cross-cultural data reported in the alcohol literature. The biological aging hypothesis, as noted earlier, is amenable to testing through a cross-sectional design. It should also be pointed out that support of one hypothesis does not preclude eventual support of a rival explanatory hypothesis for decreases in alcohol consumption and alcohol problems associated with the onset of old age. That is, biological aging, socialization to old age, and increasing prevalence of morbidity could, for example, occur as concurrent processes which work to decrease alcohol consumption among aging populations.

Three other issues seem worth mentioning which are relevant to broader issues in the alcohol literature than those specific to processes of alcohol use and aging. The first of these concerns the high degree of continuity discovered to exist among the heavier drinkers over long periods of time. This is a finding relevant to a long-standing debate among scholars who study alcohol use patterns: that is, can the heaviest levels of alcohol use be considered a disease? Proponents of the disease model of "alcoholism" have suggested a number of diagnostic criteria for this "disease", among them chronicity of heavy drinking or alcohol-related problems over time. Much of the empirical data to support the alcoholism concept have been drawn from retrospective life history accounts of "alcoholics" in clinical settings. Critics of this conceptualization of alcohol-related problems have most typically pointed to the corpus of general population research in which most of the diagnostic criteria for alcoholism, including chronicity, are conspicuously missing or are

of rare frequency. As Fillmore and Midanik (forthcoming) have summarized this debate:

A puzzle arising from the literature concerning with alcohol patterns and problems over the last 20 to 30 years has been the marked difference in demographic and drinking characteristics found among clients in clinical populations as compared to problem drinkers in the general population. Perhaps the most central difference has been that while the age distribution of alcoholics in clinical populations normally ranges from approximately 35 to 60 years, the age distributions of those exhibiting the most serious drinking problems in the general population tend to be in the early twenties, especially among men. While clients in treatment populations are characterized by symptoms which are relatively coherent and persistent over time (e.g., the likelihood of reporting a great many problems associated with alcohol use for many years), this pattern has not been found in general population data—even among those most seriously affected. These findings from different sampling universes have lead one author to identify these contrasts as "the two worlds of alcohol problems" with the clinical world reporting a progressive disease or syndrome called alcoholism and the epidemiological world reporting an array of alcohol problems in the general population, relatively unrelated to one another and unstable over time. This paper is an attempt to bridge the waters between these findings. (Fillmore and Midanik, *ibid*: 1)

Certainly this independent replication of the Fillmore and Midanik (*ibid*) findings concerning the differential continuity of alcohol use across cohorts deserves further consideration and theoretical integration within the alcohol literature. For example, the question must be raised whether the probability of continuity among the heavier drinkers is significantly different than the probability of continuity among the lighter drinkers. The data from this research would indicate that continuity among the heavier drinkers was consistently lower than continuity among the lighter drinkers. What is difficult to determine is the meaning of these findings. Does a high probability of chronicity among a general household sample of heavier drinkers indicate that

there is such a thing as alcoholism? Does a higher probability of chronicity among the lighter drinkers indicate that people in general are inclined to persevere in their alcohol use habits, making a high degree of continuity among the heavier drinkers an expected finding? The latter interpretation would suggest that the use of continuity as a diagnostic criteria for alcoholism is inappropriate, the former interpretation that strong support for one diagnostic criteria for alcoholism has been found at last among a general population sample of drinkers.

Parenthetically, the fact that the majority of the men followed for this project were stable in their alcohol use habits over time may be of interest within the field of gerontology. Gerontology is a relatively new field of inquiry, theory building specific to the needs of gerontologists is in its beginning stages. It is interesting to point out, however, that the preponderance of theory building by gerontologists has been concerned with explaining age-related behavioral change. Data from this project would indicate that, while age-related change is certainly an important issue to investigate, stability in behavior is the more common trend over time. Efforts defined to explore the mechanisms of stability in behavior over long periods of time, yet manifested within a rapidly-changing world would appear to be of great value.

A second point of interest to researchers in the alcohol field is related to the test of the cohort hypothesis described above. As was pointed out in the Chapter 3, tests for aging effects are compromised by the triple perfect confound between age, cohort, and time period of measurement. If the assumption is true that time period effects were negligible among the men in this sample, and that cohort effects on alcohol use were of minimal importance as men entered the second half of the life course, then alcohol and aging research can be effectively addressed through the use of cross-

sectional designs. This is, of course, a bold suggestion to make on the basis of this limited research project. However, the implications of this assertion is so important that further prospective research which attempts to provide a measure of the power of time period and cohort effects would be of the greatest importance. For example, if the suggestion that time period and cohort effects are negligible proves to be true, the socialization to old age hypothesis discussed above could be tested using a cross-sectional design rather than a more time consuming and expensive prospective design.

A third application of this research project to issues of broad interest within the alcohol literature concerns the relatively large proportion of men who decreased levels of alcohol-related behaviors between 1964 and 1983. The body of retrospective qualitative data indicate that the men who decreased alcohol consumption from Time 1 to Time 2 were most likely to have done so of their own accord and without the assistance of professional intervention. Also, data from treatment centers concerning the age distributions of clients would indicate that the great majority of men in treatment for alcoholism are younger than 50 years of age (e.g. Stall, 1984). Further, the majority of the men followed in this research never appear to have consumed alcohol to a degree that required professional intervention. This pattern of self-initiated decline in alcohol-related behaviors for populations who have begun careers of heavy substance use or experienced problems in such use has been referred to as "spontaneous remission" (e.g. Tuchfeld, 1980; Stall, 1983; Stall and Biernacki, forthcoming). Stall and Biernacki (forthcoming) recently proposed a theory of spontaneous remission behavior inductively derived from the alcohol, heroin, obesity and tobacco literatures which posits that the successful attempt to exchange a stigmatized for a non-stigmatized social identity is the central process underlying spontaneous remission behavior. However, it may be that

for men who never undertook problem drinking careers or became heavy drinkers that a separate process in the decline of alcohol consumption over time is at work. If the process of decline in alcohol consumption concomitant to the aging process is indeed separate from that described among heavy drinkers, the investigation of this process would hold as many important treatment and theoretical implications as does the investigation of the spontaneous remission phenomena itself.

Finally, numerous future research directions based on the data from this research relevant to health policy issues concerning alcohol use across the life course suggest themselves for further study. Certainly one of the more interesting findings was the high degree of continuity evident among these men as they moved from approximate middle to old age. As mentioned above, this finding is of interest to the further development of theory in the alcohol field. Yet it is also of interest to the construction of informed health policy concerning the safe use of alcohol among populations moving towards later life. It may be that once patterns of alcohol use become functional within an individual's lifestyle, these patterns of use (at whatever level) become relatively intractable. Work which would determine the stage in the life course at which such patterns become set, and (more importantly) the processes which work to set these patterns would hold important health policy implications for preventing alcohol problems among America's future elderly.

Of related interest to this topic is the relative scarcity of men incident for heavy levels of alcohol use and alcohol-related problems at follow-up. As will be recalled from Chapter 2, clinical retrospective reports have indicated that an "early onset" and "late onset" pattern of alcohol problems exists, the late onset problem drinkers being those who initiated problem drinking careers in old age while the early onset drinkers are those who have had alcohol

problems throughout their lives but who are now elderly. Data from this research based on a general population sample would indicate that while "late onset" problem drinking does exist, this pattern is relatively rare. If the goal is to prevent alcohol problems in the general population, resources should be devoted to managing alcohol problems among the elderly "early onset" problem drinkers, since this pattern seems to account for the vast majority of cases.

Another research direction that would be of benefit to the alcohol health policy field would be that of the determination of differences between those individuals who were able to decrease alcohol consumption and related problems from Time 1 to Time 2 and those who increased alcohol consumption or became problem drinkers. Although some initial attempts at this research agenda were made within this report, these can only be considered as suggestive in nature. That is, the finding that income or number of motivational reasons given from drinking are associated with heavy drinking or patterns of decrease in alcohol consumption over time is interesting, but remains problematical to interpret theoretically. Future work which would more definitively identify the social characteristics, life history events, and, more importantly, the processes at work to force radical change in alcohol use habits over time would hold obvious health policy, treatment and theoretical implications.

One regrettable gap in this research was the lack of data concerning changes in alcohol use from middle to later life among female or ethnic respondents. This omission was made for the purposes of maximizing the limited resources available to conduct this research, yet information on how women and/or ethnic populations are similar or dissimilar to white males in their alcohol-related behaviors over long periods of time, and in the face of the aging process, would be of great intrinsic interest. Obviously, research which would provide a comparative basis for women and men, and the various

ethnic populations available for study in San Francisco over time would hold important health policy and theoretical implications.

