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CHAPTER 12

Region and Urbanization as Factors in Drinking Practices and Problems

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GEOGRAPHY AND DRINKING

That there are enormous geographic differences in drinking patterns and in the occurrence of alcohol problems is by no means a new observation. The strange drinking habits of foreign places and peoples have long been a stock-in-trade of travelers' tales. By the end of the nineteenth century, the existence of strong geographic variation in rates of "alcoholism" was also documented within more familiar geographic realms. Thus, Durkheim's classic treatise on *Suicide*, first published in 1897, includes in an appendix maps of the rates in French departments (political subdivisions) of drunkenness offenses, alcoholic insanity, and

"alcohol" (i.e., spirits) consumption (Durkheim, 1951; see Snyder, 1964; Sims, 1973).

To modern eyes, it seems obvious that geography itself is not a very good explanation of geographic differences. Present-day habits of thought tend immediately to reach to the cultural or subcultural level in attempting to explain geographic differences—or to invoke related levels of explanation such as ethnicity or religion. Nations, cultures, and religions all tend to be geographically specific, and geography is often taken to be a mere surrogate for these human impositions on the landscape, which are seen as inherently more powerful in explaining human behavior. Many of these cultural levels of explanation are dealt with extensively elsewhere in this volume and will be considered here only as they interact with geographic dimensions.

Particularly since the present writer tends to share these assumptions, it is worth noting that they were not obvious to turn-of-the-century thinkers, who often invoked climate and other characteristics of the physical environment in explaining apparent differences in the propensity toward inebriety, and that one can also find more recent treatments that couch their explanations in these same terms (Lynn, 1971). There are, indeed, many ways in which the physical environment can affect drinking and the occurrence of alcohol problems:

1. The part of the world that one inhabits can be supportive of or hostile to the growth of raw materials for alcohol production and the fermentation process. The suitability of the climate for grape growing certainly plays a part in explaining why more wine is drunk in southern than in northern Europe. For medieval Icelanders, who had to import all their wine, the fact that wine grapes grew wild on the newly discovered North American continent was significant enough to be commemorated in its name: Vínland, that is, Wineland (Magnusson and Palsson, 1965). On the other hand, governments often face severe difficulties in establishing centralized control over production in tropical areas, where a palm tree is a potential factory for palm toddy.

2. The climate can strongly affect the problems associated with a given level of drinking. In particular, cold climates tend to be unforgiving of drunken clumsiness: snow and ice are treacherous for unsteady footsteps (Honkanen *et al.*, 1976), cold water and drunkenness seem to have a particularly lethal interaction (Wingard and Room, 1977) and those who would sleep under bridges had best seek tropical climes (indeed, the homeless people who sign into Texas mental hospitals in winter are known as *snowbirds*).

3. Distance and isolation may also affect the availability of alcohol—although liquor stores and bars tend to be early outposts in a frontier

society. Conversely, those remote from alcohol who nevertheless seek it out may face the special hazards of drunken journeys. Kuusi's classic study (1957) of the effects of introducing liquor stores into rural Finland found that there was an increase in consumption but a decrease in drunken journeys. In early colonial Australia—and in many other places—the scarcity of alcohol and the distance it had to be brought made "rum" the effective currency and made those who controlled the supply rich.

4. At a more local level, alcohol is a hidden factor in local zoning and planning (Wittman, 1981). It is no accident that liquor stores and bars tend to be concentrated in the poorer areas of American cities (Pfautz and Hyde, 1960), although the rich drink more alcohol per head per annum than the poor. "Local option" or zoning codes and decisions tend to push liquor outlets out of desirable residential neighborhoods.

5. The occurrence of alcohol problems is also affected by local geography and physical environment. The American institution of the "roadhouse," a relic of Prohibition, necessarily produces drunk driving. Winding mountain roads are particularly hostile to drunken drivers. Public drunkenness is not as likely to be viewed as a social problem in an isolated place as on the main street of a town.

6. At a yet more intimate level, the amount and style of drinking are considerably affected by the physical as well as the social context. Though more attention has been paid in observational and experimental studies to the social rather than the physical context of drinking, designers and architects are well aware of the effects of physical design on drinking patterns (Sommer, 1969).

7. Likewise, the physical environment can greatly affect the likelihood of either accidents or adverse reactions by others to a given pattern of drinking. To a considerable extent, drinking is enclaved physically in American society as a means of minimizing both harm and offense to others (Room, 1975), and "making the world safe for (and from) drunks" by strengthening physical and cultural barriers around the drinking situation is an especially promising avenue for the prevention of alcohol problems (Aarens *et al.*, 1977; Gusfield, 1976).

For the remainder of this chapter, our attention is focused on the middle scales of magnitude of geographic variation—on patterns of variation in frames that are less than global but broader than the immediate physical environment. Our primary focus is on empirical relationships—on the "social facts," in Durkheim's phrase, of geographic variations in drinking patterns, problems, and social responses. Secondarily, we will pay attention to the possible explanations for these social

facts. As noted above, the social facts of variation in rate from one place to another can be the results of variations in physical environment. But they can also result from variation from place to place in a variety of cultural and social factors—from the geographic specificity of ethnic and cultural groups, from divergencies by state or locality in alcohol controls or the criminal law, from variations from place to place in unemployment rates and social support systems, and so forth. Geographic variations in drinking practices and problems may be unintended by-products of such social and cultural variations, or they may reflect a purposive sorting-out of the human population; for instance, heavy drinkers may migrate to an environment where they feel comfortable in their behavior. Understanding the meaning of geographic differences is of course a crucial long-term task. In our view, however, analysts have often jumped to implicit assumptions or theories about the meaning of geographic differences without a sufficient basis in the "social facts" of variation. This view underlies our primary emphasis here on empirical relationships.

Regional or state or other data for specific geographic entities (e.g., cities or counties for the United States) can be regarded and analyzed *nomographically* or *chorographically*. Any particular region or state or city has its own special characteristics, reflecting the interplay of its component populations, its physical and social environment, and its particular political, economic, and social history. In a chorographic perspective, the geographic area is considered holistically, as an entity with its own special character and history. But each area can also be viewed simply as a unit of observation in ecological analyses of the interplay of various factors, such as median income, the presence of heavy industry, or the proportion of the population belonging to fundamentalist denominations. This nomographic perspective disregards the particularity of place, but opens up the possibility of increasing our understanding of the effects and relations of ecological characteristics in a wider frame of analysis. Research tends to adopt either the chorographic or the nomographic mode, although analysts frequently invoke the other mode: in particular, the chorographic mode is often invoked to explain away anomalies in nomographic results.

ALCOHOL MEASURES AND GEOGRAPHIC VARIABLES

Before proceeding to discuss research findings on the geography of drinking, it is worth emphasizing that there are considerable variations in the unit of analysis for both geographic and alcohol variables.

In analyses of the geography of drinking practices and problems, alcohol measures are primarily drawn from two sources: social and health statistics and population surveys. Broadly speaking, they cover one or more of three general conceptual areas: drinking patterns, alcohol-related health and social problems, and formal responses (legal, medical, etc.) to alcohol-related problems. Measures of drinking patterns in common use in geographic comparisons include the proportion of abstainers in the adult population (derived from surveys), the per capita alcohol consumption (usually derived from excise tax statistics), and various survey-derived measures of amount of drinking: frequency of drinking, maximum quantity or quantity per occasion, volume of drinking, etc. The most ubiquitous measure of drinking-related problems is liver cirrhosis mortality; the Jellinek formula for "alcoholism prevalence," which was long used in geographic comparisons of rates, is a simple transformation of this vital statistic (Popham, 1970). Other social and health statistics commonly used as indicators of alcohol problems include drunk driving and other alcohol-related casualties, as well as deaths from "alcoholism" and "alcoholic psychosis." Several social statistics that reflect formal social responses to problem drinking as much as the problem drinking itself are also commonly used as alcohol-problem indicators. These include mental hospital admissions for alcoholic psychosis and related statistics, data from monitoring systems for alcoholism treatment facilities, and arrests or convictions for drunk driving and for public drunkenness. Survey measures of drinking problems and social responses include various "overall problems" scores (summing across the whole range of problem aspects of drinking), measures of "alcohol dependence" and similar dimensions, and measures of "tangible consequences" of drinking, that is, health, interactional, and social problems for the individual associated with drinking (see Cahalan, 1970; Cahalan and Room, 1974; Room, 1977; Clark *et al.*, 1981).

Even if we confine our attention to indicators of problems and system responses, it is clear that the measures cover a wide diversity of problems of drinking. But in the era of the modern alcoholism movement, the primary focus until recently has been on the adequacy of the various measures and indicators of a single presumed underlying entity, alcoholism. The resulting methodological literature on how best to compare "alcoholism" rates in different geographic entitites is quite voluminous (see Popham, 1970; Cahalan, 1976; Furst and Beckman, 1981). Given the assumptions of this literature, low correlations between the various indicators in geographic comparisons become problems to be explained away rather than interesting substantive findings. Thus,

when Walsh and Walsh (1973) showed very different patternings of alcohol problem indicators in comparisons between Ireland and British subunits, the primary attention in the discussion was on which single indicator was the best proxy for an assumed underlying "alcoholism." In the present chapter, the perspective on alcohol-problem measures is more nominalistic: in a "disaggregative" approach to alcohol problems (Room, 1977), the lack of empirical correlation between alcohol problems measures that is often found in cross-sectional geographic comparisons is viewed not as a vague methodological embarassment but as a crucial topic for substantive investigation.

GEOGRAPHIC UNITS AND ALCOHOL STUDIES

With regard to geographic areas, a variety of different units of aggregation are used, sometimes hierarchically related to each other (e.g., for the United States, counties and states) and sometimes cross-cutting (e.g. Standard Metropolitan Statistical Areas and states). The various alcohol measures are differentially available and applicable for one or another geographic aggregation. For instance, survey measures are often directly available for only relatively large geographic areas; only a relatively small number of geographic subdivisions can be made within a particular population survey, whether national or local in scope, unless it has an unusually large number of respondents. On the other hand, some social statistics (e.g., public drunkenness arrests) are not comparably aggregated for large geographic entities. Relatively rare phenomena like cirrhosis mortality may show wide annual fluctuations in very small geographic areas, such as census tracts. Below are listed the characteristics of the major geographical subdivisions commonly available for the United States and the alcohol-related data readily available for each.

Cities

Data for cities are normally based on the area included within their political boundaries. As U.S. cities grew, they usually expanded their boundaries until they reached geographic or political boundaries: a body of water, a state or county line, the limits of another city. On the one hand, this trend has meant that many cities include large tracts of as yet sparsely inhabited land. On the other hand, cities such as Boston or San Francisco, which were hemmed in with natural or political barriers, have remained "underbounded" (see Room, 1972). There is

thus substantial ecological incomparability between American cities as units in a nomographic analysis. Concretely, in the alcohol literature, Pearl *et al.* (1962) have shown how cirrhosis mortality rates in San Francisco and Los Angeles converge as San Francisco's boundaries are expanded or Los Angeles's are shrunk.

