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Alcohol Control and Public Health

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ALCOHOL CONTROL AND THE FIELD OF PUBLIC HEALTH

Fifteen years ago, the American Public Health Association published a Guide to Community Control of Alcoholism (19). The guide is a faithful reflection of received wisdom on the topic at the time. While it begins with a general discussion of "beverage alcohol use in American society," in terms of public health action its single-minded emphasis is on setting up a publicly supported institutional system and capacity for the treatment of alcoholism. In the course of a two-page discussion on the "prevention of alcoholism", there is a brief and arms-length mention of "laws and regulations" as an element on the landscape that the health planner must "take . . . into account." The guide comments,

> Regulatory bodies in states and communities have adopted a wide variety of measures aimed at limiting or restricting the use of alcoholic beverages, but there is no evidence that these laws have any substantial effect on the rate of alcoholism (p. 94).

Two years earlier, at the American Public Health Association (APHA) meetings of 1966, Milton Terris had presented a paper showing strong evidence of temporal relations between the level of alcohol consumption in a population and the mortality from liver cirrhosis. The paper concluded by arguing in guarded terms that "governmental fiscal and regulatory measures can be effective in reducing alcohol consumption and lowering mortality from cirrhosis of the liver" (103). Although the paper was eventually published in the American Journal of Public Health, its initial handling by the official organs of the APHA was extraordinary: Terris' paper was omitted from the published proceedings of the session at which it was presented, although over half of the prepared discussion, which was published, focused on Terris' "provocative analysis." Citing various pieces of counterevidence, the discussant joked about "having a drink or two" after the session "before some impulsive local government is led by Dr. Terris' skillful presentation" to alter alcohol control laws, and suggested that, as with a possible association of cervical cancer with frequency of intercourse, there might be knowledge better left unknown: "The implications for prevention - if this were a factor - [might be] just too horrible to endure. I think most of us have a similar feeling about alcohol" (24). Since this discussion was being published without the paper to which it referred, the journal editor felt impelled to add a footnote giving a reference to the paper. He took the occasion to further dissociate the official organs of public health from any policy implications of Terris' paper:

> A summary of Terris' paper appeared in the APHA 1966 conference report issue of Public Health Reports, March, 1967, Vol. 32, No. 3. The summary in Public Health Reports carries the headline, "Restrict Alcohol Availability to Reduce Liver Cirrhosis", and refers to a paragraph toward the end of Terris' mimeographed paper -- a paragraph which was not read at the meeting, although the full mimeographed paper, which included this paragraph,

was distributed to the press (See 78).

New Perspectives on Alcohol and Public Health

In the intervening 15 years, a substantial revolution has occurred in public health approaches to alcohol issues. The new directions of thinking about the prevention of alcohol-related problems depart from the previous consensus in a number of ways.

(1) A central feature has been the shift from a focus on "alcoholism" to a focus on "alcohol-related problems" or "alcohol problems." This shift involves the recognition that dealing with alcoholism is not by itself an adequate response to the public health and public order problems related to drinking. As a 1979 WHO Expert Committee report put it:

> Until recently, there has been a widespread tendency to conceptualize the whole gamut of alcohol problems as manifestations of an underlying entity, alcoholism. Undoubtedly a wide variety of problems are related to the development of the "alcohol dependence syndrome". . . . It should be pointed out, however, that there are many physical, mental and social problems that are not necessarily related to dependence. Alcohol dependence, while prevalent and itself a matter for serious concern, constitutes only a small part of the total of alcohol-related problems (113).

In part, the shift reflects empirical findings: that, unlike the patterns in clinical populations, in the general population "there is not a great amount of overlap between different types of problems with drinking. . . . This suggests that no single programmatic framework will serve all those with identifiable problems from drinking. . . . When the traditional unitary notion of 'alcoholism' is disaggregated, there are differences in the correlates of different aspects of it" (72). As a recent National Academy of Sciences report demonstrated, although the heaviest drinkers show the highest rates of alcohol-related problems, the fact that there are larger numbers of lower-quantity drinkers means that in absolute terms the latter account for more alcohol-related problems (60). This implies that the target populations for preventive policies are considerably more inclusive than just the very heaviest drinkers.

In part, the shift also reflects a recognition that thinking about prevention only in terms of the classical conception of alcoholism unduly constrained the spectrum of choices available for preventive policies.

> The disease concept divides the population of drinkers into two classes: "alcoholics" and all other drinkers. . . . Preventive efforts . . . revolve primarily around casefinding for "hidden alcoholics" in the general population, in order to get them into treatment. . . . The logic of the disease concept requires that other preventive measures beyond casefinding be seen as utterly irrelevant to the behavior of the alcoholic, since the disease of alcoholism is defined by the individual's complete inability to control his drinking no matter what incentives or deterrents are brought to bear (74).

The shift to an "alcohol problems" perspective was already under way by 1967, when the Cooperative Commission report, entitled not "alcoholism" but rather Alcohol Problems: A Report to the Nation, was published. Although the APHA Guide to the Community Control of Alcoholism referred to this report, it did not take notice of the shift in perspective. It was not alone in this: the Cooperative Commission members "were continually frustrated by their inability to gain the cooperation of the mass media in promoting their ideas" (41).

(2) The new departures have also reflected a renewed emphasis "on the health

consequences of alcohol use (particularly cirrhosis and traumatic deaths)" (60, p.13). In an alcoholism perspective, cirrhosis mortality had been interesting only as a potential indicator of something else - as in the "Jellinek formula" for the prevalence of alcoholism (70). Furthermore, the longstanding societal emphasis on the social problems associated with drinking, such as the consequences for the alcoholic's work performance and family life, had tended to overshadow attention to the role of alcohol in chronic illness and casualties. Comparing the strong focus on cigarette smoking as a risk factor in the modern public health literature with the weaker attention to alcohol (for instance, in the indexes of three widely used epidemiology texts (50,55,57), alcohol receives a total of three references, while cigarette smoking receives 42), the very breadth of the range of alcohol-related problems may paradoxically have tended to blunt public health attention to their prevention.