Obviously, then, this research report must be regarded as a beginning of a course set to determine how patterns of alcohol use change in the face of the aging process and over long periods of time. Such work holds important theoretical, methodological, and health policy implications. In particular, the testing of the morbidity and the socialization to old age hypotheses would seem to hold promise, as does the attempt to determine the health effects and mortality risks of varying levels of alcohol use over long periods of time among a general population sample. Theoretical concerns, such as a further exploration of patterns of continuity and change in alcohol-related behaviors over time would also seem to be a fruitful line of analysis to follow. As is so often the case in scientific reports, perhaps the most accurate statement to make of this project is that it raised more questions than it answered, and that further research to address these questions is sorely needed.

This research might also be evaluated as a model for the integration of the disciplines of anthropology and epidemiology. An evaluation of this attempt would be of use to other researchers interested in combining concepts and methods from these two fields. First it must be pointed out that this research was conceived of as a follow-up replication of a survey originally designed and conducted by an epidemiological team. Thus, as with all follow-up/replication research, a good deal of opportunity for flexibility and creativity was lost. That is, the issue of primary importance was to test for change and stability across the life course in alcohol use habits; "change" introduced due to the use of a different research protocol in 1983 would have been a fatal methodological flaw. In some respects, then, the opportunity for

integration of anthropology and epidemiology was defined by the 1964 research team.

Nonetheless, the results of this study provide ample justification for continuing attempts at cross-disciplinary collaboration. Two dominant trends in alcohol-related behaviors are those of stability or decline, both occurring in conjunction with the aging process. However, this conclusion drawn from the quantitative analysis tells us little of the factors or processes at work to form such patterns over time. Although hypotheses concerning patterns of alcohol use that occur with aging might be deductively generated from the existing literature and quantitatively tested against a longitudinal sample, this approach runs the risk of omitting factors important to the processes of interest or of constructing insensitive or inappropriate measures of variables correctly thought to influence alcohol use during the aging process. Thus, at this point in our understanding of alcohol use across the life course, a study oriented toward the retrospective study of life-history materials relevant to changing alcohol use patterns as individuals entered "old age" would be most useful.

This was the goal of incorporating an inductive, qualitative dimension to the follow-up of the 1964 San Francisco study. This attempt was quite useful in defining future research directions relevant to creating a model of alcohol use across the life course. Yet much more work remains to be done if a powerful explanatory model is to be constructed. Such future research should begin with exploratory research designs, designed to inductively identify define factors working to produce stability and/or decline in alcohol use patterns in later life. This is precisely the sort of research in which anthropological skills and methods might be used to their greatest benefit; later epidemiological work based on the sensitive identification of factors at work in stability and change in alcohol use habits in later life could test the validity of the inductive

research against a community sample. Although the epidemiological research would most likely begin with a cross-sectional design, there is no reason why informants could not be followed prospectively. Should it turn out that changes in social roles which occur along with the aging process are of great importance in explaining stability and change in alcohol use habits over time, concepts and theory developed within the social sciences would have direct application to the study of patterns of disease and health related to alcohol use habits. Thus, the use of theory and methods developed within the field of anthropology would seem to be an effective and important innovation in the furtherance of our understanding of the processes affecting alcohol use in later life.

A final point of consideration is that of the possibility of employing behavioral data designed with epidemiological questions in mind for purposes relevant to the study of contemporary United States culture. Although many applications of epidemiological data to the needs of the social sciences come to mind, in practice the majority of such applications have yet to be addressed. In terms of this research project, the primary finding is that men tend to remain stable or decrease alcohol consumption and related problems concomitant to the aging process. As pointed out earlier, one of the models which still might explain these patterns is that of a "socialization to old age" process. How such "socialization" might work to provide the decreases described here remains, however, an unelucidated process, although the qualitative analysis provides many new directions to address this research agenda. Research which would test this explanatory model for change and stability in alcohol consumption over the life course would focus not only on alcohol use across time, but also the changing social expectations made of men and women as they age. As indicated in the findings of the qualitative analysis, such research would focus squarely on the changes that individuals experience as they enter the role of

"elder" within our culture; the changing meaning of alcohol use across the life course; changes that occur in recreational and "time out" behaviors across the life course; changes that occur in friendship, business, and family relationships across the life course; and whatever other socio-cultural realms that might be hypothesized as central to the changing use of alcohol across the life course. Such topics are of clear relevance to the study of the individuals' relationship with his culture across the life course; changes in role status across the life course; and the study of recreational behavior across the life course. Each of these topics should be of central concern to those scholars interested in the study of contemporary United States culture. In this sense, then, the needs of the epidemiologists and the social scientist have intersected; proper research design can be constructed in order to answer the needs and interests of both disciplines. Clearly, then, the attempt to integrate methodologies, concepts, and theory derived from anthropology and epidemiology within research protocols designed to address important health concerns can be of direct benefit to the continuing development of both disciplines.

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APPENDIX 1

CONFIDENTIAL

ALCOHOL AND AGING STUDY

MEDICAL ANTHROPOLOGY PROGRAM

1320 THIRD AVENUE

UNIVERSITY OF CALIFORNIA

SAN FRANCISCO CA

94143

Dr. Joan Ablon, Sponsor

Mr. Ronald Stall, P.I.

Time Interview Began: _____

No.: _____

Time Interview Ended: _____

Interviewer: _____

Date of Interview: _____

1. A. We're trying to find out how things have been going for people since our last round of interviews. First of all, how has your health been since _____?

A5/

- B. IF NOT ALREADY ANSWERED: Have you had any serious illnesses since _____? Yes . . . ☐* No . . . ☐

*IF YES AND IF NOT ALREADY ANSWERED, ASK C AND D:

C. What was wrong?

D. How long did that last?

-
2. How would you rate your health at present--
excellent, good, fair or poor? A6/
- | | | |
|---------------------|---|---|
| Excellent | 1 | |
| Good. | 2 | |
| Fair. | 3 | |
| Poor. | 4 | |
| | | 9 |
-
3. How often do you have any trouble getting
to sleep or staying asleep--very often,
fairly often, once in a while, or hardly
ever? A7/
- | | | |
|--|---|---|
| Very often | 1 | |
| Fairly often | 2 | |
| Once in a while. | 3 | |
| Hardly ever. | 4 | |
| CODE "NEVER" <u>ONLY</u> IF VOLUNTEERED Never. | 5 | |
| | | 9 |
-
4. How often do you find it difficult to get
up in the morning--very often, fairly often,
once in a while, or hardly ever?
- | | | |
|--|---|---|
| Very often | 1 | |
| Fairly often | 2 | |
| Once in a while. | 3 | |
| Hardly ever. | 4 | |
| CODE "NEVER" <u>ONLY</u> IF VOLUNTEERED Never. | 5 | |
| | | 9 |

12. A. Do you smoke cigarettes? (IF NO: Did you ever smoke cigarettes regularly?) A17/
- | | | |
|---------------------------|---|---|
| Yes, smokes now | 1 | |
| Not now, but did. | 2 | |
| Never did | 3 | |
| | | 9 |
- B. IF SMOKES NOW OR DID IN THE PAST, ASK:
About how many do/did you smoke on an average day? A18/
- | | | |
|---|---|---|
| Less than $\frac{1}{2}$ a pack. | 5 | |
| $\frac{1}{2}$ a pack, less than 1 | 4 | |
| 1 pack, less than 2 | 3 | |
| 2 packs, less than 3. | 2 | |
| 3 or more packs | 1 | |
| | | 8 |
| | | 9 |
- C. ASK MEN ONLY: Do you smoke cigars? A19/
- | | | |
|---------------|---|---|
| Yes | 1 | |
| No. | 2 | |
| | | 8 |
| | | 9 |
- D. ASK MEN ONLY: Do you smoke a pipe? A20/
- | | | |
|---------------|---|---|
| Yes | 1 | |
| No. | 2 | |
| | | 8 |
| | | 9 |
-
13. About how often do you get together or visit with friends? A21/
- | | | |
|---------------------------------|---|---|
| <u>READ CATEGORIES:</u> | | |
| Several times a week. | 1 | |
| Once a week | 2 | |
| 2 or 3 times a month. | 3 | |
| Once a month. | 4 | |
| Less than once a month. | 5 | |
| Never | 6 | |
| | | 9 |
-
14. When you get together with them in the late afternoon or evening, how often is wine, beer, or some other kind of alcoholic beverage served--almost always, fairly often, once in a while, or almost never? A22/
- | | | |
|---------------------------|---|---|
| Almost always | 1 | |
| Fairly often. | 2 | |
| Once in a while | 3 | |
| Almost never. | 4 | |
| | | 9 |

COMMENTS:

15. A. Now I'd like you to tell me whether you agree or disagree with the following statement: It's all right to get drunk once in a while as long as it doesn't get to be a habit.