Relatively little has been done in U.S. alcohol studies using cities as the unit of analysis. Keller and Efron's older listing of Jellinek formula estimates (1956) carries into the alcohol literature available data by cities on cirrhosis mortality, and there has been limited analysis of drunk driving and drunkenness arrests by cities (e.g., Bacon and Jones, 1963; President's Commission, 1967; Ross, 1981, for Alcohol Safety Action Program evaluation references). Available data in such sources as the FBI Uniform Crime Reports have not been fully exploited. But it is more than usually obvious in these relatively restricted jurisdictions that social statistics on alcohol problems reflect the response systems' reactions to individual behavior and characteristics as much as the behavior and characteristics themselves. This is most obvious in the case of police practices, but variations in coroners' practices have also been shown to have a considerable effect on cirrhosis mortality rates (Room, 1972; Puffer, 1970; Waller, 1968).

For most states, no data on consumption or sales of alcohol are available at the city level.

Counties

Counties are the smallest political unit that can be applied across almost the whole U.S. population—although not without some linguistic adaptations and substantive difficulties. There are over 3000 counties in the United States, greatly varying in size and population (California is extreme in this regard: in 1970 Alpine County had 484 residents, and Los Angeles County over 7 million). Many data are available at the county level, which in many U.S. states is an important level of government. Although the Alcohol Epidemiology Data System of the National Institute of Alcohol Abuse and Alcoholism (NIAAA) has done some work with county-level data, there is to my knowledge no countrywide study in the alcohol literature using county-level data. There are, however, a number of county-level analyses within particular states (e.g., Tokuhata *et al.*, 1971; New York State Moreland Commission, 1963a, b; Holder, 1981). A particular advantage of county-level analysis is that some states—notably those exercising a monopoly over alcohol sales—keep sales statistics for alcohol by county. The problem of disparate population sizes can be diminished somewhat by combining

counties together into broader "economic areas" or other regional aggregations within a state (e.g., Bunce, 1976).

States

As a federal country, the United States keeps most of its social and health statistics and many of its commercial statistics with specification by state. Thus, alcohol researchers have long made use of the availability of alcohol sales data, mortality and some morbidity data, and police and other social statistics for the U.S. states. A similar situation exists in Switzerland, Canada, Australia, and other federal countries, although not without anomalies: while health and social statistics in Britain distinguish Scotland and sometimes Wales from England, there is no way that the "united kingdoms" can be distinguished with respect to alcohol sales or consumption (see Zacune and Hensman, 1971).

Because of the availability of data and the presence of enough units (48 or 50) to allow for correlational analysis, state-by-state data are the most common level of analysis of U.S. aggregate alcohol-related statistics. There are, however, a number of methodological problems with analyses at this level. The states vary greatly in size and population: California is more than 50 times as populous as Alaska. Alcohol sales statistics are distorted in a number of states by tourism (e.g., Nevada) and cross-border buying (District of Columbia, New Hampshire). Perhaps most serious are the tendencies of some analysts to fall afoul of the "ecological fallacy" (Hirschi and Selvin, 1973) of using state-level data to test hypotheses about individual-level relations or relations at other levels of aggregation, and to attribute causality to cross-sectional relationships. We return to these problems below.

The modern tradition of state-by-state analysis was initiated by Jellinek (1947), who reported state data on rates and trends of consumption, "chronic alcoholism" (a transformation of cirrhosis mortality rates), and dry sentiment, along with some analytical commentary. The series initiated with this publication has been continued as an occasional publication of what is now the Rutgers Center of Alcohol Studies, without a great deal of accompanying analysis, at least prior to the most recent edition (Hyman *et al.*, 1980). A more specifically correlational tradition of cross-sectional analysis was initiated by researchers from the Addiction Research Foundation (Seeley, 1962; Schmidt and Bronetto, 1962), the former also including an analysis for cities of the United States. Room (1974) collected together a variety of cross-sectional and trend indicators of alcohol tax characteristics, control system features, availability indicators, consumption levels, and alcohol problem

indicators, along with some measures of state population composition, and conducted a cautious correlational and regression analysis. More recently, drawing on a study by Medicine in the Public Interest (1976), Smart (1977) initiated a small flurry of studies correlating the availability of alcohol with per capita consumption and alcohol problems in U.S. states (Parker *et al.*, 1978; Parker and Wolz, 1979).

Census Tracts

Census tracts, as the name implies, are the U.S. Census Bureau's subdivision of urban areas into relatively compact areas. Cities—and later suburban areas—were originally "tracted" in accordance with what were seen as natural neighborhood boundaries; while tracts have often been subsequently subdivided, there has been an attempt to maintain comparable boundaries through the decades, although neighborhoods have often shifted in their composition and boundaries. A wide variety of general census data is available at the level of the tract or its historical antecedents (e.g., "sanitary districts" in New York City), and various nomographic analyses within particular cities or urban areas have explored the interrelation of ecological factors with alcohol problems (e.g. Faris and Dunham, 1939, on "alcoholic psychoses"; Attkisson, 1970, on suicide and skid row; Room, 1968, on liver disease and alcoholism mortality; Pearl *et al.*, 1962, on cirrhosis mortality; Cahalan and Room, 1974, pp. 197–202, on survey data on alcohol problems). Analysis at the tract level has a number of advantages: by design, there are not huge disparities in size within the unit of analysis, as there are for a county-level or state-level analysis; and tracts are at a size that bears some resemblance to what ordinary people think of as a "neighborhood," with a somewhat homogeneous housing stock and population composition and sharing a "common fate" (Campbell, 1958) environmentally. An alternative for chorographic analysis is to use "neighborhoods," as they are defined locally, for instance in city planning maps (e.g., Cahalan and Room, 1974, pp. 194–197).

U.S. Census Regions

The division of the United States by region in U.S. Census publications dates from the nineteenth century. The 1880 Vital Statistics volumes used 21 U.S. regions defined primarily by the land ecology, with many states split between more than one region. In modern times, the census has used a 9-region classification, with each state assigned to only 1 region. A 4-region collapsing of this classification has also been in wide use, particularly in analyses of national surveys; in a

clustered probability survey, some of the 9 regions have too small a population base for reliable results.

Most compilations of alcohol data by U.S. region include little or no analysis. However, Cahalan and Room (1974, pp. 78 ff.) used several historical and contemporary indicators to argue that the 9 regions split naturally into two "wetter" and "dryer" groups, with the "wetter" group including the New England, Middle Atlantic, East North Central, and Pacific regions. The existence of this natural split would argue against the use of the 4-category census classification for alcohol studies, since it lumps together "wetter" and "dryer" regions in the North Central area. The wetter–dryer dichotomy of regions was used in a variety of analyses of survey data on drinking patterns and problems (Cahalan and Room, 1974; Room, 1971a, 1972, 1974; Room, 1971a and 1974, used a three-way split separating the South from other "dryer" regions). We return to the substance of these analyses below.

Urbanicity or Urbanization

The use of *urbanization* to mean both the differentiation between country and city and the process of moving from country to city reflects a continuing ambiguity in this area. Confining our attention for the moment to measures of the differentiation, which we term here *urbanicity*, conventional measures of urbanicity used in the census and in survey data contrive to combine several relevant dimensions. It is relevant to the highly mobile U.S. population to mention that urbanicity is almost always defined by place of residence. A widely followed but arbitrary differentiation defines *rural* as any place outside an incorporated area of 2500 or more people—a definition that is thus tied to township and other minor civil-division lines. Within the *rural* category, a differentiation is made between the *farm* and *nonfarm* population, the only distinction in urbanicity classifications tied solely to the characteristics of the individual's residence. On the *urban* side of the line, differentiations usually emphasize the population of the township, city, etc., in which the individual or place is located. The typology may also include whether the place is inside an SMSA (Standard Metropolitan Statistical Area—the approximate census definition is an urban conglomeration including a city with at least 50,000 inhabitants), and whether it is in the "central city" of an SMSA (the city or cities around which the SMSA is defined). These categories provide some differentiation of suburban and exurban communities from both rural areas and the core city.

The resulting typologies built from these disparate elements provide serviceable differentiations of the U.S. population according to the environment of residence, and they certainly reveal substantial differences in drinking patterns and problems in survey analyses (Cahalan *et al.*, 1969; Cahalan and Room, 1974). Ecological analyses of state and other aggregate area data tend to use measures of "crowding" less dependent on political lines of division (e.g., Seeley, 1962).

While more proximate measures—comparing current place of residence with that of five years ago—are available in census data, survey studies attempting to study the effects of urbanization as a process tend to ask about the size of place of upbringing. Comparisons based on collating this question with the size of current place of residence must be regarded as very rough: even if people can give a rough size for the place of their upbringing, most places will have grown in population during the varying time since the respondent grew up. Nevertheless, even a rough analysis concerning this issue may be evocative (Cahalan and Room, 1974, pp. 86–89). Growth in population—and differences between places in the rate of growth—also creates problems for any trend analysis of patterns of drinking by urbanicity, to the extent that urbanicity is tied to characteristics—city population, definition as an SMSA, etc.—that themselves change over time.

These divisions and conventional classifications reflect a mixture of the social realities of political entities—state, counties, cities, etc.—and of social-science–imposed divisions. The latter are often the crystallized residue of past views and assumptions about social and geographic relations. There are, in fact, a wild profusion of potential geographic divisions of the United States (see Odum and Moore, 1938), although practical considerations of the availability of statistics, and the fact that political boundaries do carry some consequences in themselves, have tended to mean that social scientists usually construct their geographic categories with reference to political divisions.

In the preceding discussion, the emphasis has been exclusively on the United States, reflecting not only the primary audience of the present volume but also the large weight of geographically relevant alcohol research carried on in North America. But there is also a substantial and revealing literature on the geographic variations in other countries. Data are available for geographic subdivisions of many other nations—for dimensions analogous to states or regions and urbanicity in the United States. With the worldwide growth of supranational communities and federal national structures, the sharp distinction between national-level data and regional or state-level data is

gradually fading. As appropriate, we draw here not only on studies of intranational geographic variations but also on cross-national comparisons within particular world regions.

VARIATION BY REGION AND URBANICITY IN DRINKING PRACTICES AND PROBLEMS IN THE UNITED STATES

Although Jellinek's 1947 analysis of "Recent Trends in Alcoholism and in Alcohol Consumption" reported and commented on the different rates and trends of alcohol consumption in the U.S. states, the discussion paid little attention to variations in consumption by region and urbanicity. Rather more attention to these dimensions was paid in his discussion of "chronic alcoholism" (his indicator was a linear transformation of liver cirrhosis mortality, later known as the *Jellinek formula*). Jellinek noted that the rate in places of 100,000 population and over was more than twice the rate in rural areas (under 2500 population) in 1940, and that this rate actually represented a broadening of rural–urban differences in the 1930s: since 1930, the rural rate had decreased by 8.5%, while the urban rate had increased by 32.3% (1947, pp. 23–24). In the course of analysis of variations by state in the 1944 "alcoholism" rate, which he found to be correlated with the state vote for repeal in the early 1930s, Jellinek noted "a distinct belt of low rates in the south and a belt of slightly higher rates in the north central regions" (p. 24). In the same volume of the *Quarterly Journal of Studies on Alcohol*, Riley and Marden (1947) reporting on the first nationwide survey of drinking patterns, noted "clear-cut urban-rural differences . . . between drinkers and nondrinkers, the proportions decreasing systematically from as high as 77 per cent drinkers in large metropolitan centers to 46 per cent in farm communities" (p. 268). Conversely, "regular" drinkers (three or more times a week) varied from 7% in the farm population to 25% in cities of over 1 million population.