In recent medical discussions, the focus on the hazards to physical health from alcohol consumption has been greatly sharpened (e.g. 22,32,105); in fact, medical advice now sometimes takes on a tone reminiscent of nineteenth century temperance publications. Generally speaking, public health oriented discussions of health consequences of drinking have retained a more cautious tone.

(3) The new perspectives also involved a shift to a perspective in terms of overall societal "alcohol policies," including a renewed interest in "alcohol control." The idea that there might or should be a societal "alcohol policy," including what came to be called "alcohol control" measures and structures, first emerged in the last decades of the nineteenth and early decades of the twentieth century, largely as a reaction against the alternative of alcohol prohibition (48,85). But in recent decades the institutions that this earlier public health oriented movement left behind - such as the Alcoholic Beverage Control (ABC) systems in every North American state and province - were widely regarded, as in the 1967 APHA publication, as irrelevant to public health concerns, and in fact as vestigial curiosities. Although the Cooperative Commission directed some attention in their direction (116), only in the last decade has their relevance to public health concerns gradually come into focus again (see, for example, (15,56)).

"Control" and Alcohol: An Ambiguous Term

For those accustomed to the broad meaning assigned to control in general public health discussions -- as exemplified in the range of topics covered under the rubric of "control of cigarette smoking" in volume 3 of the Annual Review of Public Health -- it should be noted that "control" in the context of alcohol has a variety of more restricted meanings and nuances (79,81,117). "Loss of control" is at the heart of the disease concept of alcoholism, and this sense of "self-control" is also carried by the controversial phrase, "controlled drinking". In the sociological literature, "social control" refers to the processes of construction and enforcement of a society's normative framework; in this sense, "alcohol and social control" can clearly have at least two meanings: the social control of alcohol-related problems, or the role of alcohol in social control in general. As already noted, "alcohol control" has a specific historic meaning that continues today in such usages as "alcoholic beverage control systems", referring both to governmental distribution monopolies and to other specific state agencies with responsibility for regulating the production, distribution and sale of alcohol. To add to the confusion, the 18 U.S. states that have partial alcohol distribution monopolies are known as "control states", as distinguished from "license states" (56). In recent discussions in the research literature, "alcohol control" has been broadened to mean any intervention

by the state in the market for alcohol (54). In a public health context, "alcohol control" presumably would also include programs aimed at influencing the demand for alcohol -- educational programs, for instance. It is not clear, however, that the phrase evokes the whole range of possible means of preventing alcohol-related problems. The phrase tends to focus attention on state action, and thus away from autonomous shifts in popular sentiment, self-help actions, etc. The phrase also implies focusing on the drinking or alcohol element in a problem as the lever for prevention, and thus does not evoke such strategies as diminishing others' concerns about the drinker's behavior, or insulating the drinker from harm. For many alcohol-related problems, affecting drinking behavior may not be the most effective means of preventing the problem.

The Reemergence of Alcohol Control as a Policy Issue

In recent years, discussion of "control" in a public health perspective in the alcohol field has primarily been concerned with the efficacy and ethics of state controls of the production, distribution and sale of alcohol -- notably including control of price through taxation -- as a means of preventing alcohol problems. While this had long been a topic of interest in the Nordic research literature (e.g. (44)), the modern North American interest in the topic can most clearly be traced back to a 1960 article by Seeley (90). As will be discussed below, the topic became entangled with a debate over the distribution of alcohol consumption in the population, but by the early 1970s researchers were undertaking reviews of the available literature on the effects of alcoholic beverage controls (71,77). Perhaps the most widely noted of these reviews, by an international group of researchers, appeared in 1975 (12). This review concluded that

> changes in the overall consumption of alcoholic beverages have a bearing on the health of the people in any society. Alcohol control measures can be used to limit consumption: thus, control of alcohol availability becomes a public health issue (pp. 12-13).

In the latter part of the 1970s, arguments along this line, written by or with a strong input from those working specifically in the alcohol field, began to appear in various more general public health frameworks (5,6,60,113). Although the argument has met with some resistance and criticism (68), notably from beverage industry interests (58), it has made steady headway within the alcohol field. Thus the U.S. National Council on Alcoholism (NCA), in a "dramatic shift" from its "previous stand", recently adopted a policy favoring such control measures as increased alcohol taxes and curbs on alcohol advertising. In support of the policy change, the NCA stated:

> Today's environment is permeated by more than a billion dollars of advertising which either directly or indirectly encourages the consumption of alcoholic beverages, and has promoted positive messages about alcohol use in the arts, the media and society as a whole. Drinking is associated with the "good life", with health, with success, and with sexuality. In addition, this has been matched by a general trend of relaxation of controls on availability and price of alcoholic beverages which has, in turn, been followed by steady and frightening increases in alcohol-related problems. . . . These problems are broadly based, and cannot be effectively approached except through broad, general measures of prevention policies. Problems of this magnitude affect not just particular groups of Americans, but affect nearly every American (3).

Roots of Resistance to the New Perspectives

Within the alcohol field, thinking about alcohol and public health has undergone a revolution.

But the revolution is incomplete; it is as yet largely confined within the alcohol field, and the new perspectives have encountered substantial resistance, not only in the wider society, but also in the general thought and institutions of the public health field. At both national and international levels there is a growing disjunction between the research findings and the political process, both within the public health establishment and outside it. In a variety of political frameworks, the result has been the suppression of unpalatable policy-oriented research reports. Thus an official report on alcohol policy in Poland gathered dust on a shelf until the change of government in the wake of Solidarity allowed its publication (107). A 1979 report on Alcohol Policies by the British Central Policy Review Staff only found publication in Sweden, beyond the reach of the U.K. Official Secrets Act (11). In the United States, the 1978 proposal by the Director of the U.S. National Institute on Alcohol Abuse and Alcoholism of a national goal of stopping any further increases in per-capita alcohol consumption was deflected under political pressure (115), and contributed to his forced departure from office (83). After publicity in the press (106), the World Health Organization cancelled plans to publish a report on multinational corporations in the alcohol trade (13,59), and halted further work on a project on public health aspects of alcohol availability (114).