A23/

Disagree . . ☐* Agree 1

*IF DISAGREE, CONTINUE ASKING FOLLOWING PARTS
UNTIL R AGREES WITH ONE OR UNTIL YOU HAVE AN
ANSWER TO 15E. THEN SKIP TO Q. 16.

- B. Do you agree or disagree with this statement: It's all right to drink as often as you want as long as it's in moderation.

Disagree . . ☐ Agree 2

- C. How about this one--do you agree or disagree:
It's all right to take a drink occasionally,
as long as you don't have more than one or two.

Disagree . . ☐ Agree 3

- D. And this statement: People should never drink.
Would you agree or disagree?

Disagree . . ☐** Agree 4

- **E. IF DISAGREED WITH D: What is your opinion
about this?

5
6
9

16. Would you mark here how often you have some kind of beverage containing alcohol, whether it is wine, beer, whiskey or any other drink? HAND NEXT PAGE TO RESPONDENT.

A24/

IF R DRINKS LESS THAN ONCE A YEAR SKIP TO THE FIRST YELLOW SECTION.

HAND TO RESPONDENT

HOW OFTEN DO YOU HAVE ANY BEVERAGES
CONTAINING ALCOHOL
(Wine, beer, whiskey, liquor, gin, rum, etc.)

- ☐ Three or more times a day
- ☐ Two times a day
- ☐ Once a day
- ☐ Nearly every day
- ☐ Three or four times a week
- ☐ Once or twice a week
- ☐ Two or three times a month
- ☐ About once a month
- ☐ Less than once a month, but at least
once a year
- ☐ Less than once a year
- ☐ I have never had any beverages
containing alcohol

17. When you drink, how often do you have six or more drinks--SHOW CARD A
AND SAY TO R: nearly every time, more than half the time, less than
half the time, once in a while, or almost never?

A25/

	<u>Nearly every time</u>	<u>More than half the time</u>	<u>Less than half the time</u>	<u>Once in a while</u>	<u>Almost never</u>
#A. Six or more drinks. .#1		#2	#3	#4	5
#B. (Only) five drinks. .#1		#2	#3	#4	5
#C. (Only) four drinks. .#1		#2	#3	4	5
D. (Only) three drinks . 1		2	3	4	5
E. (Only) two drinks . . 1		2	3	4	5
F. (Only) one drink. . . 1		2	3	4	5

A26/

(#DO NOT SKIP. INSTRUCTION IS PROVIDED WHEN NEEDED ON PAGE 20)

-
18. Now I am going to ask the same questions for wine, beer and whiskey
or liquor separately. Would you take this page and please put a
check mark next to the answer that tells how often you usually
have wine? HAND R PAGE 8.

A27/

-
19. Now please do the same for beer. HAND R PAGE 9.

A28/

-
20. Now please do the same for drinks containing whiskey or liquor,
including scotch, bourbon, gin, vodka, rum, etc. HAND R PAGE 10.

A29/

BE SURE TO GET PAGES 8, 9 AND 10 BACK FROM RESPONDENT
--

HAND TO RESPONDENT

WINE

(or a punch containing wine)

- ☐ Three or more times a day
- ☐ Two times a day
- ☐ Once a day
- ☐ Nearly every day
- ☐ Three or four times a week
- ☐ Once or twice a week
- ☐ Two or three times a month
- ☐ About once a month
- ☐ Less than once a month, but at least once a year
- ☐ Less than once a year
- ☐ I have never had wine

HAND TO RESPONDENT

BEER

- ☐ Three or more times a day
- ☐ Two times a day
- ☐ Once a day
- ☐ Nearly every day
- ☐ Three or four times a week
- ☐ Once or twice a week
- ☐ Two or three times a month
- ☐ About once a month
- ☐ Less than once a month, but at least once a year
- ☐ Less than once a year
- ☐ I have never had beer

HAND TO RESPONDENT

DRINKS CONTAINING WHISKEY OR LIQUOR
(such as Martinis, Manhattans, Old Fashioneds,
highballs, or straight drinks)

___ Three or more times a day

___ Two times a day

___ Once a day

___ Nearly every day

___ Three or four times a week

___ Once or twice a week

___ Two or three times a month

___ About once a month

___ Less than once a month, but at least
once a year

___ Less than once a year

___ I have never had drinks containing
whiskey or liquor

[CHECK ACCORDING TO PAGE 8]

21. ___ Has wine at least once a year.

___ Has wine less than once a year (or never). [SKIP TO Q. 22]

[USE CARD A]

A. Think of all the times you have had wine recently. When you drink wine, how often do you have five or more glasses?

A30/

READ LISTED ALTERNATIVES ONCE

- #1 . . Nearly every time [SKIP TO Q. 22]
- #2 . . More than half the time [SKIP TO Q. 22]
- #3 . . Less than half the time
- #4 . . Once in a while
- 5 . . Never

B. When you drink wine, how often do you have four glasses?

- #1 . . Nearly every time [SKIP TO Q. 22]
- #2 . . More than half the time [SKIP TO Q. 22]
- #3 . . Less than half the time
- 4 . . Once in a while
- 5 . . Never

C. How often do you have three glasses?

- 1 . . Nearly every time [SKIP TO Q. 22]
- 2 . . More than half the time [SKIP TO Q. 22]
- 3 . . Less than half the time
- 4 . . Once in a while
- 5 . . Never

D. How often do you have one or two glasses?

- 1 . . Nearly every time
- 2 . . More than half the time
- 3 . . Less than half the time
- 4 . . Once in a while
- 5 . . Never

24. People drink wine, beer, whiskey or liquor for different reasons. A34/
 Here are some statements people have made about why they drink.
 How important would you say that each of the following is to you
 as a reason for drinking--very important, fairly important, or
 not at all important?

		Very <u>important</u>	Fairly <u>important</u>	Not at all <u>important</u>		
A. I drink because it makes social occasions more enjoyable . . . A35/	1	2	3	8	9	
B. I drink because it helps me to relax. A36/	1	2	3	8	9	
#C. I drink to liven things up when they're dull and boring . A37/	#1	#2	3	8	9	
#D. I drink because it makes me feel good A38/	#1	#2	3	8	9	
E. I drink to be sociable A39/	1	2	3	8	9	
#F. I drink because I need it when tense and nervous A40/	#1	#2	3	8	9	
#G. A drink helps me to forget my worries A41/	#1	#2	3	8	9	
H. I drink to cool off when I'm feeling angry. A42/	1	2	3	8	9	
I. I drink because other people are drinking. A43/	1	2	3	8	9	

25. There are times when all of us have more to drink than we usually do. For example, many people drink more than usual when they are celebrating an important event. Do you yourself sometimes have more to drink than usual at the following times?

		<u>Yes</u>	<u>No</u>		
A. At a party A44/	1	2	8	9	
#B. When in an especially bad mood . . A45/	#1	2	8	9	
#C. When you just want to forget everything. A46/	#1	2	8	9	
#D. When you are with people who make you feel uncomfortable. . . . A47/	#1	2	8	9	
E. On New Year's Eve. A48/	1	2	8	9	

IF R SEEMS VERY UNCOMFORTABLE OR ANXIOUS ABOUT THE DRINKING QUESTIONS, SAY:
 As you probably know every year millions of dollars are spent by Americans on wine, whiskey, and beer. Doctors and other scientists are interested in knowing what part these beverages play in people's lives--Doctors want to know how people who drink practically nothing feel about these things and also how people who drink a great deal feel about them. That's why we're asking all these questions.

26. A. Have you ever been in a situation where you felt that you were expected to take a drink just to be polite or because others were drinking?

A49/
 Yes 1*
 No. 2
 8
 9

*IF YES, ASK B - E:

- B. Try to remember the last time that happened to you.
 (PAUSE) What kind of situation was that?

A50/

- C. How did it make you feel--knowing that you were expected to drink (drink more than you really wanted)?

- D. What happened?

SUGGESTED PROBES:

1. Did you take it/as much as you felt was expected?
2. Did you drink it/all of it?
3. How did you feel about that?

- E. IF NOT MENTIONED: Was there ever a situation where you did refuse?

27. A. Thinking now about the times when you do have a drink, how often are you by yourself--are you by yourself most of the time when you drink, fairly often, once in a while, or never?

A51/

Drinks alone--

most of the time 1*
 fairly often 2*
 once in a while. 3*
 never. 4

8
 9

- *B. IF EVER DRINKS ALONE: When you are drinking by yourself, do you tend to drink more, less or about the same as when you are drinking with other people?