Reporting on a nationwide survey undertaken about 18 years later, Cahalan, *et al.* (1969) found variations by urbanicity in the abstention rate that were only slightly diminished from those found by Riley and Marden: 57% of the farm population in this sample and 79% of the population in cities over 1 million reported being drinkers. The highest rate of drinking, 87%, was found in the smaller cities (50,000–1 million), presumably reflecting suburban patterns (1969, p. 40). On a measure of volume of drinking roughly analogous to Riley and Marden's frequency measure, Cahalan *et al.* found 18% of those in cities over 1

million and 5% of those in the farm population reported averaging at least 1½ drinks per day ("high volume," p. 219).

This pattern of large differences in drinking patterns and relative stability over time was also characteristic of regional comparisons in the U.S. in the period through the mid-1960s. Cahalan and Room (1974, p. 80) showed a continuing cleavage in the nine census regions of the U.S. between the five "dryer" (regions in the southern, prairie, and mountain areas) and four "wetter" regions": New England, the Middle Atlantic, the East North Central, and the Pacific. A split between the two areas in sentiment about the repeal of Prohibition in a 1932 poll was mirrored in a cleavage in the proportions in 1964 who, when asked what were the good things to be said about drinking, volunteered the response "nothing." A similar continuing division could be found between the "wetter" and "dryer" regions in the adult per capita consumption of absolute alcohol in 1940 and in 1968. Accordingly, the 1964 survey found twice as many abstainers in the dryer regions as in the wetter and half as many frequent relatively heavy drinkers. In a separate analysis of trends in state data, Room (1974, p. 31) found that the "coastal" states, (i.e., those in the wetter regions) showed somewhat less increase in consumption from 1940 to 1960 (particularly beer and spirits consumption) than states in the dryer regions but, on the other hand, showed greater increases in cirrhosis mortality in the same 20-year period.

As of the 1960s, then, the overall picture for the United States was of large and broadly additive differences by urbanicity and between the "wetter" and "dryer" regions of the country in the proportions of abstainers, in the adult per capita consumption and the proportion of heavy drinkers, and in liver cirrhosis mortality. The general concordance of patterns for per capital consumption and cirrhosis mortality was in accord with one of the best-established relationships in the alcohol literature (Bruun *et al.*, 1975), and the divergence in trends found by Room (1974) might well be explained by the lag factor in the relationship between consumption and cirrhosis trends explicated by Skog (1980).

The patterning by urbanicity and region for survey measures of drinking-related problems and for social statistics on social and casualty problems related to drinking, however, differed markedly from these well-established patterns for abstention, heavier drinking, and cirrhosis mortality. It was perhaps no surprise that the arrest rate for moonshining was higher in dryer-region states, but so—much more strongly— was the arrest rate for drunken driving (Room, 1974). Evidence accumulated in the early 1970s that other alcohol-related problem indexes were at least as high in the dryer areas of the country as in the wetter areas.

Hudson (1978) found acute-alcohol-poisoning deaths to be several times more common in mortality studies in Georgia and North Carolina than in investigations in other parts of the country (pp. 84–85). It was noted that "although there are only half as many heavier drinkers in the dryer regions of the United States, . . . a national roadside breathtesting survey found high blood-alcohol levels to be somewhat more common among drivers in dryer than in wetter regions of the country (Wolfe, 1974)" (Room, 1975, p. 365). Armor *et al.* (1978) noted in passing that "it is interesting that the NIAAA treatment centers tend to be concentrated in the South although problem drinking [as measured in survey data] appears to be more concentrated in the North" and speculated that this might reflect "a stronger cultural intolerance of drinking and alcohol abuse" (p. 64) in the South.

Analyses of national survey data helped to fill in the picture suggested by these scattered data points. The first substantial survey analysis of variations in drinking problems by region and urbanicity used three-way divisions both of urbanicity and of region, subdividing what we have termed the *dryer* area into a *southern* and an *interior* portion, and further subdividing the rural southern portion of the sample according to whether local option laws allowed bars or bottle shops. The findings concerning the relation between drinking patterns and drinking problems among males posed some clear questions for further analysis:

> The comparisons on drinking problems show startling differences from the comparisons on drinking patterns. On indicators of social consequences of drinking—troubles with spouse, troubles with friends and neighbors, troubles on the job and with the law—and, in general, on all indicators except Frequent Heavy Drinking, whether the comparison is in terms of current prevalence (i.e., within the last three years) or in terms of lifetime prevalence, the patterns in the coastal [wetter-region] cities and in the coastal and southern rural areas are essentially identical. The only comparison group out of line is the southern cities, which show a considerably greater prevalence of problems on every measure. Within the rural South, there also appears to be some tendency towards a greater prevalence of problems in prohibition areas.
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> The results suggest a considerable disjunction between behavior and social consequences of behavior, so that a given level of drinking will result in greater social consequences in rural areas, and in the South generally, than it will in northern cities. A rough direct test can be made of this hypothesis, by comparing the proportions of those with a given level of behavior who have also accrued social and personal consequences. . . . This proportion is generally higher in the southern region, and particularly higher in southern cities and rural prohibition areas. In fact, in some areas of the rural South it appears

> to be easier to accrue the social consequences than it is to accrue the level of behavior. . . . In studies in Mississippi, Globetti has speculated on an association of low level of drinking with greater problems among users (Globetti, Harrison and Oetinger, 1967). . . .
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> One possible interpretation of this finding is that southern communities and authorities may well be less tolerant of a given drinking behavior—although it is not apparent why the tolerance would be less in southern cities than in the countryside. Another possibility, however, is that the behavior itself may be different. Drinking in the South may well be a more sporadic, potentially obnoxious or violent affair, perhaps more public and more likely to impinge on the sensibilities of others. MacAndrew and Edgerton have recently spelled out in some detail (1969) the enormous variations between cultures in the social meaning and expected behavior associated with a given level of drinking. Very likely, both these explanations play some part, and they may well tend to interact on each other, so that belligerent drinking behavior and outraged community attempts at suppression are mutually reinforcing. (Room, 1971a, pp. 96–97)

As noted at the time (Room, 1971a; Room and Mitchell, 1972), these findings in comparisons within the United States were reminiscent of Christie's (1965) comparisons of Nordic countries, particularly between Finland and Denmark, in which he concluded that "a strict system of legal and organization control of accessibility of alcohol seems to be related to low alcohol consumption, but also to a high degree of public nuisance" (p. 107).

The questions posed in Room's (1971a) analysis were pursued in greater detail in the course of later reports. Cahalan and Room (1974) showed that while for each level of urbanicity a given level of drinking was associated with greater tangible consequences in the dryer than in the wetter regions, the relation with urbanicity was more curvilinear: the ratio of tangible consequences to heavier drinking was as high in the central cities of SMSAs as in rural areas, and higher than in smaller cities, towns, and suburbs (p. 86). While very heavy drinking was more common among males in the wetter region and in the central cities of SMSAs, intermittent potentially "explosive" drinking did seem more prominent in the mix of heavy drinking styles in dryer regions and in the more rural parts, at least, of the wetter areas (pp. 152, 174). But the consistent and quite strong finding that there was a greater rate of tangible consequences for a given rate of heavier drinking in dryer than in wetter neighborhoods and areas suggested a strong effect of variations in social reactions to drinking behavior: that "tangible consequences of drinking were not to be viewed simply as behavioral characteristics of the individual respondent but rather as properties of

the interaction between the respondent's behavior and the reactions of those in his environment" (p. 192) For whatever historical and cultural reasons, a given level of drinking appeared more likely to encounter adverse formal and informal reactions in the dryer regions of the country than in the wetter regions and was less likely to encounter such reactions in intermediate towns and suburbs than either in the big cities or in the rural areas.

The analyses of patterns by region and urbanicity that are reviewed above were primarily oriented to cross-sectional comparisons of what tended to be seen as relatively immutable sectional differences within the United States. Each major report, in fact, included some attention to change in time—comparisons of the respondent's and the parents' drinking, analysis of the correlates of moving to a more or a less urban place, and so on—but trends over time were not a major focus of the analysis. This reflected both that only limited comparisons were available from prior studies, and that, in general, U.S. drinking patterns appeared quite stable in the 15 years or so up to the early 1960s. Per capita consumption was relatively stable in this period, and, as noted by Cahalan *et al.* (1969, p. 20), the proportion of drinkers reported in Gallup surveys in the mid-1960s was about the same as in the late 1940s, after a dip of about 10 percentage points in the late 1950s.

In the early 1960s, adult per capita alcohol consumption in the United States as a whole began to rise and continued to rise until the early 1970s. As late as the early 1970s, there was a tendency to attribute this rise in the purchase of tax-paid alcohol to an increased proportion of drinkers among women and a decline in moonshining (e.g., Keller, 1971, p. 12). In a trend analysis of drinking surveys conducted between 1964 and 1971, however, Room and Beck (1974, p. 5) showed that the relatively steep rise in overall per capita consumption in this period was not attributable to a net change in the proportion of drinkers; rather, it was associated in both sexes with an increased proportion of drinkers who at least occasionally drank five or more drinks on an occasion.

A number of other industrialized countries with a strong historical temperance tradition experienced a rise in alcohol consumption in roughly the same period as that in the United States. The United States is unusual, however, both in its relatively large proportion of abstainers and in the persistence of abstention throughout the period (see Table 2.2 in Mäkelä *et al.*, 1982). Scattered evidence from various analyses suggests that this persistence is related to the geographic specificity and clustering of large sections of the adult abstaining population in the United States. In a comparison of the same nationwide sample of 100 neighborhoods surveyed on drinking patterns in 1964 and 1970, it was

found that "dry" neighborhoods (50% or more of the respondents being abstainers) roughly held their own between the two surveys, while there was a substantial net shift of neighborhoods from the "medium" category to the "wet" (having 33% or more "high maximum" drinkers). Cross-tabulating by regional location and urbanicity the 18 "dry" neighborhoods in the dryer regions and the 15 in rural areas (out of a total of 23 "dry" in 1964) were more likely to remain "dry" than the fewer "dry" neighborhoods in wetter and more urban milieux (Room, 1979, pp. 14–15). In discussing the findings, it was suggested that

> the stability of U.S. abstention rates at the individual level reflects the solidity of group norms on abstention in the traditionally dryer areas of the country, notably in the rural areas of the southern and prairie states. In rural areas, in fact, the proportion of neighborhoods which were dry (i.e., a majority of adults abstained from drinking) held steady in the two surveys. On the other hand, the increase in per capita consumption was reflected in a considerable increase in the proportion of urban and wetter region neighborhoods where at least a third of the adults sometimes drank relatively heavily. This tipping toward heavier drinking was especially concentrated in the urban areas of the dryer regions. The historical split in the U.S. between wetter and dryer regions thus tended to be refocused instead onto a widening gap between the cities and the countryside in the traditionally dryer regions. This trend set the stage for the battles over liberalization of alcohol controls which have occurred in the 1970s in many of the traditionally dryer states.

The role of regionally and rurally located group norms in maintaining abstinence traditions in the United States can also be glimpsed in other analyses. In a comparison of the respondent's own drinking with that of the same-sex parent, it could be seen in the 1964 national survey that an abstaining parent was far more likely to have an abstaining child if the child now lived in the "southern" regions rather than in the wetter regions, and in a rural area rather than in a city—and that these relations were roughly additive (Room, 1971a, Table 2). In a comparison of size of place of upbringing with size of place of residence, reponsdents who had moved to larger places were less likely to be abstainers than those who had remained behind, while to a lesser extent those who had moved to smaller places had shifted away from drinking (Cahalan *et al.*, 1969, p. 45). Among males, at least, these effects seemed to be specific to the dryer regions of the country (Cahalan and Room, 1974, p. 88). In a recent reanalysis comparing 1963 and 1978 nationwide surveys by the National Opinion Research Center, Nusbaumer (1981) showed that the small overall decline in abstention between the two surveys (1.7%) was particularly concentrated among the traditionally abstinence-oriented Baptist and Methodist denominations. Further

cross-tabulations revealed that this decline was very much concentrated among Baptists and Methodists living in cities with a population of 100,000 or more and among those living outside the South and the Southwest. In the southern regions, and in places of less than 10,000 population, the abstention rate remained relatively steady—about half the Baptists and Methodists were abstainers both in 1963 and in 1978.