In the U.S., the disjunction between the research literature and the policy status quo has arisen at multiple levels. Vested economic interests are of course at stake, but they have been by no means the only sources of resistance to new approaches. Much of the resistance must be seen as derived from the political and cultural reactions to the period of national Prohibition of alcohol sales in the U.S. (1919-1933). Of central importance here was the decisive turn of middle-class youth against Prohibition and towards drinking as a personal behavior in the last years of the 1920s. Alcohol became the symbol of a cultural divide in the country, with drinking becoming identified with progressive, urban, middle-class lifestyles (82,93). Those entering the field of public health after 1930, in common with other middle-class professionals and intelligentsia, would have been predisposed against any position or action which seemed to lend comfort to what were seen as the reactionary and sectarian politics of the temperance movement.

The general political response on alcohol issues in the wake of Repeal was avoidance: alcohol was an issue on which a politician was bound to antagonize someone. When a movement began to emerge in the 1940s, centered initially at the Yale Center for Alcohol Studies, to promote acceptance of state responsibility for alcoholism treatment, this purposive apathy in the larger society was seen as the main stumbling block for their proposals. Given the politicocultural climate, the movement was at some pains to distinguish itself from the temperance movement; the problem, it was said, was "in the man" and not "in the bottle". Alcohol problems were defined in terms of the individual's experience of loss of control over drinking; this "alcoholism" was to be the object of public health activities. "Alcoholism" was seen as being due to a "predisposing X factor" which forever differentiated "alcoholics" from "normal drinkers". In this fashion, the drinking patterns of "normal drinkers" were defined as irrelevant to the question of alcoholism, and conversely alcoholics were defined as immune to deterrents or incentives which might affect the drinking of "normal drinkers" (84).

In this political climate, public health traditions had some special burdens to carry. The social analysis and scientific paradigm of the public health field and of the temperance movement had much in common: both paid considerable attention to the structural and cultural preconditions of disease, and both shared an important tradition of studies of alcohol as a risk factor in social and health problems. In view of this, it is not surprising that there was considerable overlapping of

interests, from the late eighteenth century (87) until the early 1930s (25,26). Partly in reaction against the temperance movement, the nascent alcoholism movement deemphasized the role of alcohol as a risk factor in social and health problems. This deflationary tendency also carried over into the scientific and public health literatures: "the need of scientists to dissociate themselves from the temperance ideology and from being labeled as 'drys' may have profoundly influenced the questions that scientists were asking" (101). Thus the scientific literature of the 1940s tended to downplay the physical effects of heavy drinking: Haggard and Jellinek's discussion of "the bodily diseases of chronic alcoholism" (34, pp.177-214), summarizing the scientific literature for a popular audience in 1942, maintains a skeptical attitude about the link between drinking and liver cirrhosis, and dismisses claims for a link with cancer of the esophagus and with birth defects. The deflation of alcohol's role in physical illness reached its zenith in a 1950 epidemiological article by Lilienfeld and Korns (49), which argued that cirrhosis mortality was more strongly associated with industrial toxins and urbanization than with alcohol consumption (36).

For the general field of public health, then, until the last few years, I believe that alcohol had become a source of vague embarrassment. The classic epidemiological paradigm of environment-host-agent pointed inexorably to alcohol as the "agent", and such a stance was politically unacceptable as too reminiscent of temperance views (4, pp.104-106). The result in the general public health literature was a minimal attention to alcohol issues, a tendency to minimize alcohol's role in health problems, and an unwonted attachment to the provision of treatment as a sufficient "public health" approach to the topic. In this circumstance, it was researchers from centers with a long tradition of alcohol research that found themselves, somewhat uncomfortably, hoisting the banner of public health policy interests that were otherwise unrepresented in the policy arena (see 84). These researchers came from outside usual public health career paths. By disciplinary training, the authors of the 1975 report on Alcohol Control Policies in Public Health Perspective (12), which explicitly invoked these interests, included by disciplinary training four sociologists, two economists, a lawyer, an anthropologist, a historian, a statistician, and a psychiatrist. The unwillingness of the public health establishment to assume an institutional commitment to alcohol policy is reflected in numerous ways, for instance in the reluctant midwifing by the U.S. Public Health Service of the National Institute on Alcohol Abuse and Alcoholism (41, pp.349-355), or in the relative lack of attention to alcohol by international public health institutions. In the international organizations, alcohol issues still do not receive the sustained and serious attention accorded, for instance, to cigarette smoking or to opiate drug use. Thus Pan and Bruun (67) contrast the 81 staff positions in international secretariats for the control of opiates and other psychoactive drugs in 1976-7 with the 2 such positions then devoted to alcohol. While the World Health Organization has convened three Expert Committees on smoking in the last ten years (1974, 1978 and 1982), it has convened only one on alcohol problems (1979).

In recent years, the new public health approach has moved out into the general alcohol field. In contrast to earlier NIAAA reports, an explicit commitment to the environment-host-agent paradigm, with some cautious discussion of alcohol control, can be found in the NIAAA's report to congress of 1977 (64). We have already cited above the National Academy of Sciences report and the recent switch in NCA position. So far, the shift in position in the field has found heavy headwinds in the broader society. The alcoholic beverages industries have made their displeasure with the approach unmistakably clear. According to the third director of NIAAA, he and his predecessor found themselves, "sitting in the symbolic chair of NIAAA director", having "no choice

.!27_!.!27_!. but to be in confrontation" with the industries: "research was leading and we had no choice but to move". As a result, both directors had come into sharp collision with the industries and had had to leave their position (83). Until recently there have been few organized counterforces in the political arena. The recent involvement of the Center for Science in the Public Interest in alcohol issues and the emergence of the Council for Alcohol Policy are perhaps the first signs of the emergence of new political counterweights.