A52/

~~#~~More 1#
 Less 3
 Same 2

8
 9

28. Think back over the last year and try to remember the times when you had the most to drink. About how many drinks did you have at the time when you had the most of all? (IF R CANNOT REMEMBER ANY ONE OCCASION AS THE MOST, ASK: Well just think of one time when you had more to drink than you usually do--about how many drinks did you have that time?)

A53/

#12 or more 1#
 #10 or 11 2#
 #8 or 9 3#
 #6 or 7 4#
 #4 or 5 5#
 2 or 3 6
 Never has more than usual. 7

8
 9

29. A. Tell me about that time (IF NEVER HAS MORE THAN USUAL: the last time you had anything to drink)--what kind of occasion or situation was it?

34. A. Was there ever a time in your life when you did a lot more drinking than you've done in the last year?

A57/

No 1
 Yes, 2-4 years ago 2*
 Yes, 5-9 years ago 3*
 Yes, 10 or more years ago. 4*

9

*IF YES, ASK B - G:

- B. How long ago was that? (RECORD ACTUAL RESPONSE AND CODE ABOVE)

A58/

_____ weeks _____ months _____ years

- C. What was different about your life at that time?

SUGGESTED PROBES:

1. Was there anything that you were particularly happy or unhappy about?
2. Were the people you associated with then any different from the people you know now?
3. What else was different then?

- D. How often would you say you drank when you used to drink--every day, nearly every day, 3 or 4 times a week, once or twice a week, 2 or 3 times a month, about once a month, or less than once a month?

A59/

Every day 1
 Nearly every day. 2
 3 or 4 times a week 3
 Once or twice a week. . . . 4
 Two or three times
 a month. 5
 About once a month. 6
 Less than once a month. . . 7

9

E. How many drinks would you usually have when you were drinking?

A60/
 #Seven or more drinks. 1#
 #Six drinks. 2#
 #Five drinks. 3#
 #Four drinks. 4#
 Three drinks. 5
 Two drinks. 6
 One drink. 7
 8
 9

F. UNLESS FIVE OR MORE MENTIONED ABOVE:
 Did you ever have as many as five drinks at a sitting?

SKIP TO Q 35 A61/
 Yes. 1
 No (SKIP TO Q 35). 2
 9

G. UNLESS THREE OR MORE MENTIONED ABOVE:
 Did you ever have as many as three or four drinks at a sitting?

A62/
 Yes. 1
 No. 2
 9

NOW CHECK BACK OVER PAGES 7 - 20 AND SEE IF R HAS GIVEN ANY ANSWER MARKED WITH A NUMBER SIGN(#):

- ☐ IF ANY MARKED #, ASK Q. 35 - 46.
☐ IF NONE MARKED #, SKIP TO P32, Q54.

A 63 - 72 R
 A 73 - 77 ☐ ☐ ☐ ☐ ☐
 A 78 - 79 R
 A 80. 1
 END OF CARD 1

START CARD 2 B1 - B5/

35. When was the last time you were high or drunk?
 CHECK BOX TO LEFT TO INDICATE HOW QUESTION ANSWERED.

- ☐ DID NOT DISCRIMINATE. ASKED ABOUT "HIGH OR DRUNK".
☐ NEVER DRUNK WITHIN LAST SIX MONTHS. ASKED ABOUT "HIGH".
☐ DRUNK WITHIN LAST SIX MONTHS. ASKED ABOUT "DRUNK".

B6/
 Within the last month. 1*
 1 month, less than 6 months. 2**
 6 months, less than 1 year ago. 3**
 1 year, less than 5 years ago. 4**
 5 yrs., less than 10 yrs. ago. 5**
 10 or more years ago. 6+
 R has never been drunk or high. 7++
 8
 9
 *ASK Q36, 37, ETC.
 **SKIP TO Q37
 +SKIP TO Q38
 ++SKIP TO Q39

36. ASK ONLY IF R. HIGH OR DRUNK WITHIN THE LAST MONTH (CODED 1 IN Q 35): How many times have you been high or drunk within the last month?

B7/
 Once. 4
 2 or 3 times. 3
 4 or 5 times. 2
 6 or more times. 1
 8
 9

37. A. ASK ALL WHO HAVE BEEN HIGH OR DRUNK WITHIN LAST TEN YEARS (CODES 1-5 IN Q. 35):
Think back over the times you've been high or drunk--how do you usually act or feel?

IF NOT ALREADY ANSWERED, ASK B - F:

- B. Do you talk more than usual or do you get more quiet than usual?

1 . . . Talks more	3 . . . Both
2 . . . Gets more quiet	4 . . . Neither

- C. Do you sometimes get loud, noisy or boisterous? (IF NEEDED: How do you mean? AND How loud/noisy/boisterous?)

- D. Do you sometimes get into fights or heated arguments?
(IF NEEDED: For example)

- E. When you drink do you ever have the following experiences:

1. feel dizzy?	Yes	☐	No	☐
2. feel sleepy?	Yes	☐	No	☐
3. have difficulty walking straight?	Yes	☐	No	☐
4. feel sick to your stomach?	Yes	☐	No	☐
5. pass out?	Yes	☐	No	☐
6. feel sorry for yourself?	Yes	☐	No	☐
7. find that all worries have disappeared? . . .	Yes	☐	No	☐
8. begin to think how wonderful people are? . . .	Yes	☐	No	☐
9. become the life of the party?	Yes	☐	No	☐

ASK ALL WHO HAVE SAID THEY'VE BEEN DRUNK OR HIGH LESS THAN 10 YEARS AGO:

38. A. Have you ever been high/or drunk for more than one day
at a time?

B9/
Yes 1*
No (SKIP TO Q 39) 2

8
9

*IF YES, ASK B - E:

B. What's the longest you've stayed
high/or drunk?

B10/
Over 7 days 1
4 - 7 days 2
3 days 3
2 days 4

8
9

C. About how many times have you
been high/or drunk for more
than one day?

5 or more times ☐
3 or 4 times ☐
Twice ☐
Once ☐

D. When did that happen (last)?

____ weeks ago ____ months ago ____ years ago

E. What was going on in your life at that time? (IF MORE THAN ONCE,
ASK ABOUT LAST TIME)

SUGGESTED PROBES:

1. Was there anything that you were particularly happy or unhappy about?
2. Tell me about the people you associated with then.
3. What else can you tell me about your life then?

39. CODE IN EVERY CASE, BUT ASK ONLY IF NOT ASCERTAINED:

A. Have you ever had a hangover?

B11/
 Yes 1*
 No (SKIP TO Q. 40) 2

*IF EVER HAD A HANGOVER, ASK B - D:

B. What do/did you find is good for a hangover?
 (DO NOT PROBE)

8
9

C. ASK UNLESS ALREADY ASCERTAINED:
 Do/did you ever take a drink to
 get rid of a hangover?

B12/
 Yes 1
 No 2

8
9

D. Have you ever stayed away from work
 because of a hangover?

B13/
 Yes 1
 No 2

8
9

40. ASK ALL RESPONDENTS WHO WERE EVER MARRIED
(NOW MARRIED, DIVORCED, SEPARATED):

A. Does/did your wife/husband ever complain
 about your drinking (or about the way
 you act when you drink)?

B14/
 Yes 1*
 No (SKIP TO Q 41) 2

8
9

*IF YES, ASK B - C:

B. About how often does/did that happen--very often,
 fairly often, occasionally, or only very rarely?

Very often ☐
 Fairly often ☐
 Occasionally ☐
 Very rarely. . . . ☐

C. What does/did she/he have to say about it?

SUGGESTED PROBE:

What bothered her/him about
 your drinking?

ASK EVERYONE

41. Have your friends ever criticized you for drinking or suggested that you cut down?

B15/
Yes 1
No 2
8
9

-
42. A. Have you ever had any trouble on the job because of drinking?

B16/
Yes 1*
No (SKIP TO Q. 43) 2
8
9

*IF YES, ASK B - D:

- B. What kinds of things happened?

- C. When did that happen?

_____ weeks ago _____ months ago _____ years ago

- D. Have you ever had any other trouble on a job because of drinking?