NEW DATA ON DRINKING PATTERNS

The stability and social location of abstention can be further explored in a trend analysis making use of a 1979 nationwide survey of drinking practices and problems (Clark *et al.*, 1981) * and of the 1964 nationwide survey initially reported in Cahalan *et al.* (1969). As shown in Table 1, a comparison of those aged 21 and over in these two surveys showed very little net shift in the U.S. abstention rate in the 15-year period—a finding replicated in National Opinion Research Center (NORC) surveys conducted in 1963 and 1978 (Nusbaumer, 1981). In both years, the NORC, using the classic Gallup formulation of the question on drinking versus abstention, found a rate of abstention a few percentage points lower than the Social Research Groups (SRG) surveys. In contrast, the Gallup organization surveys found a higher abstention rate in 1964 but not in 1978–1979, yielding an apparent drop in the abstention rate in the 15-year period.†

* The study was carried out by the Social Research Group under a contract with the National Institute on Alcohol Abuse and Alcoholism. Fieldwork was performed by the Response Analysis Corporation (RAC). The completion rate for the survey was a relatively low 69%. Results reported here are as weighted by RAC to reflect stratification and to compensate for nonresponse, but unweighted *N*s are shown in giving the base *N*. Percentages given for the 1964 survey are also weighted, to reflect household composition alone, but the *N*s given are also unweighted. Both the 1964 and 1979 surveys excluded Alaska and Hawaii.

† Gallup has asked about drinking or abstention in 18 nationwide surveys since 1945 and is thus the conventional reference point for discussions of trends in abstention in the United States. The Gallup data show a rise in abstention from 33% in 1946 to 42% in 1949, a relatively steady rate until 1958, and then a decline to a nadir of 29% in 1976 and 1978. Known artifacts in the Gallup data include the use of quota samples until 1952, which "systematically underrepresent the lower social strata," with the sampling "progressively refined and improved" so that "the lower social strata . . . were adequately represented" by the 1960s (Glenn and Zody, 1970, p. 234). The poor and less educated are more likely to be abstainers, but on the other hand, abstainers are more likely to be at home and thus found by a quota-sample interviewer. There was also a slight shift in the Gallup drinking question in the late 1960s (see Table 1). The classic Gallup question mixed objective description of drinking behavior with self-identification as a "total abstainer." Lindgren (1973) and Nelker (1973) have shown that in dryer cultural milieu, people may identify themselves as "total abstainers" and yet take an occasional drink, while in wetter environments, people may not drink and yet not identify themselves as "total abstainers."

TABLE 1. Abstention among U.S. Adults, 1963–1964 and 1978–1979, in Percentages[a]

	1963	1964	1978	1979
Gallup polls[b]	—	37	29[c]	31[c]
NORC surveys	29	—	28	—
Social Research Group[d] surveys	—	32	—	33
				33[c]

[a] Sources: Gallup polls—Gallup Opinion Index (1974), Anonymous, 1981; NORC surveys—Nusbaumer (1981); Social Research Group surveys—Cahalan *et al.* (1969), Clark *et al.* (1981).

[b] For Gallup 1964 and both NORC surveys: "Do you ever have occasion to use any alcoholic beverages such as liquor, wine or beer, or are you a total abstainer?" For Gallup 1978 and 1979: same wording except omitting "ever."

[c] Includes ages 18–20. All other figures are for ages 21+.

[d] SRG 1964: "The next few questions ask you about your own use of various types of drinks. Would you please take this booklet and on the first page put a check-mark next to the answer that tells how often you *usually* have *wine*. . . . Now . . . do the same for *beer*. . . . Now . . . do the same for drinks containing *whiskey* or *liquor*, including Scotch, bourbon, gin, vodka, rum, etc. . . . And now . . . please check how often you have *any* kind of drink containing alcohol, whether it is wine, beer, whiskey or any other drink." Respondents were counted as abstainers if they checked "less than once a year" or "I have never had (beverage)" to all four questions.

SRG 1979: "The next few questions are about the use of wine, beer and liquor—all kinds of alcoholic beverages. Have you had *any* alcoholic beverages during the past 12 months?"

Table 2 shows that the differentiation of the nine census regions into "wetter" and "dryer" areas of the country on the basis of rates of abstention was as strongly marked in 1979 as it was in 1964.* The biggest shift in rate of abstention was an 11-point decline in the Pacific Region, so that in the 1979 data, it had the lowest rate of abstention in any region. The other substantial shifts were in the other direction: 8-point increases in reported abstention in the Middle Atlantic and South Atlantic regions. In both surveys, respondents in the East South Central region (Kentucky, Tennessee, Alabama, and Mississippi) reported the highest rate of abstention: only one-third of the adult population reported drinking.

With respect to urbanicity, there was a net convergence between the city and the countryside in the 15-year period, with reported abstention decreasing in non-SMSA rural areas and increasing somewhat everywhere else. In both studies, the core cities of SMSAs, with substantial poor populations, showed higher rates of abstention than the more affluent, other urban areas of SMSAs. While differences were

* Special caution must be exercised in interpreting results from geographically specific portions of clustered area-probability samples, such as the 1964 and 1979 surveys. The sampling frames for the two studies vary quite a bit, reflecting among other factors population changes in the intervening 15 years. In particular, results from the sparsely populated Mountain region reflect only a small number of sampling points.

TABLE 2. Abstention by Region and Urbanicity, 1964 and 1979[a]

	Percentages		Base *N*	
	1964	1979	1964	1979
"Wetter" regions				
New England	21	18	155	96
Middle Atlantic	17	25	493	294
East North Central	25	29	599	277
Pacific	27	16	333	244
"Dryer" regions				
South Atlantic	42	50	350	284
East South Central	65	66	245	117
West South Central	38	38	246	146
West North Central	34	38	238	138
Mountain	42	38	87	75
Urbanicity				
SMSA central city	24	30	840	458
SMSA other urban	16	21	585	501
Non-SMSA urban	37	45	372	184
SMSA rural	33	40	314	107
Non-SMSA rural	53	49	635	420

[a] From nationwide probability samples of the conterminous United States adult population, conducted by the Social Research Group. See Cahalan *et al.* (1969) and Clark *et al.* (1981).

muted, abstention remained in 1979 more a rural than an urban phenomenon.

In further analysis in the present report, we revert to the dichotomous "wet" and "dry" classification of regions, and to a three-category summary of urbanicity: central cities of SMSAs, other urban areas, and rural areas.

The first two lines of Table 3 show the changes between 1964 and 1979 in the joint relationship of urbanicity and region. It can be seen that the changes were relatively minimal. Abstention had become somewhat more common in the central cities, particularly in the wetter regions. Urban–rural differences had somewhat diminished in the wetter areas of the country but were, if anything, increasing in the dryer areas.

Specification by sex shows that males in the wetter regions—the least abstinent group—showed the greatest change toward abstinence. This change was specific to the urban areas of the wetter regions. While females showed no net change by region, there was an increase of abstention among females in central cities in both regions.

In the 15-year period between the studies, abstention became

increasingly age-specific in the dryer but not in the wetter areas of the country. The increase in abstention in central cities occurred particularly among those over 60, but also to a lesser extent among the young.

The 15-year period between the interviews means that those aged 40–59 in 1979 were preponderantly composed of those aged 21–39 in 1964, while those aged 40–59 in 1964 had mostly passed into the 60+ category in 1979. We can thus do a rough cohort comparison, and see that the proportion of abstainers seems to have increased everywhere as these two cohorts aged. The increase appears to have been particularly

TABLE 3. Percentage of Current Abstainers, 1964 and 1979, among Those Aged 21 and over, by Region and by Urbanicity, and by Sex, Age, and Education

	1964				1979			
	Central cities	Other urban	Rural	Total	Central cities	Other urban	Rural	Total
Total sample								
Wet regions	19	18	37	23	27	19	33	25
Dry regions	34	38	53	45	39	39	57	47
Males								
Wet	10	13	24	15	19	18	27	20
Dry	37	24	37	34	34	31	43	36
Females								
Wet	26	22	47	30	34	20	40	29
Dry	32	46	68	53	43	47	69	54
Aged 21–39								
Wet	12	10	20	13	17	12	20	15
Dry	18	29	46	36	23	25	38	29
Aged 40–59								
Wet	21	19	35	24	26	22	29	24
Dry	42	38	55	48	40	42	71	53
Aged 60+								
Wet	26	33	67	39	43	29	56	41
Dry	47	53	70	58	58	67	68	65
Less than high school grad.								
Wet	25	27	46	32	38	29	44	37
Dry	46	45	61	54	52	53	64	58
High school grad.								
Wet	11	15	26	17	23	23	30	25
Dry	22	30	53	39	36	38	54	44
Some college +								
Wet	14	12	27	15	18	9	24	14
Dry	31	30	37	34	22	28	37	28

Continued

TABLE 3. (Continued)

Unweighted *N*'s, those aged 21 and over, 1964 and 1979

	1964				1979			
	Central cities	Other urban	Rural	Total	Central cities	Other urban	Rural	Total
Total sample								
Wet regions	561	637	382	1580	297	408	206	911
Dry regions	279	320	567	1166	161	277	321	760
Males								
Wet	241	282	166	689	125	184	95	404
Dry	100	120	260	480	66	120	133	319
Females								
Wet	320	355	216	891	172	224	111	507
Dry	179	200	307	686	95	157	188	441
Aged 21–39								
Wet	184	275	133	592	136	198	89	423
Dry	103	124	241	468	66	129	135	331
Aged 40–59								
Wet	231	233	154	618	77	135	60	272
Dry	100	117	224	441	45	95	105	245
Aged 60+								
Wet	145	128	95	368	84	75	57	216
Dry	76	78	102	256	50	53	81	184
Less than high school grad.								
Wet	300	210	202	712	97	77	63	237
Dry	99	156	297	552	69	85	149	303
High school grad.								
Wet	127	195	103	425	98	130	88	316
Dry	69	94	135	298	34	83	100	217
Some college +								
Wet	134	232	77	443	98	195	51	344
Dry	111	70	135	316	56	104	61	222

dramatic for dry-area residents moving into middle age, particularly in rural areas, and for non-central-city urban dry-area residents moving into the older age group.

The patterning by education suggests an increasing division between social classes in rates of abstention. Abstention held steady at relatively low levels among the college-educated and, in fact, declined in this group in the cities of the dryer regions. Conversely, the rate of abstention rose in both regions among urban dwellers with less than a high school education. Except among the college-educated in the dryer

regions, the urban–rural differences in rates of abstention for a given level of education tended to diminish in the 1979 data.

Overall, abstention was even more associated with middle and older age (particularly in the dryer regions) and with lower levels of education in 1979 than it was in 1964. Abstention was marginally less associated with rural residence and with the female gender in 1979, but its association with dryer regions of the country did not noticeably shift.