THE RECENT LITERATURE ON ALCOHOL CONTROL

Alcohol Control in the Context of Alcohol Policy

It should be recognized that alcohol controls, in the sense of legal or regulatory measures affecting the production, distribution and sale of alcohol, are only one part of the whole arena of potential means of alcohol problems prevention. There is by now a substantial conceptual literature placing alcohol controls -- in the narrower sense -- in a more general alcohol policy framework (often also termed "control", in the broader sense). Modern conceptual formulations of alternative approaches to alcohol policy may be seen as beginning with Lemert's formulation (45) of general societal policies in terms of four alternative models (besides laissez faire) -- prohibition, education and indoctrination, control of availability, and the substitution of functional equivalents. In the late 1960s and early 1970s, analogous typologizations of policies began to appear in the drug literature, with a greater focus on dimensions and mechanisms of control (notably control through medical prescription systems) and with occasional attention to alcohol (28,42). Other formulations of alcohol policy alternatives stressed the connection to governing images of the nature of alcohol problems (9,74,91), and expanded the range of policy alternatives, notably to include insulating drinkers from harm (75), and emphasized the choice between policies directed at deviant individuals and those directed at population aggregates (33). In 1970, Bruun (10) suggested replacing Lemert's typology of models with a trichotomy: that societal policies may concentrate on the "phase of choice" to use (through prohibition or through deterrents such as price or inconvenience), on the "phase of use" (through seeking to structure the drinking situation and the behaviors associated with it), or on the "phase of consequences" (by insulating the drinker from harm, etc.). Bruun's trichotomy was essentially that adopted by the recent National Academy of Sciences report (60) on alcohol policy.

Although the writers' policy preferences certainly peeked out from this literature, the discussions were generally dispassionate -- and for that matter, in terms of alcohol policies in North America, until recently well removed from practical policymaking. The typologies tended to conflate together several dimensions in the policy frame of reference: the alcohol problems at which the societal policies were to be directed; the conceptualization of those problems; the aspect of the drinking situation or history which was the proximate target; the policy strategy itself and its characteristics; and the societal institutions through which the strategy operated (see discussions in 86). While the policies were differentiated conceptually, it was frequently pointed out that they were not necessarily alternatives and that in practice societies used a mixture of policies.

General Theories of the Effects of Alcohol Controls

Separately from this literature, a far more rancorous literature developed, which was focused directly around the issues of alcohol controls in the narrower sense and their relation to the prevention of alcohol problems. By the early 1970s, review articles in the area (71,77) recognized

the existence of three competing traditions implying or stating diametrically opposed positions on the relation of alcohol controls and alcohol problems: that alcohol controls had no effect; that they had perverse effects; and that they had positive effects. The first tradition, which asserted that alcohol controls had no effect on the rates of alcohol-related problems, depended less on empirical evidence than on a-priori arguments: assuming that alcohol problems were attributable to alcoholics, it was regarded as self-evident that alcoholics by the nature of their condition were immune to controls on availability. The evidence was already available in the early 1970s that the contention that alcohol controls never had any effect on drinking problems rates was empirically wrong.

The second line of argument, drawing on social science research traditions, became known as the "sociocultural" or, more exactly, the "integrationist" position. This argument assumed that the U.S. had an especially high rate of alcoholism, and attributed it to cultural "ambivalence" over alcohol: the anti-alcohol sentiments fostered by the temperance movement, and their conflict with mankind's natural "wet" proclivities, meant that there were no clear cultural rules distinguishing between moderate drinking and problematic drinking. The policy implications of this position were pointed towards a kind of moral education and indoctrination: a general effort was needed to provide normative guidance on acceptable drinking patterns and customs; in particular, teenagers should be introduced to alcohol under adult guidance, by their parents and teachers, to remove the "forbidden fruit" attraction of alcohol. This was the position adopted by the Cooperative Commission (69,116) and by Morris Chafetz (14), who became the Director of NIAAA for its first 5 years.

Arguments in support of this position drew on a number of cultural studies of drinking, both in other nations and among American ethnicities, that showed wide cultural variations in the rate and nature of drinking problems. It was argued that the rates were low in cultures where drinking was integrated into daily life and customs. Conversely, alcoholism was argued to be especially prevalent in American population subgroups -- notably fundamentalist Protestants -- which had strong abstinence traditions. By the mid-1970s the position was being critiqued on both empirical (51) and conceptual (76) grounds.

There is actually no necessary conflict between an integrationist position, favoring the integration of alcohol into everyday life, and support for alcohol controls that are an expression of normative consensus. But, in its particular time and place, the integrationist argument was dialectically opposed to alcohol controls, and served as a justification for their dismantling. Ma!27NRB!"kela!27NRB!" et al. (53) and Beauchamp (6) have recounted the interplay in Finland between "integrationist" arguments and the liberalization of the control structure there in 1969. In the U.S., cultural integrationist arguments provided a rationale for the widespread lowering of the legal drinking age in the early 1970s. The emphasis on indoctrinating youth in drinking has been dropped in recent statements of the position (68,102) as the political tide has turned against legalized drinking by 18-20 year olds in the U.S. in the 1970s. In recent versions, the emphasis tends to be on educational efforts to influence adult party norms, for instance by promulgating checklists for "responsible hosting".

The third tradition, which in North America traces its roots to Seeley and Terris, has been known by various names: the "single-distribution theory", the "distribution of consumption" theory, the "constant proportion" theory, and, more polemically, the "neo-Prohibitionist" position. The fundamental argument, as it eventually was restated during the 1970s, was quite simple -- we have quoted it above from Bruun et al. (12). But the initial forms of the argument drew in a number of

side-issues, and the bulk of the literature on the topic has revolved around these side-issues.