B17/
Yes 1
No 2
8
9

43. A. Have you ever been arrested for drunk driving?

B18/
 Yes 1*
 No (SKIP TO Q. 44). 2
 8
 9

*IF YES, ASK B - D:

B. How many times has that happened?

Once . . . ☐ Twice . . . ☐ Three or more times . . ☐

C. Tell me about what happened (the last time).

D. When did that happen?

____ weeks ago ____ months ago ____ years ago

44. A. Have you ever gotten into any other kind of trouble with the law because of drinking?

B19/
 Yes 1*
 No (SKIP TO Q. 45). 2
 8
 9

*IF YES, ASK B - C:

B. What kinds of trouble?

C. When did that happen (last)?

____ weeks ago ____ months ago ____ years ago

179

45. A. UNLESS ALREADY ASCERTAINED: Have you
ever felt you should cut down on drinking?

B20/
Yes 1*
No. (SKIP TO Q. 46) 2

8
9

*IF YES, ASK B - D:

B. Why was that?

B21/

C. Did you ever actually try to cut down?

D. What happened?

46. IF R HAS INDICATED ANY PROBLEM ABOUT DRINKING, ASK:
Have you ever discussed your drinking problem with
the following kinds of people:

B22/

- A. A doctor Yes ☐ No ☐
B. A psychiatrist or
psychologist Yes ☐ No ☐
C. A clergyman. Yes ☐ No ☐
D. A social worker. Yes ☐ No ☐
E. A.A. Yes ☐ No ☐
F. Did anything come of it? (What happened?)

SKIP TO PAGE 32

FOR RESPONDENTS WHO SAID LESS THAN ONCE A YEAR OR NEVER FOR ALL THREE BEVERAGES

47. A. Was there ever a time when you drank wine,
beer, or any kind of liquor as often as
once a year?
- | | |
|------------------------------|------|
| | B23/ |
| Yes (SKIP TO Q.48) | 1 |
| No. | 2* |
| | 8 |
| | 9 |

*IF NO, ASK B - C:

- B. Have you ever had a taste of any alcoholic beverage?
- Yes . . ☐** No. . . ☐ SKIP TO Q. 52

- **C. IF YES TO B: Could you describe the kind of situation
when you did have a taste of some alcoholic beverage?

PROBE FOR

1. Kind of situation.
2. How often this happened.

- ☐ IF THERE IS ANY INDICATION THAT RESPONDENT USED TO DRINK
AT ALL REGULARLY, CHECK HERE AND ASK Q. 48.
- ☐ IF IT IS CLEAR THAT RESPONDENT DRANK ONLY ON EXTREMELY
RARE OCCASIONS AND NEVER DRANK REGULARLY, CHECK HERE AND
SKIP TO Q. 52.

IF EVER DRANK AS OFTEN AS ONCE A YEAR

48. A. How long ago was that?

____ weeks ____ months ____ years

- B. What was different about your life at that time?

SUGGESTED PROBES:

1. Was there anything that you were particularly happy or unhappy about?
2. Were the people you associated with then any different from the people you know now?
3. What else was different then?

Q.48(continued)

C. Were you ever a heavy drinker?

B24/

Yes 1#
 No. 2

9

D. How often would you say you drank when
 you used to drink--every day, nearly every
 day, 3 or 4 times a week, once or twice a
 week, 2 or 3 times a month, about once a
 month, or less than once a month?

B25/

Every day 1#
 Nearly every day. 2#
 3 or 4 times a week 3#
 Once or twice a week. 4#
 2 or 3 times a month. 5
 About once a month. 6
 Less than once a month. 7

9

E. How many drinks would you usually have when you were
 drinking?

B26/

Seven or more. . . ☐ #
 Six. ☐ #
 Five ☐ #
 Four ☐ #
 Three. ☐ #
 Two. ☐
 One. ☐

F. UNLESS FIVE OR MORE DRINKS MENTIONED ABOVE:

Did you ever have as many as five drinks at a sitting?

B27/

Yes. . . ☐ # No. . . ☐

G. UNLESS THREE OR MORE DRINKS MENTIONED ABOVE:

Did you ever have as many as 3 or 4 drinks at a sitting?

B28/

Yes. . . ☐ No. . . ☐

#FINISH ASKING ALL APPROPRIATE PARTS OF THIS QUESTION. THEN CHECK BOX
 BELOW TO DETERMINE WHETHER TO ASK Q. 49 - 51.

B29/

NOW CHECK BACK OVER THIS AND PREVIOUS PAGE, AND
 SEE IF R. HAS GIVEN ANY ANSWER MARKED WITH A
 NUMBER SIGN (#):

- ☐ IF ANY MARKED #, ASK Q. 49 - 53 (ALL THE
 REMAINING YELLOW PAGES IN THIS SECTION).
☐ IF NONE MARKED #, SKIP TO Q. 52

IF EVER DRANK AS OFTEN AS ONCE A YEAR

B30/

49. People drink wine, beer, whiskey or liquor for different reasons. Here are some statements people have made about why they drink. How important would you say that each of the following was to you as a reason for drinking when you used to drink--very important, fairly important, or not at all important?

		<u>Very</u> <u>impt.</u>	<u>Fairly</u> <u>impt.</u>	<u>Not at</u> <u>all impt.</u>		
A. I drank because it made social occasions more enjoyable	B31/	1	2	3	8	9
B. I drank because it help me to relax	B32/	1	2	3	8	9
C. I drank to liven things up when they were dull and boring	B33/	1	2	3	8	9
D. I drank because it made me feel good	B34/	1	2	3	8	9
E. I drank to be sociable	B35/	1	2	3	8	9
F. I drank because I needed it when tense and nervous	B36/	1	2	3	8	9
G. A drink helped me to forget my worries	B37/	1	2	3	8	9
H. I drank to cool off when I felt angry	B38/	1	2	3	8	9
I. I drank because other people were drinking	B39/	1	2	3	8	9

50. There are times when all of us have more to drink than we usually do. For example, many people drink more than usual when they are celebrating an important event. When you used to drink, did you yourself have more to drink than usual at the following times?

		<u>Yes</u>	<u>No</u>		
A. At a party?	B40/	1	2	8	9
B. When in an especially bad mood?	B41/	1	2	8	9
C. When you just wanted to forget everything?	B42/	1	2	8	9
D. When you were with people who made you feel uncomfortable?	B43/	1	2	8	9
E. On New Year's Eve?	B44/	1	2	8	9

51. IF EVER DRANK AS OFTEN AS ONCE A YEAR

A. How long ago did you stop drinking?

B45/

____ weeks ____ months ____ years

B. What made you decide to stop?

C. How did you do it?

52. IF NEVER DRANK AS OFTEN AS ONCE A YEAR OR IF DRANK VERY RARELY

A. What would you say are the main reasons that you don't drink/never drank more?

B. Does your religion have anything to do with your not drinking?

Yes . . . ☐ No . . . ☐

ASK ALL RESPONDENTS WHO ORIGINALLY SAID LESS THAN ONCE A YEAR OR NEVER FOR ALL 3 BEVERAGES:

53. A. Have you ever been in a situation where you felt that you were expected to take a drink just to be polite or because others were drinking?
- | | |
|---------------|------|
| | B46/ |
| Yes | 1* |
| No. | 2 |
| | 8 |
| | 9 |

*IF YES, ASK B - E:

- B. Try to remember the last time that happened to you. (PAUSE)
What kind of situation was that?

- C. How did it make you feel--knowing that you were expected to drink (drink more than you really wanted)?

- D. What happened?

SUGGESTED PROBES:

1. Did you take it/as much as you felt was expected?
2. Did you drink it/all of it?
3. How did you feel about that?

- E. IF NOT MENTIONED: Do you find yourself in this sort of situation very often? (IF NOT: Is that because you avoid getting into situations of that sort or because it just doesn't happen in your group?)

55. A. Who are the people you feel closest to these days--the people who are the most important to you? DETERMINE RELATIONSHIP TO R AND LIST BELOW. DO NOT PROBE FOR OTHER PEOPLE.

B. AFTER LISTING ALL RELATIONSHIPS, THEN ASK FOR EACH PERSON WHO IS NOT A MEMBER OF R'S HOUSEHOLD: About how often do you see _____: more than once a week, about once a week, one to three times a month, less than once a month but at least once a year, or less often than once a year? RECORD BELOW.

Relationship to R	More than once a week	About once a week	1 - 3 times a month	1-11 times a year	Less than once a year	Comment
	1	2	3	4	5	
	1	2	3	4	5	
	1	2	3	4	5	
	1	2	3	4	5	
	1	2	3	4	5	
	1	2	3	4	5	
	1	2	3	4	5	

IF NOBODY CHECK HERE ☐ AND GO TO Q. 56

B47/

B48/

B49/

57. IF NO FEMALE FRIENDS MENTIONED IN Q 55A:

A Do you have any women friends that you feel especially close to?

Yes ☐ No ☐

IF YES, ASK B - C:

B How many do you have?

One ☐ Two ☐ Three or more ☐

C (Thinking of the one you are closest to) About how often would you say you see her--more than once a week, about once a week, 1 to 3 times a month, less than once a month but at least once a year, less than once a year?

More than once a week ☐

About once a week ☐

1 to 3 times a month ☐

Less than once a month, ☐

but at least once a year ☐

Less than once a year ☐

58. IF NO MALE FRIENDS MENTIONED IN Q 55A:

A Do you have any men friends that you feel especially close to?