While Table 2 shows a considerable stability in rates of abstention in the nine census regions, we have already noted that there was a substantial rise in the national per capita consumption in the 1960s. The first three columns of Table 4 show how this rise was distributed among the nine census regions; Jellinek's 1940 statistics are also included for comparison. It can be seen that per capita consumption increased substantially in every region both between 1940 and 1964 and between 1964 and 1979. Between 1940 and 1964, consumption grew in the wetter and dryer regions by about the same absolute amount, although proportionally to previous consumption this represented a greater increase in the dryer regions. But between 1964 and 1979, the increase in the dryer regions was almost twice as great in absolute terms as in the wetter regions. In percentage terms, per capita consumption increased 70% in the dryer regions and only 21% in the wetter.

Abstainers, of course, do not contribute anything to alcohol consumption totals. The fourth and fifth columns of Table 4 accordingly subtract survey-based estimates of the number of abstainers in each region from the population base, to yield an estimated annual consumption per drinker. In interpreting these figures, however, it is wise to keep in mind the warning of the last column in the table. Survey estimates of total consumption can be compared with the total quantity of alcohol on which taxes are paid. It has long been recognized on this basis that respondents underestimate consumption in survey responses; the 1964 survey responses covered less than 60% of alcohol sold (Room, 1971b; the figure for 1979 was 52%—Clark, 1980, p. 13). The last column of Table 4 shows that underestimation was not equally distributed by region: dry-region respondents were systematically more likely to underestimate their consumption. It is plausible that this effect may also have applied to responses on drinking versus abstention, that is, that dry-region abstention rates may have been somewhat inflated in comparison to wet-region rate (see also Nelker, 1973).

Without taking into account such possible effects, the fourth column of Table 4 suggests that the per-drinker consumption was roughly the same in the dryer area of the United States as in the wetter area in 1964. But the disparate increases in the following 15 years produced

TABLE 4. Annual Per Capita Consumption of Alcohol, in Gallons of Pure Alcohol Per Capita, Aged 14 and over, and in Gallons per Drinker, Aged 14 and over[a]

	Per capita consumption			Per drinker consumption		Index of regional variations in survey coverage of consumption, 1964 (U.S. = 100)[c]
	1940[b]	1964	1979	1964	1979	
Wetter regions						
New England	1.72	2.48	3.14	3.14	3.78	107
Middle Atlantic	1.78	2.41	2.67	2.92	3.53	133
East North Central	1.75	2.26	2.67	3.04	3.75	104
Pacific	1.87	2.55	3.38	3.47	3.99	94
Dryer regions						
South Atlantic	1.11	1.89	2.81	3.27	5.44	77
East South Central	0.57	1.01	1.95	2.87	5.48	69
West South Central	0.88	1.71	2.62	2.76	4.21	85
West North Central	1.22	1.82	2.45	2.77	3.95	81
Mountain	1.33	2.08	3.29	3.58	5.31	62
Wetter regions		2.39	2.89	3.10	3.76	
Dryer regions		1.72	2.63	3.10	4.83	

[a] *1964 and 1979 calculations* (performed by Gary Collins): Alcohol content assumed to be 4.5% for beer both years; 17% for wine in 1964 and 14.5% in 1979; 42.5% for spirits in 1964 and 40% in 1979. These estimates follow Hyman *et al.* (1980) except for spirits. The lower spirits estimates used here are supported by three sources: (1) average proof strength of distilled spirits bottled in United States, footnotes to Tables 33 or 34 of BATF *Summary Statistics* for various years; (2) sales-based estimates for distilled spirits sold in California (Collins and Milkes, 1980); (3) sales-based estimates for distilled spirits sold in monopoly states (*Wines and Spirits Marketing Bulletin* 7:2, April 1980, p. 6). Population estimates are drawn from the appropriate U.S. Bureau of the Census *Current Population Reports* estimates of state populations. Estimated numbers of drinkers are drawn from percentages in the 1964 and 1979 SRG surveys applied to the population 14 and over. The 1964 survey excludes 14- to 20-year-olds and the 1979 survey 14- to 17-year-olds, and thus the numbers of drinkers are probably slightly overestimated.

[b] Per capita aged 15 and over. Drawn from Cahalan and Room (1974, p. 80), based on Jellinek (1947) and 1940 census population data.

[c] Room (1971b, p. 16).

quite a different picture in 1979. As estimated in the tables, drinkers in the dryer areas of the United States on the average consumed 28% more alcohol in 1979 than drinkers in the wetter areas. While differential overestimation of abstention in the dryer areas might reduce this astounding disparity, it is not likely to eliminate it. For comparison, it is worth noting that the per-drinker figure for the dryer regions exceeds the adult per capita figure for Italy in the mid-1970s, while that for the wetter regions exceeds the figure for West Germany (Noble, 1978, p. 6). West Germany had about 3% adult abstainers (Lindgren, 1973),

and Italy at most 10% (Lolli *et al.*, 1958, p. 125). While on a per capita basis the United States falls in about the middle of countries for which consumption data are regularly available, it appears that there may be only a relatively few countries in the world where alcohol consumption on a per-drinker basis exceeds that in the United States.

The 1964 and 1979 surveys also allow us to make limited direct comparison of drinking patterns and their trends over a 15-year period. Table 5 shows the results of a "high-quantity" measure, that is, of a

TABLE 5. Percentage of High-Quantity Drinkers (at Least Sometimes 5+ Drinks), 1964 and 1979, among Those Aged 21 and over, by Region and by Urbanicity, and by Sex, Age, and Education[a]

	1964				1979			
	Central cities	Other urban	Rural	Total	Central cities	Other urban	Rural	Total
Total sample								
Wet regions	32	29	20	28	25	30	28	28
Dry regions	22	18	11	16	21	27	16	22
Males								
Wet	52	47	38	46	31	43	41	39
Dry	33	31	19	25	31	41	30	35
Females								
Wet	15	13	8	13	18	18	15	17
Dry	16	9	5	9	13	15	5	11
Aged 21–39								
Wet	45	33	30	36	35	38	48	39
Dry	32	25	17	22	38	38	32	36
Aged 40–59								
Wet	28	33	22	28	29	31	24	29
Dry	24	17	10	15	20	28	8	18
Aged 60+								
Wet	18	11	8	13	4	10	4	6
Dry	5	8	0	4	0	2	4	2
Less than high school grad.								
Wet	26	22	19	23	15	26	18	19
Dry	21	14	8	12	14	22	13	16
High school grad.								
Wet	34	31	28	31	26	28	32	28
Dry	23	25	12	18	21	28	17	22
Some college +								
Wet	42	33	18	33	35	34	34	34
Dry	23	18	18	20	29	32	27	31

[a] For base numbers, see Table 3.

positive indication that the respondent's current drinking pattern (within the past year) included drinking five or more drinks on an occasion at least once in a while (the exact question wording and format varied somewhat between the two surveys).

It will be noted that even in 1964, regional differences in the rate of high-quantity drinkers were less than differences in the rate of abstainers, and that these differences had diminished over time, as a result of an increase in the rate of high-quantity drinkers in the dryer areas of the country. Based on these survey self-reports, while in 1964 high-quantity drinkers were a greater proportion of all drinkers in the wetter than in the dryer areas of the country (36% vs. 29%), by 1979 the reverse was true (37% vs. 42%). In both wetter and dryer regions, there was an increase in high-quantity drinking in rural areas; in the dryer area, there was an even stronger increase in the non-central city urban areas, while in the wetter area, there was a counterbalancing decrease in the central cities. Urban-rural differences in high-quantity drinking in the wetter region essentially disappeared.

In the wetter areas of the country, and particularly in rural areas, high-quantity drinking became more common among women, while this was true only for non-central cities urban areas in the dryer regions. Overall, there was an increased preponderance of wet-region rates over dry-region rates among women. Among men, on the other hand, a large difference in 1964 had almost disappeared by 1979; in wet regions, urban men, particularly in central cities, showed lower rates of high-quantity drinking, while in dry regions, high-quantity drinking increased strongly among men everywhere except in central cities. The sex ratio for high-quantity drinking increased in the dryer regions but decreased in the wetter regions.

Among younger respondents, the rate of high-quantity drinking rose strongly in the dryer regions but not in the wetter regions. The stability of the overall rate in the wetter regions, however, masked a decisive shift in the location of high-quantity drinking: while in 1964 it was considerably more common in the central cities than in rural areas, in 1979 the relationship was reversed. In the dryer regions, while high-quantity drinking rose everywhere, the rise was particularly strong in rural areas. By 1979, there were not great differences by urbanicity or region in high-quantity drinking among younger adults.

Rates of high-quantity drinking remained fairly stable among those aged 40–59, except for a rise in non-central-cities urban areas. A comparison with those aged 21–39 in 1964 implies a decrease in high-quantity drinking in this cohort, particularly for those living in central cities and those living in rural areas.

In general, high-quantity drinking declined among those aged 60+, particularly in the dryer regions and in central cities. The net effect was to reduce region and urbanicity differences. A rough cohort comparison of the 40 to 59-year-olds in 1964 and those 60 and over in 1979 suggests a dramatic decrease in high-quantity drinking in all geographic locations as this cohort aged.

Among the college-educated, the rate of high-quantity drinking increased noticeably in rural areas and the dryer regions, so that by 1979, there were essentially no differences in this group by urbanicity or region. Among those with the least education, high-quantity drinking decreased in the central cities and increased in other urban areas in both the wetter and the dryer regions. The net effect was to diminish regional differences, while patterns by urbanicity altered so that the central cities no longer showed the highest rate. High school graduates showed few changes by region and urbanicity groups; while regional differences remained stronger in 1979 than for either the more educated or the less educated, particularly in rural areas, the differences were generally smaller than in 1964. Particularly in dryer regions, disparities by educational level increased, so that high-quantity drinking was more strongly associated with a high education level in 1979 than in 1964.

Table 6 shows the proportions of respondents reporting high-frequency high-quantity (HFHQ) drinking. These respondents were a subgroup of those reporting high-quantity drinking (Table 5), consisting of those who also reported drinking at least nearly every day. The rate of HFHQ drinkers increased in both the dryer and the wetter regions, particularly in rural areas. By 1979, there was little difference by urbanization in HFHQ drinkers in each region. HFHQ drinkers were predominantly male in both 1964 and 1979, but while increases in the rate among males were concentrated in rural areas and non-central-city urban dryer areas, increases in the rate among females were concentrated in the wetter regions and particularly in rural areas. Neither sex-specific rates nor the sex ratio for HFHQ varied much by urbanicity in the wetter regions in 1979, while the sex ratio in dryer regions—generally higher than in wetter regions—increased in rural areas.

The increase in HFHQ drinking from 1964 to 1979 was concentrated among those aged 21–39 in both wetter and dryer areas, with HFHQ drinking diminishing among the elderly in wetter areas—particularly central cities—and remaining negligible in dryer areas. Unlike the pattern for most other comparisons, youthful HFHQ drinking in 1979 was least common in non-central-city urban areas. Rural wet-area youth show the highest rate of HFHQ drinking.