The argument first drew substantial attention in the literature as stated by researchers from the Addiction Research Foundation of Ontario -- particularly Schmidt, de Lint, and Smart. Drawing on the purchase slips filled out by customers of the Ontario liquor monopoly, and on the seminal work in the 1950s and early 1960s of Sully Ledermann, Schmidt and de Lint (21) argued that the consumption of alcohol among drinkers in the population is distributed lognormally -- i.e., highly skewed to the "left", towards light drinking. They pointed out that there was no evidence of bimodality in the distribution, with one hump for "normal drinkers" and another for "alcoholics" -- instead, the population's consumption was arranged on a continuum. Furthermore, it was argued that "for all practical purposes, the form of the distribution is unalterable" (89), and that the proportion of heavy drinkers in a population "varies with the average of the distribution" (99). As the literature developed, it emerged that as a theoretical proposition this argument depended on Ledermann's problematic proposition that one of the two parameters for a lognormal distribution was fixed by the fact of a physiological upper limit on consumption. By 1972, it was clear that a more defensible form of the argument was that the correlation between the distribution mean and the proportion of heavy drinkers in a population was an empirical regularity rather than a theoretical necessity (23,73).

During the 1970s, the argument over population distributions of alcohol consumption became a burgeoning and often confused literature. Successive waves of statisticians, often without previous contact with the alcohol literature, rode into the fray to show (1) the inadequacy of Ledermann's data bases and statistical reasoning, (2) that there was indeed no theoretical reason why the mean and the proportion of heavy drinkers had to covary in a lognormal distribution, and (3) that the empirical data sets might better be fitted by some distribution (e.g., gamma or Weibel) other than a lognormal curve (see arguments and summaries in 35,96). At this point there is substantial consensus on the first two issues, and mixed conclusions on the third, though there seems to be a general tendency for the heavy-drinking "tail" of distributions to be somewhat thicker than a straightforward lognormal distribution. But the arguments have not shaken the central empirical finding that, in the absence of rationing or other individual-level controls (47), the distribution of consumption among drinkers is unimodal, positively skewed, and roughly lognormal.

In fact, while the literature has given those who have followed it a liberal education in statistics, from the point of view of alcohol policy and the policy relevance of alcohol controls, it has been a large red herring diverting attention from the major issues. The central policy argument is whether changes in alcohol controls can affect the rates of alcohol problems -- and in which direction. The place of alcohol consumption in this argument is as an intermediary variable, as in the Bruun et al. statement: alcohol controls can affect the level of consumption in a population, which in turn can affect rates of alcohol problems. The issues involved in the distribution of consumption controversies can at most affect the plausibility of such arguments: the arguments can perhaps be made more plausible if it can be shown that rates of heavy drinking are affected by controls, and this in turn seems more plausible if heavy drinkers are seen as outliers on a continuum rather than composing a separate population of "alcoholics". From a public health perspective, the contribution of the distribution of consumption literature is thus in terms of these peripheral plausibilities rather than of the central question of the effect of controls on problem rates. Even the finding of the unimodality rather than bimodality of alcohol consumption is not a very strong argument against the bifurcation between "alcoholics" and "normal drinkers": an adherent of the classic disease concept of

alcoholism could argue that, just as beneath the unimodal distribution of heights among humans lie two clearly distinguishable populations of males and females, underneath a unimodal distribution of consumption lie two populations distinguished by the presence or absence of loss of control over drinking.

The Ethical and Political Arguments

On their face value, the literatures that we have been describing have pitched their arguments at the empirical level of the effects of alcohol controls or the shape of the distribution of consumption. Intermingled with these arguments, and lending heat to their tone, however, have been strong concerns with another level -- concerns about the relative justice and ethics of alcohol controls and other prevention strategies. The political arguments against alcohol controls tend to emphasize the burden of cost or inconvenience which such controls place on unproblematic drinkers, and to assert a-priori that control would have no effect on alcoholics, anyway. Concerning taxes and other controls that raise alcohol's price, it is argued that the effect is regressive, laying a greater burden on the poor than the rich, and that it is in fact on the poor heavy drinker's family that the burden will be laid. The argument is usually pitched in terms of the interests and behavior of the individual drinker, rather than in terms of collective interests such as those of the society or of the beverage industries. In terms of empirical issues, the frame of reference points attention not at the distribution of consumption at any particular moment, nor at aggregate effects, but rather at differential patterns of change at the individual level: if alcohol controls have an effect, who are they affecting -- do they affect heavy drinkers more or less than they affect light drinkers?

The political arguments in favor of alcohol controls are partly in the same frame of reference, and partly pitched at a whole different level. The regressive tendencies of alcohol taxes and allied measures are often acknowledged [but see (109)], but it is added that this effect can be counteracted by the state's use of the revenues generated. Some earlier discussions cede the unlikeliness of alcohol controls affecting alcoholics, but argue that the appropriate justification of the controls is in terms of their effects not on those who are already alcoholic, but rather in restraining those who would otherwise be recruited into the alcoholic population. Besides these arguments pitched at the level of individual behavior, discussions favoring alcohol control also frequently examine issues at collective levels. Pointing out that alcohol consumption is highly concentrated, with a few percent of the adult population typically responsible for half of all consumption, it is argued that drinkers should pay for the social costs of their behavior, as a kind of "user fee", and that there is a rough justice in the payment being proportional to the amount drunk. Controls are justified as a counterbalance to powerful industry interests; it is argued that an absence of policy or an adherence to the status quo is also a kind of policy. Beauchamp, in particular, has argued on behalf of a "public health ethic" as an alternative to "market justice" (5,6). A line of argument rooted in the sociological literature argues the ethical as well as practical advantages of measures, like taxes and most alcohol controls, which do not single out individuals for processing, as against strategies such as criminalization and treatment, which involve not only the costs of the correctional or treatment establishment but also the risk of the intangible costs of personal derogation of those processed (60, pp.52-55). Pointing out that alcohol control measures are typically enforced not by criminal penalties on consumers but by economic sanctions against a much smaller and more manageable population of business enterprises, some analysts have argued that such sanctions are inherently much cheaper and more effectively administered (85).