Yes ☐ No ☐

IF YES, ASK B - C:

B How many do you have?

One ☐ Two ☐ Three or more ☐

C (Think of the one you are closest to) About how often would you say you see him? (IF NECESSARY, READ LIST)

More than once a week ☐

About once a week ☐

1 to 3 times a month ☐

Less than once a month, ☐

but at least once a year ☐

Less than once a year ☐

ASK EVERYONE

58. What do you usually do on a weekday evening?

B50/

59. How about weekends--what do you usually do then?

IMPORTANT

- ☐ IF R IS MARRIED, CONTINUE WITH WHITE PAGES (QUESTIONS 60 THROUGH 77)
- ☐ IF R IS DIVORCED OR SEPARATED, GO TO QUESTION 78, PAGE 44. (YELLOW)
- ☐ IF R IS WIDOWED, GO TO QUESTION 88, PAGE 51 (PINK)
- ☐ IF R HAS NEVER MARRIED, GO TO QUESTION 94, PAGE 55 (GREEN)

ASK ONLY THOSE CURRENTLY MARRIED

60. How long have you and your husband/wife
been married?

Less than 1 year	5
1 year but less than 5 yrs.	4
5 yrs. but less than 10	3
10 yrs. but less than 20	2
20 years or more	1

8
9

ASK ONLY THOSE CURRENTLY MARRIED

60. How long have you and your husband/ wife
been married?

	B51/
Less than 1 year	5
1 year but less than 5 years	4
5 years but less than 10 years . . .	3
10 years but less than 20 years. . .	2
20 years or more	1
	8
	9

61. What are some of the good things about your marriage--things that
you enjoy about it?

62. What are some of the things that aren't so good--that you don't enjoy?

IF DIVORCED OR SEPARATED

78. How long have you been divorced/separated?

less than one year	.4
one year, less than 5 yrs. . .	.3
5 yrs., less than 10	.2
10 yrs or more	.1

8
9

ASK UNLESS ALREADY ASCERTAINED:

91. A. Did you ever worry about your (ex)husband's/wife's
drinking or wish that he/she drank less?

C41/
Yes 1*
No (SKIP TO Q. 82). 2
8
9

*IF YES:

B. What bad effects do you feel his/her drinking had?

86. How long were you married to your (ex) wife before the separation/divorce?

less than 1 yr. . .	5
1 yr., less than 5 . .	4
5 yrs., less than 10 .	3
10 yrs., less than 20 .	2
20 yrs. or more . .	1

8
9

87. A. Was this your first marriage, or had you been married to someone else before?
(IF MARRIED BEFORE: How many times have you been married altogether?)

First marriage (SKIP TO Q97, NEXT WHITE PAGE) 3
Second marriage 2*
Third marriage or more. 1*

D6/

8
9

*IF MARRIED BEFORE, ASK B - D ABOUT EACH OF R'S PREVIOUS MARRIAGES EXCEPT THE MOST RECENT ONE WHICH HAS BEEN DISCUSSED ALREADY. ENTER ANSWERS IN TABLE BELOW:

	First Marriage	Second Marriage	Third Marriage
B. What happened to your (first) (second) (third) marriage-- did your husband/wife die or were you divorced?	Died. . . ☐ Divorced. ☐	Died. . . ☐ Divorced. ☐	Died. . . ☐ Divorced. ☐
C. How long were you married to your (first) (second) (third) husband/wife?	__ months __ years	__ months __ years	__ months __ years
D. Did you ever worry about your (first) (second) (third) husband's/wife's drinking? CODE YES OR NO AND ENTER ANY COMMENTS COMMENTS:	Yes . . . ☐ No . . . ☐	Yes . . . ☐ No . . . ☐	Yes . . . ☐ No . . . ☐

D7/

SKIP TO Q. 97,
NEXT WHITE PAGE

ASK ALL WHO ARE WIDOWED

88. How long were you married before your wife died?

less than 1 year	5
1 year, less than 5 yrs. .	4
5 yrs., less than 10 yrs. .	3
10 yrs., less than 20 . . .	2
20 yrs. or more	1

8
9

91. How long have you been widowed?

less than 6 months	5
6 months, less than a year .	4
1 yr., less than 5 yrs. . .	3
5 yrs, less than 10 yrs. . .	2
10 yrs. or more.	1

8
9

94. A. Was this your first marriage, or had you been married to someone else before? (IF MARRIED BEFORE: How many times have you been married altogether?)

D12/

First marriage (SKIP TO

Q.97, NEXT WHITE PAGE. . . . 3

Second marriage. 2*

Third marriage or more 1*

8

9

*IF MARRIED BEFORE, ASK B - D ABOUT EACH OF R'S PREVIOUS MARRIAGES EXCEPT THE MOST RECENT ONE WHICH HAS BEEN DISCUSSED ALREADY. ENTER ANSWERS IN TABLE BELOW:

	First Marriage	Second Marriage	Third Marriage
B. What happened to your (first)(second)(third) marriage-- did your husband/ wife die or were you divorced?	Died. . . ☐ Divorced. ☐	Died. . . ☐ Divorced. ☐	Died. . . ☐ Divorced. ☐
C. How long were you married to your (first)(second)(third) husband/wife?	____ months ____ years	____ months ____ years	____ months ____ years
D. Did you ever worry about your (first)(second)(third) husband's/wife's drinking? CODE YES OR NO AND ENTER ANY COMMENTS COMMENTS:	Yes . . . ☐ No ☐	Yes . . . ☐ No ☐	Yes . . . ☐ No ☐

SKIP TO Q.97,
NEXT WHITE PAGE

D13/

118. When you were growing up, how did your parents (or the people with whom R lived) feel about drinking?

Suggested Probes:

Did they pretty much agree on this?

What reasons did they give?

9. How about you yourself today, what do you think of a man who has had too much to drink? (IF DOESN'T KNOW MEN WHO DRINK TOO MUCH, PROBE: Well, how would you feel about it if someone you didn't know had too much to drink?)

E28/

SUGGESTED PROBE:

What would you do or say?

-
120. Do most of the people you know feel as you do? (IF DOESN'T KNOW HOW OTHERS FEEL, PROBE: Well, what's your best guess about how they'd feel?)

And what do you think of a woman who has had too much to drink?

SUGGESTED PROBE:

What would you say or do?

E29/

- B. IF NO DIFFERENCE BETWEEN HOW R FEELS ABOUT MEN AND WOMEN, ASK: Do you mean there isn't any difference at all in how you feel about a man who has had too much to drink and a woman who has had too much to drink?

-
122. A. In your group--among the people you associate with--what does a man have to do for other people to feel that he has had too much to drink? (IF THIS NEVER HAPPENS AMONG R'S GROUP: Well, what kind of behavior would make you think a man had had too much to drink?)

USE GENERAL PROBES ONLY:

1. What else?
2. Could you tell me a little more?

E30/

- B. How about a woman--what does a woman have to do for people to feel that she has had too much to drink?

USE GENERAL PROBES ONLY:

1. What else?
2. Could you tell me a little more?

3. A. Now I have some questions about work. Do you have a regular job at present? (IF NOT CLEAR: Is that full-time or part-time?)

E31/
 Yes, part-time. 1*
 Yes, full-time. (SKIP TO Q.124). . . . 2
 Yes, two or more jobs (SKIP TO Q124) 3
 No, not regularly employed. 4*

8
9

*IF ONLY PART-TIME JOB OR NO JOB AT PRESENT:

B. What are you doing now (aside from your part-time job)--are you a housewife, a student, are you looking for (full-time) work, are you retired, or what?

E32/
 Retired (SKIP TO Q.127) 1
 Unemployed, seeking work. 2*
 Part-time, seeking full-time
 job (GO TO Q.124) 3
 Housewife (SKIP TO Q.138) 4
 Student (SKIP TO Q.134) 5
 Other (SPECIFY _____) 6*

8
9

**C. IF UNEMPLOYED: Have you ever had a regular (full-time) job?

Yes . . . ☐ (ASK Q. 127)
 No. . . ☐ (SKIP TO Q. 132)

E33/

- | | |
|---|----------------|
| ☐ IF HAS A REGULAR JOB NOW, ASK Q. 124-126 | (GREEN PAGES) |
| ☐ IF UNEMPLOYED, BUT NOT RETIRED, ASK Q. 127 - 132 | (YELLOW PAGES) |
| ☐ IF RETIRED, ASK Q. 127 - 130 AND 133 | (YELLOW PAGES) |
| ☐ IF STUDENT, ASK Q. 134 - 137 | (BLUE PAGE) |
| ☐ IF HOUSEWIFE, ASK Q. 138 - 139 | (PINK PAGE) |

124. ASK ALL WHO HAVE A REGULAR FULL-TIME JOB AT PRESENT

(IF R HAS MORE THAN ONE JOB, ASK ABOUT THE MAIN JOB ONLY.)