TABLE 6. Percentage of High-Frequency High-Quantity Drinkers (HFHQ; drink daily or nearly, and at least sometimes 5+ drinks), 1964 and 1979, among Those Aged 21 and over, by Region and by Urbanicity, and by Sex, Age, and Education[a]

	1964				1979			
	Central cities	Other urban	Rural	Total	Central cities	Other urban	Rural	Total
Total sample								
Wet regions	13	12	7	11	12	14	13	13
Dry regions	8	5	3	5	7	9	8	8
Males								
Wet	26	22	14	21	20	23	18	21
Dry	13	11	5	8	12	16	16	15
Females								
Wet	3	4	1	3	6	6	7	6
Dry	5	2	1	2	4	3	2	3
Aged 21–39								
Wet	15	10	6	11	18	15	23	18
Dry	10	6	4	6	16	10	14	12
Aged 40–59								
Wet	13	18	9	14	15	18	9	15
Dry	9	8	3	6	4	12	6	8
Aged 60+								
Wet	11	6	4	7	2	5	2	3
Dry	3	0	0	1	0	2	2	2
Less than high school grad.								
Wet	10	8	7	8	11	6	10	9
Dry	5	3	2	3	4	8	5	6
Hlgh school grad.								
Wet	17	14	5	12	13	14	10	13
Dry	10	9	3	6	5	9	8	8
Some college +								
Wet	17	14	11	14	14	19	21	18
Dry	9	5	4	6	15	9	19	12

[a] For base numbers, see Table 3.

Cohort comparisons of HFHQ drinking suggest that it did not diminish among those aged 21–39 in 1964 as they aged; in fact, except in central cities, the rate tended to increase. HFHQ drinking seems to have almost disappeared among those aged 40–59 in 1964.

The tendency of HFHQ drinking to be more common among those with more education had become stronger in 1979 than it was in 1964. HFHQ had risen among the college-educated in all locations except

wetter-area central cities, while most of the increase for the less educated was in rural areas. The highest rates of HFHQ drinking in 1979 were among the more rural college-educated.

ALCOHOL-RELATED PROBLEMS

To examine trends in alcohol-related problems, we must turn to a 1966 reinterview of a stratified selection of the 1964 national sample respondents, a study that constituted the first detailed nationwide survey on drinking problems (Cahalan, 1970). Since this sample had a minimum age of 23 in 1966, only those in the 1979 sample aged 23 and over were included in the present comparisons.

Our measure of alcohol-related problems was a current tangible-consequences score, adding together responses concerning the occurrence of 14 "drinking experiences" within the past three years. The items covered interpersonal, job, police, health, and accident problems seen by the respondent as related to the respondent's drinking, which were available in comparable form in both studies.* Tables 7 and 8 show results, respectively, for a score of 1+ (i.e. those who responded positively to any of the items) and for a score of 2+. A criterion of 2+ gave us more confidence in the validity of the score as a drinking-problem measure, but the combination of relatively low rates and smaller *N*s in some of the cells suggested that it would be prudent to present and examine also the "1+" results in making comparisons. We therefore examine both tables together.

* The items included the following, as asked in 1966, with weighted prevalence rate (in parentheses: 1979 version where different; 1979 weighted prevalence for those aged 23+): A physician suggested I cut down on drinking, 4.6% (2.3); (I) have got high or tight when on the job, 1.2 (1.9); (I have) stayed away from work (or gone to work late) because of a hangover, 1.9 (2.7); People at work (have) indicated (that) I should cut down on drinking, .9 (.9); (I have) lost a job, or nearly lost one, because of drinking, .2 (.2); Friends (have) indicated (that) I should cut down on drinking, 2.2 (2.4); (My) drinking contributed to my getting hurt in an accident (in a car or elsewhere), .3 (.3); (My) drinking contributed to getting involved in an accident in which someone else was hurt or property—such as an auto—was damaged, .2 (.7); Had trouble with the law about (I have been arrested for) driving after drinking, .5 (.9); Had trouble with the law about drinking, when driving was not involved (I have been arrested for being drunk), .5 (1.1); (I) spent too much money on drinks, or after drinking, 4.2 (2.0);—concerning a spouse who was concerned about the respondent's drinking (wished s/he drank less or acted differently when s/he drank):—(Did s/he leave you or kick you out) Actually leave you, .1 (.4); (Did she threaten to leave) Threaten to leave you, but without ever doing so, .5 (1.0); (Did s/he get angry about your drinking) Get angry about it but without threatening to leave, 1.8 (4.5). Positive responses in 1966 were those concerning "within the last year" or "within the previous two years," except the 3 spouse items were "within the last 2½ years"; in 1979, those concerning the "past 12 months" or "1–3 years ago".

TABLE 7. Percentage of Tangible Consequences Score 1+, 1966 and 1979, among Those Aged 23 and over, by Region and by Urbanicity, and by Sex, Age, and Education[a]

	1966				1979			
	Central cities	Other urban	Rural	Total	Central cities	Other urban	Rural	Total
Total sample								
Wet regions	16	11	7	11	12	13	10	12
Dry regions	11	10	7	8	13	9	9	10
Males								
Wet	23	15	8	16	14	23	15	18
Dry	16	12	10	12	16	13	15	15
Females								
Wet	9	7	7	8	10	4	5	6
Dry	8	8	4	6	11	6	4	6
Aged 23–39								
Wet	20	13	13	15	19	14	19	17
Dry	15	15	7	11	16	13	19	16
Aged 40–59								
Wet	19	12	6	13	12	12	9	11
Dry	10	9	8	9	18	7	4	8
Aged 60+								
Wet	3	4	2	3	4	11	0	6
Dry	7	2	2	4	6	7	2	5
Less than high school grad.								
Wet	17	10	4	10	12	14	6	11
Dry	16	7	8	9	11	11	7	9
High school grad.								
Wet	12	12	11	12	11	13	13	12
Dry	5	12	2	6	15	4	10	9
Some college +								
Wet	18	11	11	13	13	13	7	12
Dry	11	14	8	10	16	12	10	12

[a] For base numbers, see Table 8.

It can be seen that tangible consequences were not substantially more prevalent in the wetter regions than in the dryer regions, particularly when the more severe criterion is used. There seems to have been little change on this measure between 1966 and 1979. In 1966, tangible consequences were more common in central cities and less common in rural areas, in both wetter and dryer areas of the country. But in 1979, the range of variation by urbanicity had diminished for males, though not for females, at least at the "minimum

severity" level (Table 7). The preponderance of young adults reporting tangible consequences of drinking had somewhat increased in 1979, and the rural areas no longer showed a noticeably lower rate among young adults. Overall, tangible consequences rates continued to show a lower rate among those aged 60 and over, particularly at the "2+" level. In a comparison of those 23–29 in 1966 with those 40–59 in 1979, the rate of minimum-level tangible consequences appears to have diminished somewhat with increasing age. For all urbanicity and region

TABLE 8. Percentage of Tangible Consequences Score 2+, 1966 and 1979, among Those Aged 23 and over, by Region and by Urbanicity, and by Sex, Age, and Education

	1966				1979			
	Central cities	Other urban	Rural	Total	Central cities	Other urban	Rural	Total
Total sample								
Wet regions	7	3	3	4	5	3	6	4
Dry regions	7	5	4	5	3	4	5	4
Males								
Wet	13	5	5	8	8	6	10	8
Dry	12	2	7	7	6	6	9	7
Females								
Wet	3	0	1	1	2	1	2	2
Dry	3	6	2	3	1	2	1	1
Aged 23–39								
Wet	10	1	5	5	8	6	12	8
Dry	13	9	2	6	1	8	9	7
Aged 40–59								
Wet	8	4	2	5	6	3	4	4
Dry	6	3	7	6	2	1	4	2
Aged 60+								
Wet	2	2	2	2	1	0	0	0
Dry	0	0	2	1	5	0	0	2
Less than high school grad.								
Wet	8	2	2	4	8	5	5	6
Dry	10	6	7	7	3	4	3	3
High school grad.								
Wet	4	3	5	4	2	3	7	4
Dry	3	2	0	2	2	2	5	3
Some college +								
Wet	10	3	1	4	4	4	3	4
Dry	6	5	2	4	3	5	9	5

Continued

TABLE 8. (Continued)

Unweighted *N*'s, Those Aged 23 and over, 1966 and 1979

	1966				1979			
	Central cities	Other urban	Rural	Total	Central cities	Other urban	Rural	Total
Total sample								
Wet regions	270	326	200	796	276	393	198	867
Dry regions	134	165	264	563	156	260	310	727
Males								
Wet	145	176	108	429	116	178	91	385
Dry	67	88	167	322	64	110	129	303
Females								
Wet	125	150	92	367	160	215	107	482
Dry	67	77	97	241	92	150	181	424
Aged 23–39								
Wet	86	124	62	272	115	183	81	379
Dry	47	60	101	208	61	112	124	298
Aged 40–59								
Wet	119	139	93	351	77	135	60	272
Dry	49	70	116	235	45	95	105	245
Aged 60+								
Wet	65	62	45	172	84	75	57	216
Dry	38	35	47	120	50	53	81	184
Less than high school grad.								
Wet	138	101	96	335	94	76	61	231
Dry	41	79	138	258	68	81	143	292
High school grad.								
Wet	64	100	60	224	91	124	84	299
Dry	35	52	66	153	31	76	97	204
Some college +								
Wet	68	124	44	236	89	187	49	325
Dry	58	34	60	152	55	98	60	214

categories, rates of tangible consequences were lower for those 60+ in 1979 than for those 40–59 in 1966.

The rate of tangible consequences did not vary greatly by educational level in either 1966 or 1979. Nor did there appear to be clear patterns of variation by urbanicity or by region.

Overall, there was much less variation on the tangible consequences measures by region and urbanicity, or for that matter by educational level, than was shown by the abstention or the amount-of-drinking measures. There was also much less evidence of a trend in time than

TABLE 9. Index of Tangible Consequences per Amount of Drinking, 1964–1966 and 1979 (1964–1966 U.S. = 100), by Region and by Urbanicity, and by Sex, Age, and Education[a]

	1964–1966				1979			
	Central cities	Other urban	Rural	Total	Central cities	Other urban	Rural	Total
Total sample								
Wet regions	110	70	76	85	100	80	83	86
Dry regions	125	133	164	139	124	77	125	101
Males								
Wet	99	63	56	74	91	95	90	94
Dry	130	72	156	121	109	73	114	95
Females								
Wet	145	97	164	125	114	40	64	69
Dry	113	270	197	180	148	97	163	124
Aged 21/23–39								
Wet	108	72	104	92	110	81	93	93
Dry	142	163	94	131	67	92	135	101
Aged 40–59								
Wet	142	70	57	91	85	65	85	74
Dry	100	103	242	148	185	46	59	86
Aged 60+								
Wet	39	65	55	49	171	150	0	129
Dry	193	59	[b]	224	[b]	337	80	350
Less than high school grad.								
Wet	145	83	49	100	186	126	82	142
Dry	211	160	314	226	168	107	118	125
High school grad.								
Wet	66	72	102	75	76	78	102	84
Dry	53	93	37	64	145	39	130	88
Some college +								
Wet	101	62	87	78	80	67	36	66
Dry	117	171	97	120	91	88	87	88

[a] Index is computed as specified in footnote on p. 588.
[b] Denominator is zero.

for the amount-of-drinking measures. As noted in earlier work (Cahalan and Room, 1974), this finding implies that a given level of drinking behavior is associated with more tangible consequences in dryer than in wetter cultural environments (see also Christie, 1965; Mäkelä, 1978). A rough comparison of this ratio of tangible consequences to heavy drinking behavior can be seen in Table 9, drawing on the measures used in Tables 5–8, and transforming the ratio so that it is indexed to

a value of 100 for the United States as a whole in the 1960s surveys.* It will be noted that the data for the numerator and the denominator are drawn from different waves of data collection in the 1960s and from different selections of the sample in both decades, so that Table 9's results must be viewed only as suggestive.