In principle, alcohol controls, the provision of alcoholism treatment, and other alcohol policy measures are clearly potentially complementary. But in actual practice, it is frequently argued, they may tend to be competitive. This sense of the potential competitiveness of policies lends a special edge to the ethical debate. Augustus Hewlett, former President of the Alcohol and Drug Programs Association of North America, recently argued that supporting measures that would control the availability of alcohol to prevent the spread of alcoholism is "political dynamite" that could shatter the public's recognition of alcoholism as a disease. Pointing to what he saw as the benefits of such public recognition, including reduction of the stigma associated with alcoholism and more humane treatment for the alcoholic, and the growth of the alcoholism treatment industry, he argued, against the new NCA position, that

> regardless of our good intentions, communications of support for the wide range of stricter controls called for by the control of availability theorists will be perceived by the public as a denial of the disease concept of alcoholism (37).

But whereas Hewlett sees the policy choices as dichotomous, an international group of researchers saw the choices as lying in three directions -- with criminalization as a more likely alternative than treatment to control and other preventive measures:

> There is a growing conflict between increased concern about alcohol problems and the economic interests of the alcohol trade that is exacerbated by static or declining markets. In a situation of increased acceptance of drinking in everyday life, policies may tend even more toward individual control of deviant drinkers. In an era of contracting public welfare resources, this tendency may be expressed more in punitive than in treatment-oriented measures. The singling out of individuals for special handling, whether in the form of treatment or punishment, often carries with it adverse side effects, for example their permanent identification as deviants. In our view, preventive alcohol policies should be given a high priority as an alternative to the morally inspired control of problem drinkers (54).

New Evidence on the Effects of Alcohol Controls

It is clear, then, that there has been a heavy ideological overlay on much of the literature about alcohol controls, which has influenced much of the discussion of their effectiveness. At the beginning of the 1970s, two review articles, written from somewhat different perspectives, could nevertheless agree that "while the literature concerned with the effects of the legislative approach to the prevention of alcohol problems is vast, . . . most of it contributes little of value" to an empirically-oriented review; "typically, the conclusions are based on the personal tastes or beliefs of the author, on *ex cathedra* arguments, or on the weight of opinion of persons with little or no direct knowledge of the matters at issue" (71, p.580; see also 77).

In recent years, however, there has been something of an explosion of empirical studies on the effects of alcohol controls. Many of these studies have appeared in scattered venues, and often are only now finding their way into English. Recent review articles (98,100,117) cumulating this knowledge have appeared only in publications of limited circulation. The present discussion will focus on general conclusions to be drawn from this literature, rather than attempting an exhaustive review. The focus will also be confined to studies of the effects of *change*, which involves measurement over time. Comparative cross-sectional studies of the correlates of different control situations continue to appear in the literature, but must be seen as extremely weak evidence

concerning the effects of particular control arrangements. As an international group of researchers recently commented, "such data, though often thought-provoking, can hardly be regarded as solid evidence for the existence of causal relationships. Yet researchers seldom resist deriving causal statements from their cross-sectional comparisons" (54, p.93).

By and large, the recent literature on empirical consequences of changes in alcohol controls can be divided into two types: time series analyses, using various econometric methods or simply graphing changes over time, and "before-after" studies, looking for evidence of trend discontinuities surrounding a particular change in controls. Recently the distinction between the two styles has begun to break down. In broad terms, also, the literature has been separated between studies of the effects of tax and price changes -- primarily studied with econometric time-series analyses -- and studies of the effects of other control measures, such as changes in hours and conditions of sale, in the minimum drinking age, or in advertising controls -- primarily studied with "before-after" designs. In recent years, there has been a greater emphasis on looking beyond changes in alcohol consumption as the dependent variable to direct measures of alcohol-related problems, with consumption taking on more the status of a potential intervening variable. Cook's (16) application of Simon's method (92) of measuring the effects of alcohol tax increases exemplifies this trend: while Simon's dependent variable was alcohol consumption level, Cook pays primary attention to rates of drunk driving and cirrhosis mortality.

By far the best-organized literature on the effects of alcohol controls is the econometric literature on the effects of price increases on alcohol consumption levels (see 77, pp.284-289; 71, pp.595-606; 12, pp.73-80; 54, pp.89-91; 66). This literature conventionally measures the effect of price and income changes on consumption in terms of elasticity: for instance, demand is said to be price elastic if a 10% change in price produces more than a 10% change in consumption level, and is said to be inelastic if the consumption change is less than 10%. As the terminology suggests, economists do not even contemplate that, in normal circumstances, price changes will have no effect on consumption, although assertions in this vein can be found in the alcohol literature. Accordingly, it is no surprise to economists that the general conclusion is that "when other factors remain unchanged, a rise in alcohol prices has generally led to a decrease in alcohol consumption" (12, p.79). Even Pittman, in his sustained critique of "control of consumption policy", does not claim that alcohol sales will be totally unresponsive to price, although he makes the questionable assertion, in drawing out an analogy to gasoline consumption, that "we do not know at what price level the demand level for gasoline would show a significant decrease in various Western societies, given their addiction to the automobile as a form of transportation" (68, p.27). In general, the time-series literature suggests that the degree of price elasticity varies between places, across time, and between alcohol beverages; in the U.S. in recent decades, beer has generally been relatively price inelastic, and spirits rather more price elastic.