A. What kind of work do you do?

E34/

(GET JOB TITLE AND JOB DESCRIPTION. BE SURE TO FIND OUT EXACTLY WHAT THE JOB ENTAILS)

B. IF R IS AN OWNER OR MANAGER: About how big is the firm--
how many people are employed there? (IF NOT CLEAR, ASK:
Are there under a hundred or over a hundred?)

E35/

C. IF R IS SELF-EMPLOYED: Do you have any people working for you?

Yes . . . ☐* No . . . ☐*IF YES: About how many? (IF NOT CLEAR, ASK:
Are there under a hundred or over a hundred?)D. IF R IS A FARMER: What kind of farm is it? (IF NOT VOLUNTEERED,
ASK: How big/how many acres? AND Do you own the farm? How many
people do you employ on a regular basis?)

E. What hours do you work? ENTER ACTUAL HOURS (e.g. 8:00 a.m.-5:00 p.m.)

E36/

F. How long have you worked at your/that job?

E37/

Less than 6 months	1
6 months, less than 1 year	2
1 yr., less than 3 yrs	3
3 yrs., less than 5 yrs.	4
5 yrs. or more	5
	8
	9

G. What is the longest you ever stayed on one job
(with the same company, not necessarily the same
job in the company)?

_____ months _____ years

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125. A. How do you feel about your present job--do you enjoy it a lot, do you enjoy it most of the time, is it just all right, do you dislike it most of the time, or do you just hate it?

E39/

Enjoy it a lot	5
Enjoy it most of the time.	4
It's all right	3
Dislike it most of the time.	2
Hate it.	1
	8
	9

- B. What do you like most about your (main) job?

- C. What do you dislike about it?

-
126. Do you ever worry about being able to keep your present job?

E40/

Yes	1
No.	2
	8
	9

- ☐ IF R IS AN EMPLOYED WOMAN, SKIP TO Q. 138, PAGE 77 (PINK)
- ☐ IF R IS AN EMPLOYED MAN, SKIP TO Q. 140, PAGE 78 (WHITE)

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ASK UNEMPLOYED AND RETIRED PERSONS (NOT STUDENTS, NOT HOUSEWIVES)

127. ASK THOSE WHO HAD REGULAR JOB IN THE PAST BUT NOT NOW (INCLUDES THOSE WHO ARE RETIRED OR UNEMPLOYED EXCEPT FOR HOUSEWIVES, STUDENTS):

When did you last work regularly?

E41/

Less than 6 months ago	1
6 months, less than 1 year	2
1 year, less than 5 years.	3
5 years, less than 10 years.	4
10 years or more ago	5

8

9

-
128. A. When you last worked regularly, what kind of work did you do?
(GET JOB TITLE AND JOB DESCRIPTION: IF MORE THAN ONE JOB, ASK FOR MAIN JOB ONLY. BE SURE YOU FIND OUT EXACTLY WHAT KIND OF WORK THE JOB ENTAILS).

E42/

E43/

- B. IF EX-OWNER OR EX-MANAGER; About big is the firm you worked for--how many people were employed there? (IF NOT CLEAR, ASK: Were there under a hundred or over a hundred?)

- C. IF EX-FARMER: What kind of a farm was it? (IF NOT VOLUNTEERED, ASK: How big/how many acres? AND Did you own the farm? AND How many people were employed on a regular basis?)

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ASK UNEMPLOYED AND RETIRED PERSONS (NOT STUDENTS, NOT HOUSEWIVES)

129. How long did you work at your last job? E44/

Less than 6 months	1
6 months, less than 1 year	2
1 year, less than 3 years.	3
3 years, less than 5 years	4
5 years or more.	5
	8
	9

130. A. How did you feel about that job--did you enjoy it a lot, did you enjoy it most of the time, was it just all right, did you dislike it most of the time, or did you just hate it? E45/

Enjoyed it a lot	5
Enjoyed it most of the time. . . .	4
It was all right	3
Disliked it most of the time . . .	2
Hated it	1
	8
	9

B. What things did you like most about your last job?

C. What things about it did you dislike most?

131. UNLESS RETIRED OR ALREADY MENTIONED: How did you happen to leave that job?

☐ IF R IS RETIRED, SKIP TO Q. 133, YELLOW PAGE 75

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ASK ALL RETIRED PERSONS

133. A. What happened that made you retire?

B. IF NOT CLEAR: Did you have to retire, or was this something you wanted to do?

E07/

C. In what way has retirement made a difference in your life?

SUGGESTED PROBE:

How are you spending your time these days?

D. When you think of the days when you were working, what do you miss most?

E. IF NOT MENTIONED: Is the fact that you're not earning money at a job an important problem for you?

- | |
|--|
| ☐ IF RESPONDENT IS FEMALE, SKIP TO Q. 138, PAGE 77 (PINK) |
| ☐ IF RESPONDENT IS MALE, SKIP TO Q. 140, PAGE 78 (WHITE) |

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142. What is your religion?

Catholic	1
Protestant	2
Specify denomination:	
Jewish	3
Specify orthodox, conservation, reform:	
Other	4
Specify:	
None	5
	8
	9

143. Would you please look at this card and tell me which letter comes closest to your total family income before taxes for the last year?

A. Under \$3, 000	7
B. \$3,000-\$4,999	6
C. \$5,000-\$7,499	5
D. \$7,500-\$9,999	4
E. \$10,000-\$14,999	3
F. \$15,000-\$19,999	2
G. \$20,000 and over	1

----- Check here is based on take home pay, rather than income before taxes

----- Check here if more than one person works to contribute to this income.

145. A. Who is the main earner in your household?

Respondent	1
Spouse	2
Other	3
specify relationship:	

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ALCOHOL AND AGING STUDY-----OPEN-ENDED SECTION

I'd like to start this section of the interview by asking you some general questions about how your life has changed since 1964.

What are some of the major events that have happened in your life since 1964?

What changes have occurred in your life in the following areas since 1964?

Employment

Health

Finances

Leisure Activities

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Interpersonal Relationships

Open

Would you say that your alcohol use has changed since 1964?

How?

Why?

Would you say that any of the following areas of your life have caused your alcohol consumption to change?

Employment

Health

Interpersonal Relationships

Financial

Leisure Activities

Religion

Can you think of any other areas of your life that have influenced your alcohol consumption? How?

Think of a typical drinking situation, or a situation that you might be expected to take a drink nowadays. Could you describe it?

How is this different from a typical drinking situation for yourself in 1964?

Would you say that such situations were more frequent in 1964 or now? (That is, situations in which you are expected to drink) Why do you think that this is so?

APPENDIX 2



MEDICAL ANTHROPOLOGY PROGRAM

1320 Third Avenue [415] 731-1000
San Francisco, California 94143

Our records indicate that you were interviewed nearly 19 years ago for a pioneering study of the health and alcohol use habits of San Franciscan adults. Your participation in that classic research (along with that of other members of the sample) proved to be an invaluable public service. Data from this survey were instrumental in the further development of new understandings concerning alcohol use and its consequences among "typical Americans". The experience, findings, and new conceptualizations gained during the course of this project continued to positively influence important alcohol-related research for many years to come.

As you may have guessed, we would like to talk with you again. Basically, we would like to ask you an abbreviated set of questions from the 1964 interview. This kind of "before/after" research can be used to highlight important issues in change in alcohol use habits over time. Even if you do not now use alcohol or if your alcohol use habits have not changed over the past 19 years, your responses to this interview would be of the greatest interest. So far as we are aware, this research project is the first time in the United States that anyone has attempted to re-interview participants in an alcohol-use survey over such a long period of time.

We would like to emphasize that your anonymity will be completely guaranteed and that you have the right to end any interview at any time without prejudice. The interview should take only between one-two hours, and will be arranged at a time and place of your greatest convenience. We will do our best to make it an interesting and enjoyable experience. If you would consider being interviewed (or have any further questions), please indicate so on the enclosed, stamped card and drop it in the nearest mailbox. Thank you (in advance) for your cooperation, and you'll be hearing from us in the near future.