For the country as a whole, if the weighted ratio of tangible consequences to relatively heavy drinking is indexed at 100 for the 1960s surveys, it had fallen to 91 in the 1979 survey. The first lines of Table 9 show that this decrease in consequences for a given amount of drinking was specific to the dryer regions of the country, and in particular to the rural and non-central-city areas of these regions. Patterns by gender show some interesting differentiations; while consequences per amount had increased among males outside central cities in the wetter regions—so that in these regions, there were no differences for males by urbanicity—the consequences per amount had decreased for females in all settings except dry-region central cities. While in the 1960s data, the index showed a substantial difference between the wetter and dryer regions—and even more between the two sexes—in 1979, the regional differences had disappeared among males, and females in the dryer regions (but not in the wetter regions) appeared to be less likely than males to suffer adverse consequences for a given level of heavier drinking.

Among those aged under 40 in the dryer regions, there appears to have been a reversal between the 1960s and 1979 in the relationship with urbanicity, so that trouble was more likely for a given level of drinking in rural areas in 1979. Among the middle-aged, the index shows much-reduced differentiation between the dryer and the wetter regions in 1979, while among the aged, where the index is unstable because of low rates of heavy drinking, it tended to increase between the 1960s and 1979. If we treat the age-group data as a rough cohort analysis, trouble per amount fell substantially except in dry-region central cities for those in their 20s and 30s in the 1960s. Conversely, for those middle-aged in the 1960s, trouble per amount rose in urban areas, although it fell in rural areas.

While the index showed big differences between regions in the 1960s for those with less than a high school education and for the college-educated in urban areas, by 1979 the relation among those with the least education had been reversed, particularly in urban areas.

* The numerator was constructed by assigning 1 point for tangible-consequences score 1 and 2 for scores 2+; the denominator by giving 1 point for high-quantity drinking and 2 for high-frequency high-quantity drinking. The result was multiplied by 214.5 to index the ratio at 100 for the 1960s data.

While trouble-per-amount rates had generally remained stable for those with a high school education, the rates fell among the college-educated, except in wetter-region non-central-city urban areas.

Overall, the differences between urban and rural areas in drinking, heavier drinking, and drinking-related problems that existed in the 1960s survey data were considerably muted in the 1979 survey and, indeed, had nearly disappeared in the wetter parts of the United States. If we compare the wetter and dryer regions, the reported rates of alcohol-related problems were nearly equal both in the 1960s and in 1979, but the rates of heavier drinking in the dryer regions were converging with the rates in the wetter regions, so that the ratio of alcohol problems to heavier drinking was also converging with the ratio in the wetter regions. The survey data on convergence, primarily in the form of a "wettening" of the dryer areas, are supported by data on regional trends in per capita consumption in the same period (Table 4).

Against these trends must be set the persistence of regional differences in the proportions of abstainers. In 1979, as in 1964, there were almost twice as many respondents who did not report current drinking among adults in the dryer regions as there were in the wetter regions of the country. The conjunction of data must be seen as surprising and as posing puzzles for future work. It might have been expected that rates of drinking at all and rates of heavy drinking would vary together, reflecting a general "wettening" trend. Instead, the situation in the United States now appears to be that the regions with the greatest proportion of abstainers have the heaviest consumption per drinker. In the presence of so many abstainers, the increased drinking in the dryer areas of the country might have been expected to have produced more adverse reactions and thus to have resulted in a higher rate of tangible consequences. Instead, increases in heavy drinking do not seem to have produced commensurate increases in the tangible consequences of drinking. There are still "two countries" in the United States, wet and dry, with respect to the *fact* of abstention. But the *meaning* of abstention may have changed: it may now be more a private matter and less a public stance, as it was already in the 1960s for abstainers in the wetter areas of the country (Knupfer and Room, 1970). In the dryer areas of the country, alcohol may have been turning from a public issue (Gusfield, 1981) back into a private concern—just at the moment when there were small signs of a movement in the other direction in the wetter areas.

In view of the persistence of abstention in the United States in the last 30 years, it seems hazardous to predict any changes. But there are some indications of a potential decline. Comparing a 1979 survey in

Iowa (a state in the "dryer region" in our analysis) with earlier surveys in 1958 and 1961, Fitzgerald and Mulford (1981) found that abstention had dropped from 42% in the earlier surveys to 26% in 1979. Whereas abstention had been higher in rural areas in the earlier surveys, in 1979 the proportion of abstainers among farm residents equaled that among city dwellers. A general impression emerges from the present analysis, from Nusbaumer's analysis (1981), and from the 1964–1970 neighborhoods comparison (Room, 1979) that the rate of abstention is holding steady where there are multiple bases of support for it (e.g., religion, geographic location, and demographic category) but is eroding where the bases are fewer (e.g., among Baptists or Methodists living in big cities or wetter areas; Nusbaumer, 1981). President Carter's compromise of serving wine but not spirits at White House functions was perhaps emblematic of such an erosion, in the case of a Southern Baptist living in a wet city. Lastly, in the data presented here, abstinence does seem to have fallen between 1964 and 1979 among the younger adults in the strongholds of abstention, that is, in the rural parts of the dryer regions. However, against these indications of a possible future decline in abstinence must be set some scattered signs of reemergent dryer sentiments in recent years (Mäkelä *et al.*, 1982), symbolized in the United States by the reraising of legal drinking ages in a number of states.

REGIONAL DIFFERENCES IN AN INTERNATIONAL PERSPECTIVE

The United States is a large and diverse country, and thus it is perhaps not surprising to find large regional differences in its drinking patterns. But regional differences are also often strong in much more compact countries. For instance, in a 1962 survey of Norway, Wallace (1972) found big regional variations in abstention between the traditionally dryer southern and western parts of the country and the wetter eastern and northern parts. In terms of regular (weekly) drinking, the contrast was between the east (including Oslo, by far the largest city) and the other areas. In the United Kingdom, regional comparisons seem to reverse the U.S. findings. While there are only small regional variations in the rate of abstention (Social Survey Division, 1980, p. 144; Wilson, 1980, p. 12), there are considerable differences in the rate of heavier drinkers (Social Survey Division, 1980, p. 139; Wilson, 1980, pp. 30–31) and highly related variations in social-statistics measures of alcohol-related problems (Kilich and Plant, 1981; Wilson, 1980, p. 30), with Scotland and the north of England showing rates much higher

than the south of England. Unlike the U.S. patterns, within England, at least, variations between the regions in social statistics on alcohol problems (drunkenness convictions, admissions to mental hospitals for alcoholism, cirrhosis mortality) directly mirrored variations in the rate of heavy drinking (Wilson, 1980, pp. 25, 30). On the other hand, while there are substantial variations in cirrhosis mortality and in the choice of alcoholic beverages between the different regions of France, Sadoun *et al.* (1965, pp. 39–44) found surprisingly little difference in the average amount of absolute alcohol reported as having been consumed the previous day. Nukada (1972, p. 39), in his analysis of social-statistics data for Japan, found big differences in alcohol consumption by region, cross-cutting relationships with urbanization. Analyzing survey research data for Switzerland, Wüthrich (1976) and Wüthrich and Hausheer (1977) found more abstainers in German-speaking than in French-speaking areas, but also found substantial differences between regions within the German-speaking areas; abstinence in the "mountain region" was almost twice the rate for the rest of Switzerland. Big regional differences were also found in beverage choices and drinking frequency (Wüthrich and Hausheer, 1977, p. 25). A recent compilation of Canadian alcohol statistics (Expert Committee on Alcohol Statistics, 1981) shows substantial differences by province and region in alcohol consumption, alcohol-related problems, and the density of the alcoholism treatment system.

With few exceptions, these analyses were relatively minor parts of larger analyses and were often presented without much analytical comment. As in the United States, the literature on regional variations tends to be scattered and pitched at the level of raw description.

URBAN–RURAL DIFFERENCES IN AN INTERNATIONAL PERSPECTIVE

There is a strong tradition of assumptions in the English-language literature that the cities are wetter and the countryside is dryer. This tradition draws on long-standing Arcadian imagery of the evil of the city and the innocence of the countryside—an imagery applied to alcohol in the wake of the eighteenth-century London of "Beer Street, Gin Lane" (Coffey, 1966) and of the nineteenth-century's identification of alcohol with depravity. Indeed, the particular virulence of religious revivals in rural districts in the United States and elsewhere in the nineteenth century (Cross, 1950) produced a very strong tradition of rural abstinence in many places. The rural base of the American

temperance movement in the later nineteenth century and afterward is proverbial, and there is a substantial tradition of historical interpretation of the movement of this era as a "symbolic crusade" for small-town nativist values against those of the immigrant-populated cities (Gusfield, 1963). In Hofstadter's (1965) jaundiced view, the "crusading debauch" of Prohibition "was carried about America by the rural-evangelical virus: the country Protestant frequently brought it with him to the city when the contraction of agriculture sent him there to seek his livelihood" (pp. 289–290).

But it is clear from both the historical and the international literature that there is no necessary relation of rurality to abstinence or moderation in drinking. In fact, wherever there is a strong tradition of rural fermentation or distilling, as in the eighteenth-century United States (Rorabaugh, 1979), the opposite may well be more likely. Święcicki (1972) found the towns and countryside in Poland in 1962 fairly evenly matched in terms of proportions of abstainers and of heavier drinkers. Similarly, Sadoun *et al.* (1965) found that, while there was a lot of variation between urban and rural areas in France in 1956–1957 in the choice of alcoholic beverages for drinking and heavier drinking (rural men drinking more wine but less beer), the net result, in terms both of the proportion drinking on a given day and of the amount of alcohol consumed, was a considerable uniformity for both sexes between urban and rural patterns (p. 36). Using cross-sectional per capita consumption comparisons for Japanese prefectures, Nukada (1972) found, contrary to his expectations, no correlation with the degree of urbanicity. On further analysis, this null relationship represented the summation of two conflicting urban–rural relationships: a strong positive association of urban areas with the consumption of "external liquors" (whiskey, beer, etc.), and a negative relation with consumption of "traditional liquors"—sake and shochu (p. 41). Examining drinking patterns in communities in three very diverse societies (Mexico, Scotland, and Zambia) the World Health Organization study of "Community Response to Alcohol-Related Problems" (WHO, 1981) did not find great differences in drinking or amount of drinking between the urban and rural portions of the survey samples in any of the countries. Where there were differences, the rural area often tended to be "wetter"; thus, alcohol-related problems were more often reported by males in the rural than in the urban areas in both Mexico and Scotland.