From the point of view of public health policy, the price elasticity of alcohol in the population as a whole is not of central interest; this merely begs the question of whose drinking is being affected. Presumably the strongest argument on behalf of general measures affecting availability, such as taxes, would be in terms of their effects on high-risk drinking patterns. As noted above, it is frequently asserted in the alcohol literature that only moderate and trouble-free drinking patterns will be affected by price and other controls on availability: "addicted alcoholics will not be deterred by the price of the beverage" (68, p.27). On this important question, the econometric literature on effects on consumption continues to offer very little evidence. But the answer to this

question has now been filled in from other parts of the literature.

One piece of evidence in this regard comes from the econometric literature concerning the effects of price or taxes on direct measures of health consequences. Cirrhosis mortality has been the most common such measure (e.g., 17,71), but Cook (16) has also used automobile fatalities as an outcome measure. Cirrhosis deaths are of course worth preventing in their own right; but cirrhosis mortality is also a commonly used indicator of the prevalence of long-term heavy drinkers at great risk of a variety of alcohol-related consequences. The relation between price and cirrhosis mortality has often turned out to be surprisingly strong: Cook estimates that a doubling of the U.S. federal tax on spirits would result in a 20% decline in cirrhosis mortality (17). Findings such as these suggest that tax measures have at least as strong an effect on heavy drinkers as on the rest of the drinking population.

This conclusion is directly supported by a recent longitudinal study (43) of changes in drinking patterns and problems in a Scottish general-population sample over a 3-year period in which alcohol prices rose more steeply (by 61%) than the general consumer price index. Among those who were regular drinkers at the initial survey, reported alcohol consumption fell by 18%, and associated adverse effects by 16%. (Increased unemployment was estimated to account for one-fifth of this effect. See also reference 29.) Among those who were heavy drinkers, and among those reporting symptoms of alcohol dependence, the drop in consumption level was at least as strong as among the lighter drinkers.

Turning from taxes and price to controls on availability in general, a variety of studies, in examining historical patterns of change in alcohol consumption and in alcohol-related problems, have paid careful attention to possible effects of changes in control policies. The International Study of Alcohol Control Experiences examined the postwar period in seven national case studies (95), with findings ranging from the dramatic effects of the Finnish 1969 liberalization (1) to the substantial Dutch rise in consumption without either a big rise in cirrhosis mortality or visible changes in the control system (20). But while studies of earlier historical periods have been able to examine the concomitants of restrictions on availability, studies covering the present era have been handicapped by the fact that until recently changes have almost all been in one direction -- towards greater availability. In terms of the argument about effects on the heavy drinker, it is restrictive changes which are more crucial.

The best-developed literature on the effects of recent restrictions on availability is the tradition of "strike studies": before-after studies of the effects of large-scale but usually temporary changes in the availability of alcohol. There is by now a substantial cumulation of experience from studies of what happens during strikes by alcohol production and sales workers and during similar events (2,7,8,39,40,52,94,97). The studies vary considerably in the reduction of supply involved and in the extensiveness of data collected, but there are some clear trends in the findings. Though the strikes often attracted extraordinary popular attention, and the population as a whole often substantially shifted its choices of beverage and drinking locale, the amount of consumption of moderate drinkers, particularly those of the middle class, was often little affected. On the other hand, the strikes often had dramatic effects in reducing alcohol-related problem rates associated with poor habitual heavy drinkers. In Norway, for instance,

> most measures strongly influenced by skid-row alcoholics, i.e. admission to detoxification centres, the use of detoxification rooms at the so-called protection homes, reports of drunkenness, drunkenness arrests, offences called "home quarrels", number of drunkards on

> the street, and injuries caused by falling, showed a marked decrease during the strike. Therefore, the reduction in the consumption of alcohol seems to have been much larger among the most far-gone alcoholics than for the common alcohol consumer (40, p.65).

There are, of course, limits to the generalizations that can be drawn from the strike studies. These studies involve situations which were recognized by all concerned to be temporary; behavior in the long run may well be different from behavior in the short run. And the changed situation "was the result of a conflict between workers and employers, and not a result of alcohol-political reasoning and debate. The reduced alcohol availability did not reflect a more or less permanent change in public attitudes towards drinking" (40, p.65). But the studies are important in providing a dramatic and unexpected answer to the question of whose drinking is most affected by general changes in availability: it is precisely the heavy drinkers most likely to appear in the casualty and crime statistics whose behavior often seems most strongly affected.

Evidence to support this assertion, and to extend it to cover other health consequences of drinking, is also building up from studies of longer-term declines in consumption, often the result of deliberate policy interventions. The rationing of alcohol in Poland in 1981, involving a 20% overall drop in consumption, was accompanied by declines of 11% in cirrhosis deaths, 39% in admissions to sobering-up stations, and 40% in first hospital admissions for alcoholic psychoses (108). The introduction of alcohol rationing in Greenland in 1979 was accompanied, at least initially, by substantial declines in assaults, domestic quarrels, and drunkenness detentions (88). Lenke has assembled data on six "quasi-experimental situations" in Swedish history, showing that changes in control and availability in both directions resulted in changes in rates of crimes of violence (46). Recent Scandinavian experiments with closing state liquor stores on Saturdays have shown marked immediate effects on indicators of social disruption (65). In the specific area of minimum drinking-age laws and their effects on drunk driving casualties, there is by now a substantial North American literature tracking the effects of the lowered drinking ages in the early 1970s and the increased drinking ages in recent years (see 38,98,100,112); these studies often, but not always, found that casualties rose with lowered minimum drinking ages and fell with raised ages.