Best Regards,

Ron Stall
Principal Investigator



MEDICAL ANTHROPOLOGY PROGRAM

1320 Third Avenue (415) 791-1800
San Francisco, California 94143

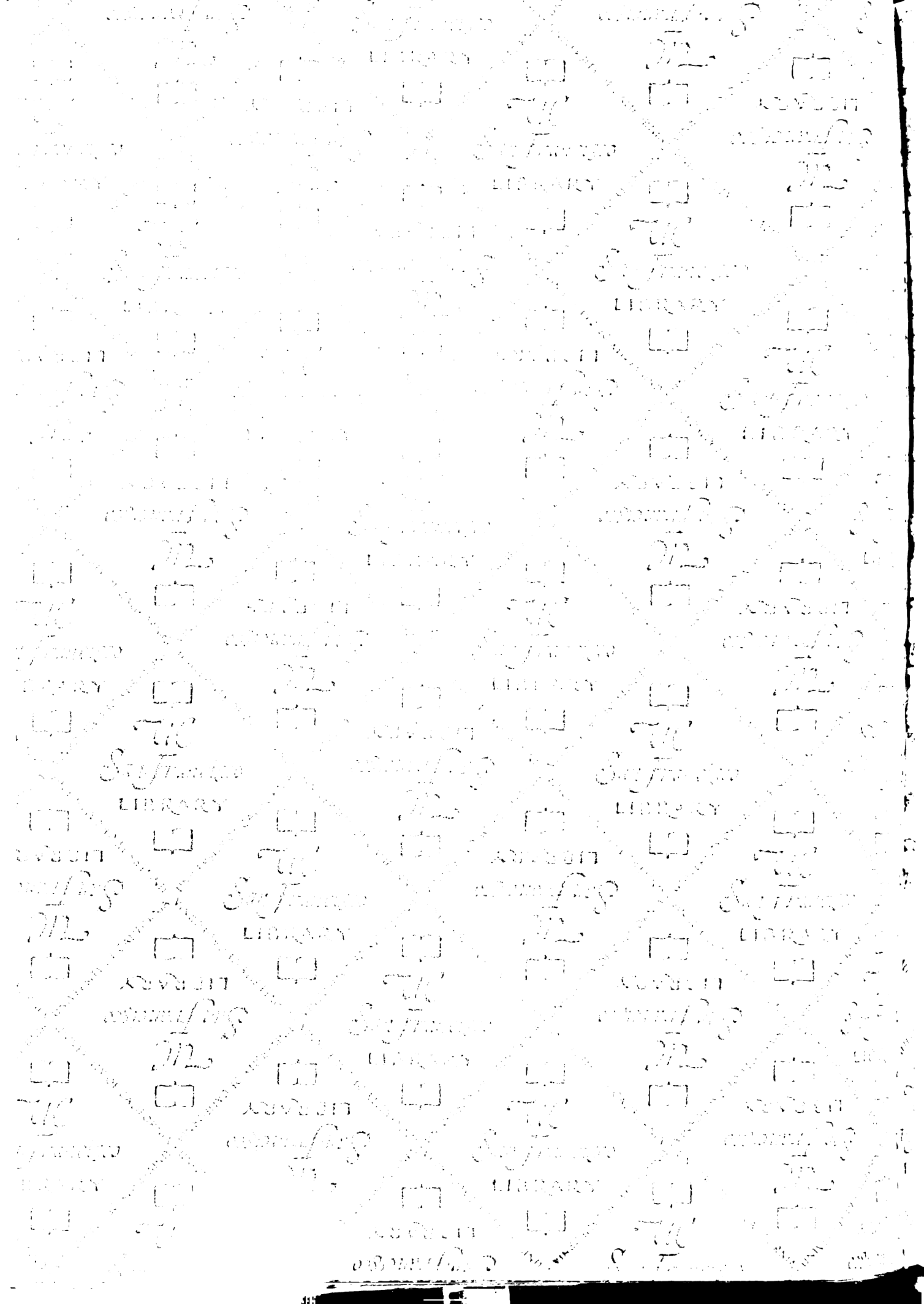
I am contacting you once again in the hope that you might reconsider your refusal to be interviewed for the alcohol use survey I described in an earlier letter. I regret to say that it has come to my attention that in some cases the interview experience for the previous series of surveys was less than entirely pleasant. I can assure you that such experiences will not be repeated. As the present research is being conducted through a separate department from the 1964 project, different rules govern interviewing procedures. I am certain that you will find this survey to be a great deal less time consuming and more enjoyable than the 1964 research. Most interviews have taken about an hour, and only one interview is scheduled. As always, I will guarantee your complete confidentiality.

I would like to emphasize that normally I would accept an initial refusal to be interviewed. However, I feel so strongly that this research project holds such important health care implications that I have decided to make a special effort to elicit your help in completing this research. Very few people have been sampled for this research and a high refusal rate will weaken whatever findings which may emerge from this work. Your responses are therefore of the greatest value to the successful completion of this project.

To introduce a personal note, this research is being completed as a dissertation for a Ph.D. at the University of California, San Francisco. I would, therefore, personally appreciate your participation in this work. Regardless of your decision in this matter, I will respect whatever decision that you make and will not contact you again, unless you agree to be interviewed. As before, I have enclosed a card that will inform me of your decision, which you can drop in the nearest mailbox. Once again, thank you for your attention--I hope to hear from you soon.

Best Regards,

Ron Stall

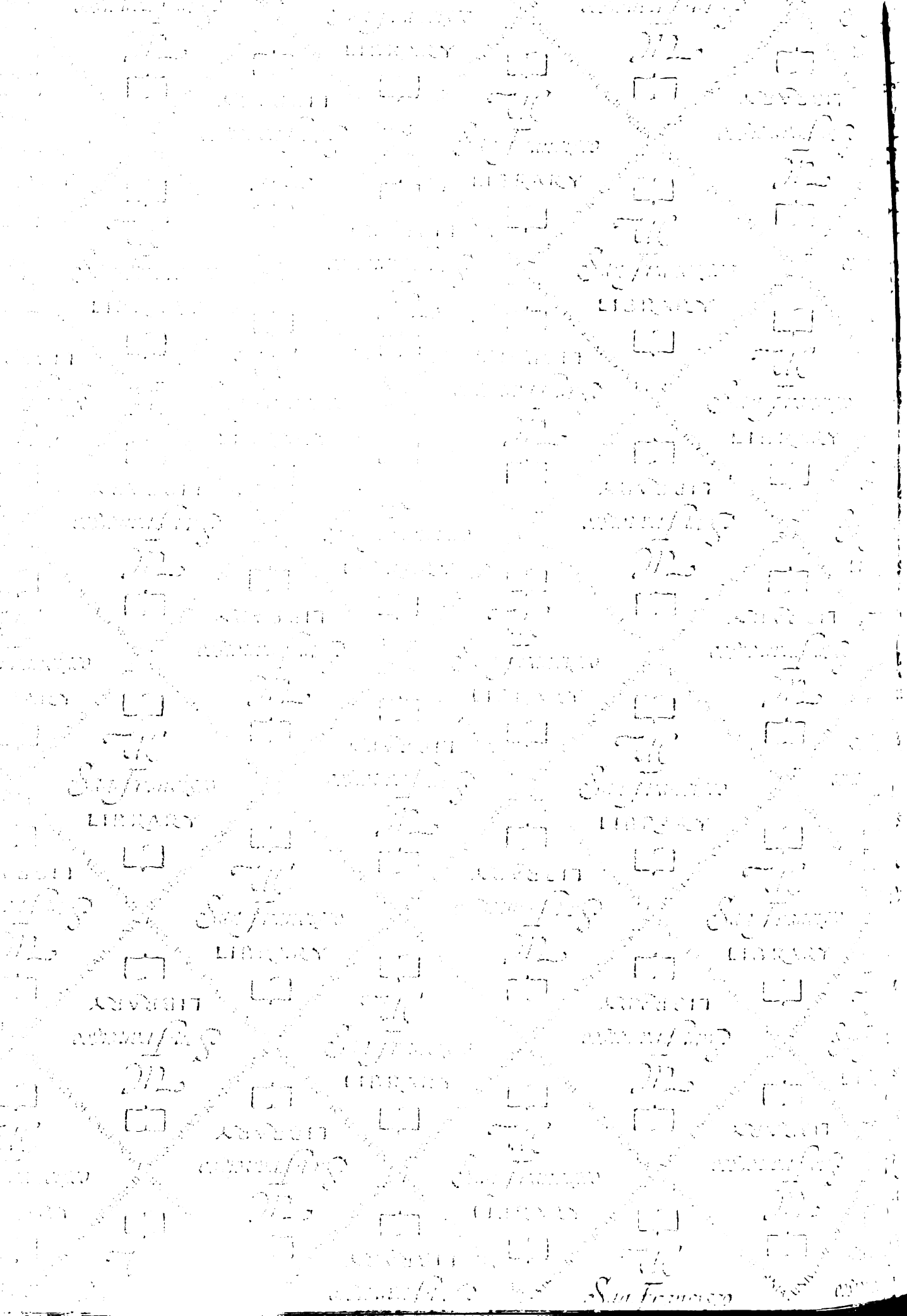


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