On the other hand, studies in the Nordic countries—at least as strongly affected as the United States by the temperance movement historically—in the quarter century after World War II did find more abstainers in rural than in urban areas. Wallace (1972, p. 133) reported

a substantial relation between rurality and abstention in Norway in 1962, with a good deal of this relationship apparently collinear with variations in religiosity and in income (p. 137) and by region of the country (p. 142). For both abstention and regular drinking, as is true for the United States (see above), differences between urban and rural areas appeared stronger in the dryer regions of the country than in the wetter, eastern region. Among Finnish males in 1968, abstention was considerably more common in rural than in urban areas, particularly among those aged 40 and over (Mäkelä, 1971, p. 3). Among drinkers, after controlling for occupational prestige, lighter drinking patterns were more common in rural areas, and positive scores on alcohol problems were generally less common. The association of heavy drinking patterns with urban residence was replicated in a 1976 Finnish survey (Simpura, 1979). In the 1968 survey, there did not appear to be substantial urban–rural differences in the association of drinking-related problems with a given level of consumption or with a report of difficulty in controlling drinking (Mäkelä, 1971, p. 4). On the other hand, correlating social statistics on arrests for drunkenness with survey reports of the frequency of intoxication in 1969 and 1976, Säilä (1979) found that a given drunkenness episode was far less likely to result in an arrest in a rural area than in an urban area—with some signs of urban–rural convergence between the two data-points. Examining trends in Finnish drinking patterns from 1946 to 1976, Sulkunen (1979) found some diminution in the differences for lifelong abstention between rural and urban areas, although in terms of percentage differences the rural–urban divergence in having taken a drink in the last month did not change (p. 17). Abstention is strongly related to age in Finland, and by 1976, the rural–urban difference in abstention rates (11% vs. 8%) was totally explained by the different age structures of the urban and rural populations (p. 23).

International and historical data thus suggest that it is clearly erroneous to assume that there is something inherent in rural living that promotes abstention or moderation in drinking. Urban–rural differences reflect the particular historical circumstances and cultural situation in which the comparison is being made. If we are to search for inherent differences between the city and the countryside affecting drinking, we must look more for conditioning tendencies than for causal determinants. In fact, the circumstances of traditional rural life in many places might be seen as tilted against abstention or moderation. The materials for making alcohol are more freely at hand for the rural dweller. In many societies, those in rural areas who are participating in the cash economy may find it more difficult than urban dwellers to

spend the cash productively on durable goods rather than on drinking. Those outside the cash economy, who are relying on the indigenous preparation of alcoholic beverages, may find the supply sporadic and subject to spoiling—both factors that encourage a style of periodic drinking binges.

At another level, rural–urban differences may often reflect a cultural lag. Lifestyle trends often (not always) come into a culture in the big cities and trickle out to rural areas. In this sense, urban–rural differences are often the contemporaneous reflection of differences in a society's historical relationship to drinking. In our era, rural–urban differences appear to have been particularly strong in countries affected by the international temperance movement of the late nineteenth and early twentieth centuries, in all its various manifestations—including influence through colonial relationships, as in India. In Poland, France, and Japan, where the studies cited above suggest an absence of large urban–rural differences in amount of drinking, there was no history of a strong mass temperance movement with a potential for lingering on in rural areas.

ALCOHOL AND THE PROCESS OF URBANIZATION

The argument that the *processes* of urbanization and industrialization provide an explanation for social problems—and in particular for alcohol problems—is perhaps even more popular in modern discussions than the argument that the *facts* of urban life and industrial work produce the problems. For instance, discussing what they view as an extraordinarily high rate of alcoholic psychosis in Finland, Achté *et al.* (1969) invoked migration to the cities as an explanation:

> Until very recently the Finnish culture has had a predominantly rural character. Today, however, Finnish society is in a rapid process of transition from an agrarian and rural toward an industrial and urban type of culture. . . . At present only 27 per cent of the inhabitants [of Helsinki, the capital] are persons born there. Urban culture is freer than rural culture. It permits more freedom, but it is also more apt to create ambivalent situations and situations of conflict for those accustomed to different kinds of norms. (pp. 48–51)

Mäkelä and Österberg (1976) picked up the same line of argument in explaining why Finns spend more of their income on alcohol than Swedes:

> Alcohol is traditionally more used in cities. When there is a transition to a city culture, it can lead to urban drinking habits becoming more

> common. But this . . . doesn't help in understanding why consumption in Finland has outdistanced that of Sweden. In Sweden a large number of people live in cities. . . . Attention should be directed not only to the level of urbanization, but also to migration itself as an event. Migration from the country to the city cuts off ties with the cultural milieu of the family and childhood and encourages social isolation. Cultural insecurity and social isolation can increase the need to use alcohol. . . . The earlier industrialization occurs in a country and the more consistent the process of development, the less cultural and political traditions change. . . . Alcohol became more accessible in Finland at the moment that a big part of the population broke with their old social ties, while at the same time becoming more vulnerable to the general possibilities of alcohol consumption. (pp. 44–45)

Somewhat against this line of explanation, Sulkunen (1979) pointed out that the decline of abstention seems eventually to have been as dramatic in the Finnish countryside as in the city (see pp. 17, 32, 42): while generational shifts toward a wetter society may have begun in the cities, they eventually diffused back to the countryside.

Empirical data on the relation of drinking practices and problems to urbanization as a process are far from abundant. Often, the major empirical support for an argument of relationship (as in Mäkelä and Österberg, 1976) is the coincidence or correlation in time of a rise in the proportion of a population living in cities and an increase in alcohol consumption or problems. Finding a relatively straight-line increase in per capita consumption in Japan in the period 1950–1970, Nukada (1972) compared the trends in the same period for economic development (curving upward) and urbanization–industrialization (straight-line) and concluded that "it is apparent that alcohol consumption is more closely related to the process of urbanization or to that of industrialization than to economic growth itself" (p. 34). However, noting that the economic development indexes "may also form a straight line if they are plotted on a logarithmic scale," Nukada also spelled out a competing hypothesis: "per capita alcohol consumption may increase proportionally with a relative rise in these economic indices. . . . People may use their money for drinking only in proportion to the relative increase of their income, not in proportion to its absolute increase" (pp. 35–36).

As we have already mentioned, in a cross-sectional analysis of alcohol consumption patterns and urbanicity conducted in 1970, Nukada (1972) found a total lack of correlation with per capita absolute alcohol consumption, although "traditional liquor" consumption was associated with rural residence and "external liquor" consumption with urban. In general, in the 20-year period, the consumption of the two

classes of liquor increased at about the same rate (with a shift to lower alcohol-concentration beverages—sake and beer—in each class; p. 38), and it is stated that the cross-sectional relationship had the same form throughout the 20-year period (p. 43). If we can regard trends in the two classes of liquors as surrogates for rural and urban consumption trends, respectively, this finding could be regarded as evidence that the increase in consumption is *not* related to the process of urbanization—at least in the direct sense that the increase in consumption is specific to urban immigrants or to the growing urban population. As with Sulkunen's data in the Finnish case, an argument that industrialization and urbanization have increased the drinking in Japanese society apparently must be couched in terms that would explain an increase in rural and unindustrialized populations at least the equal of the increase in the urbanized and industrialized populations.

Such an argument is indeed possible and plausible. Studies of the processes of urbanization and development have sensitized us to the fact that the rustification of the city by "urban villagers" and the urbanization of the countryside through the urban immigrants' regular trips back to the village are both potent instruments of homogenization. But such an argument takes on the broader sweep of discussions of alcohol and "modernization" (see Mäkelä *et al.*, 1982, and Susanna Barrows's argument in Room, 1981), rather than focusing specifically on the psychological state, the normative environment, or the pocketbook of the urban immigrant. And such an argument must take account of the fact that urbanization or modernization has not always been accompanied by an increase in alcohol consumption or problems. Specifically, as Mäkelä *et al.* (1982, Chapter 2) noted, at the beginning of the twentieth century,

> a decline in consumption is recorded roughly within the same period in countries at different stages of economic development and representing a wide variety of alcohol cultures. . . . None of the factors commonly forwarded as explanations for drinking or problematic drinking, such as buying power, the amount of leisure, social misery or industrialization and urbanization, present patterns of variation over time similar to those in alcohol consumption.

Direct evidence on the behavior of those migrating between the countryside and the city is sparse. Wüthrich (1976, p. 92), lumping together in his analysis Swiss respondents who had migrated from the country to the city and those migrating in the opposite direction, found half as many abstainers among migrants as among others but found no differences in heavy drinking. In the 1964 United States nationwide sample, Cahalan *et al.* (1969, pp. 44–46) found that moving to a bigger

city, in comparison with the size of the place of residence when under age 16, was associated for both sexes with a lower rate of abstention–infrequent drinking. But moving in the opposite direction did not reverse the effect; in fact, those aged 45 and over moving from large cities to smaller places showed lower rates of abstention–infrequent drinking than those who stayed in the large cities. Older male and younger female urban migrants did show a higher rate of heavy drinking than those who stayed in smaller places, but this was not true of younger male and older female urban migrants. A later analysis, combining 1966 and 1969 data on U.S. males in an examination of patterns of abstinence, "heavy intake" (heavier drinking), and tangible consequences of drinking, found that

> in the country as a whole . . . abstinence is commoner in those brought up in places of small population, no matter what their current residence. Tangible consequences, on the other hand, are associated with the urbanization of present residence rather than with the size of place of upbringing. But the ratio of heavy intake without consequences to tangible consequences is greater among those brought up in large places, no matter what their current residence. The interaction of these patterns indicates a high probability of social consequences of a given behavior among those who were brought up in rural areas or towns but now live in cities. . . . The patterns described . . . are muted in wet regions and correspondingly intensified in dry regions. . . . The comparison between the two categories of change on the ratio of behavior to consequences is particularly dramatic in the dryer regions.
>
> These data suggest that whether one drinks at all, and perhaps also the general pattern of drinking, are related more to the character of the place of upbringing than to the place in which the respondent resides as an adult. The prevalence of tangible consequences of drinking, however, appears to be more related to the adult place of residence and to be particularly high among those in dryer regions who were brought up in the country but now live in the city. . . . This finding, of course, says nothing to the issue of cause: we still do not know if the moving produces the problems or if those already with problems gravitate to the city; perhaps both processes are at work. But we do know that the pattern seems much stronger in a region of the country characterized both by traditional temperance attitudes and, at least in the South, by recent rapid urbanization and industrialization. (Cahalan and Room, 1974, pp. 87–89)

As in most discussions of the process of urbanization, these analyses assume that migration from the countryside to the city is an integral part of the process. But often, in fact, this is not the case; instead, it is the city or the industrial development project that moves in on the countryside, transforming the social relations that fall in its path. Where

indigenous cultures lack power in such a situation, the effect has often been devastating, with alcohol often acting as a prime instrument of demoralization. In blunt terms, Benjamin Franklin noted the mechanism at work in colonial America's incursions on Indian territories: "If it be the design of Providence to extirpate these savages in order to make room for the cultivators of the earth, it seems not improbable that rum may be the appointed means. It has already annihilated all the tribes who formerly inhabited the seacoast" (quoted in Mosher, 1975, p. 12).

But where those in the path of the development do have some collective control over the process, the results can be quite different. For instance, the major oil-field development in the Shetland Islands was closely controlled and monitored by local government authorities. A study of the effects of the development on drinking patterns suggests that in the particular circumstances of the Shetlands, the new affluence did bring a rise in the frequency of drinking by local inhabitants—but apparently no rise in the incidence of problematic drinking (Caetano *et al.*, in preparation). For the pattern of "boomtown" development, as for migration to the city, there seems to be no single scenario for the relation with drinking practices and problems. As a recent review of "sociocultural and economic change in relation to alcohol problems" (Moser, 1981) noted, it cannot be assumed that the process of urbanization always involves "psychosocial maladjustment". Drawing on Juan Negrete's observations in Argentina and Chile, the review suggested that in those countries

> alcohol abuse is a problem of greater importance in the rural areas. . . . Urbanization is likely to have a beneficial influence on the behavior of individuals from rural areas in Latin America, who may find greater support in the cities. Poverty, unemployment, seasonal and nomadic patterns of occupation, the absence of organized social resources, are factors that make living in Latin American rural regions frequently more stressful than in urban centres. (Moser, 1981, p. 166)

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