The evidence is thus by now compelling that alcohol controls can affect the rates of alcohol-related problems, and that they often particularly affect the consumption patterns of high-risk drinkers. It is just no longer tenable to claim that "no studies have linked decreased availability with decreased drinking by the heaviest segment of drinkers in any society and to concomitant decreases in the sequelae of heavy drinking" (63). But there are also a variety of studies of minor changes in alcohol controls or availability in which little effect on consumption or alcohol-related problems was found. Thus studies of the effects of partial restrictions on mass media advertising (98, pp.242-243), of the elimination of "dry zones" around college campuses (27), of removing a narrow range of fortified wines from sale (30), of introducing a price differential at a sports club bar (62) or a licensing-fee differential for taverns (18) favoring low-alcohol beers, and of various small changes in hours and conditions of sale (98, p.227; 71, pp.586-592), have frequently found little or no discernible change in the predicted direction.

ALCOHOL CONTROLS IN PERSPECTIVE

By now some general conclusions can be drawn about alcohol controls and their effects.

(1) Alcohol controls in the sense we have been considering here are primarily enforced through economic threats and incentives, rather than through the criminal law (85). Such controls

depend on the state's power to structure the marketplace, rather than its power to control the behavior of individual citizens. These state controls on economic enterprise are usually more cheaply and more effectively enforceable than criminal sanctions against individuals.

(2) On the other hand, those affected by such economically-based controls are often better organized and positioned than are the mass of individual citizens or consumers to defend themselves from state action in a pluralistic political order. As outlined above, alcohol controls <u>can</u> be effective; but in practice, in the absence of strong political interest in alcohol issues or of a national emergency (as has been generally true in the postwar era), alcohol controls tend to operate as a "ratchet mechanism", wound only in the direction of gradually looser controls (54). More generally, public health considerations have usually not been taken into account in recent decades in economic and fiscal decisions affecting alcohol control (54).

(3) Since about the mid-1970s, there is evidence of a renewed political concern about alcohol issues in many countries, particularly those -- such as the Nordic, English-speaking, and Moslem countries -- in which concerns about alcohol issues have traditionally been prominent (54,80). In North America, this concern has been expressed in new grassroots middle-class organizations such as Mothers Against Drunk Driving, in attention to alcohol issues by public health activist groups such as the National Association for Public Health Policy, and in a variety of partly symbolic legislative changes such as raising minimum drinking ages, disallowing drunkenness as a mitigating circumstance in crime, and toughening drunk driving laws. While there are signs of change, the concern has so far been expressed more in terms of deterrence and punishment of the individual deviant drinker than of alcohol control and other collectively-oriented approaches.

(4) With the apparent exception of changes in tax levels (16,43) and minimum drinking age (38,98,100,111,112), isolated and small changes in alcohol controls appear unlikely to have substantial effects. Conversely, concurrent changes in the same direction are likely to have a synergistic effect. Alcohol control policies should be considered as a system rather than in terms of isolated components. This of course complicates the task of evaluating effects.

(5) In the absence of a normative consensus supporting them, the evasion of restrictions on alcohol availability eventually becomes a popular consumer sport. Restrictive alcohol controls, like alcohol prohibitions (104,110), tend to lose some of their effectiveness over time (88), except where there are strong normative supports. Evaluations of such controls therefore need to look at long-term as well as short-term effects.

(6) Alcohol controls affect alcohol-related problems differentially, and different alcohol control measures have different effects. Price measures and major supply restrictions (as in strikes or rationing systems) appear to affect the heaviest drinkers as much as or more than others, and often result in at least short-term reductions in cirrhosis mortality and other chronic health problems, alcohol-related casualties, and social disruption. Middle-class drinkers are less affected than the poor, so that restrictions on alcohol availability have less effect, for instance, on drunk driving. These generalizations on the specific effects of controls are likely to be culture- and time-specific. There is therefore a need for further studies of "natural experiments" and planned experimental studies of the effects of alcohol control changes. The state distribution monopolies which exist in 18 U.S. states and all Canadian provinces are potentially fruitful sites for such experimental studies.

(7) The tendency for alcohol control discussions to take on a technocratic flavor is unrealistic and counterproductive. Controls which do not have genuine popular consent are likely to be at least partly subverted. Without public understanding, the political room for technocratic

maneuvering -- for instance, in terms of tax increases -- will in any case usually be small. Those interested in reforming alcohol controls are thus well advised to start by stimulating a public discussion of the issues involved. In fact, for many alcohol control topics which are the subject of current U.S. discussion -- such as restrictions on advertising or required warning labels on beverage containers -- the consciousness-raising involved in public discussion may be more important as a prevention strategy than the control measure itself. The lesson of recent history is that alcohol control structures are not autonomous actors, but reflect the cultural and structural features of a society (54). In this sense, a "control" approach must also be a "sociocultural" and "integrationist" approach.

(8) To state the point more strongly, there are many historical instances where government control policies have had strongly contrary effects in the long run, when a substantial population segment is disaffected from them. We have already sketched some of the long-run effects in the U.S. of the disaffection of a whole generation of middle-class youth from Prohibition. Colonial restrictions on alcohol for native populations have left an aftermath of symbolic identification of drinking with personal emancipation and cultural autonomy. The rationing schemes in Sweden (47) and Greenland (88) seem to have ended with a kind of national binge. In the other direction, in a situation where the Polish government was perceived to have been pushing alcohol on the people, Solidarity adopted restrictions on alcohol availability as a major plank of its program (61). Within two years, after the government had introduced alcohol rationing as an austerity measure under martial law, the cultural politics of alcohol reversed, and Poles were exercising great ingenuity to evade the restrictions on supply (108). Thus an alcohol control measure can be effective in the short run and yet counterproductive in the long run.

(9) Alcohol controls should thus be seen as but one element in a comprehensive policy for the prevention of alcohol-related problems (see 31). Such a comprehensive policy should include attention to means of reducing alcohol problems that do not depend on reducing alcohol consumption. As an international research group recently concluded,

> it appears that event-based drinking problems such as traffic casualties and alcohol-related violence will continue to play an important role in developed industrial societies in the near future. While control of availability should be given a high priority, it is important to consider the use of government powers to manipulate the environment of drinking so as to lower the risk of adverse consequences. (54, p.111)

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