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Research on Alcohol Problems from the Perspective of Changes—1940 to 1990

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Synopsis

The nature of alcohol problems, knowledge about alcohol use and abuse, and public perceptions and responses have all undergone substantial change during the past half-century. This paper traces some interrelationships between changes in alcohol-specific knowledge and behavior and other relevant social forces. The importance of change in the derivation, utilization, and interpretation of this knowledge is emphasized. Special emphasis is also placed on changes that make the integration of research between the biological and behavioral sciences desirable and necessary.

ALTHOUGH HISTORY is technically defined as a branch of knowledge that records and explains past events by enabling us to trace processes of change and their impact, history can contribute substantially to our understanding of the present and our projections for the future. This observation certainly is true for the field of alcohol studies in the United States. The theme of this paper is change. This encompasses changes in knowledge about alcohol and in beliefs and assumptions about what we know and can expect to learn in the future; changes in the social contexts of drinking and in who drinks what, where, when, with whom, and why; changes in attitudes and values about drinking and alcohol problems; changes in the classification and labeling of problems; changes in the risks and liabilities of intoxication; changes in our perceptions of the social costs of alcohol problems; and changes in social responses.

The time frame for this review is the half-century

'The question of chemical contamination is still broader when interactions with certain industrial compounds are included. Changes in the chemical environment in which drinking occurs constitute a significant but inadequately measured aspect of drinking behavior and problems.'

beginning in 1940. That was a time when national Prohibition had recently been repealed, the depression was ending, and the country was reluctantly preparing for war. Perhaps because of more pressing concerns and because many people were tired of issues associated with the Prohibition experiment, there was little national interest in alcohol problems. Alcoholics were heavily stigmatized, assumed to be of little worth, and usually blamed for their condition. Intoxication and its consequences was the primary focus of concern but, in reaction to Prohibition, there was a widespread reluctance to enforce anti-drunkenness controls.

At the scientific level, there was little ongoing research that related to alcohol problems. Investigators who did express an interest in the field seemed to derive the stigma that society applied to alcoholics. In academic circles there was a common assumption that first-rate scientists did not deal with such topics. There was virtually no support available from either private foundations or the Federal Government for research on any aspect of alcohol problems. However, at Yale University's Laboratory of Applied Physiology the nucleus was being formed for a multidisciplinary, multifunction center for studies on alcohol, and Howard W. Haggard, a physician and medical historian along with E. M. Jellinek, a biometrician, were preparing a book to be entitled "Alcohol Explored" (*1*) in which they would examine the current status of knowledge about alcohol, drinking, and alcohol problems. This book has provided a convenient reference for identifying some changes that have occurred since it appeared.

At the other end of our half-century continuum, we now have a massive expression of organized concerns and activities related to many aspects and issues of drinking behavior and alcohol problems. There are hundreds of books and numerous specialized journals that address particular aspects of alcohol problems. A Federal agency, the National Institute on Alcohol Abuse and Alcoholism, is supporting research and research training in many disciplines. A complex network of concerned organizations, both public and private, and Federal, State and local, is in place, providing programs of education, prevention, and treatment. Centers for alcohol-related research exist at many leading universities where highly respected scientists from a variety of disciplines are involved in the study of many alcohol-related questions and issues. A report recently issued by the Institute of Medicine, "Causes and Consequences of Alcohol Problems" (*2*), will provide a guide for measuring change at this other end of our half-century.

Examples of Change

While we are considering changes that have taken place in our knowledge about drinking and alcohol problems, it will be important to recognize that the phenomena being studied have themselves been changing and to identify and understand some of these changes, particularly as they impinge on each other.

Alcohol consumption. First, following World War II and until about 1980, the per capita consumption of alcohol in the United States rose steadily. Although the use of different criteria and measuring instruments precludes precise comparisons, it is reasonable to assume that this increase amounted to at least 30 percent. Since about 1980, however, there has been a modest, but apparently steady, decline in alcohol consumption. A constant throughout the period covered is the estimate that alcoholics and other chronic heavy consumers, comprising perhaps 10 percent of the drinking population, have accounted for about half of the alcohol consumed.

Problem drinking. As with the case of consumption, statistics on the numbers of problem drinkers have been subject to changing methods for deriving estimates and changing criteria. The statistics that we do have, however, suggest that the relative number of drinkers who encounter problems of one sort or another has also increased. It is impossible to measure changes in many types of problem drinking because of changes in a number of factors that have altered the criteria for defining and labeling problems. For example, there has emerged a much greater public consciousness about the conse-

quences of both incidental intoxication and repeated alcohol abuse. At the same time, changes in the technology of our society have created a massive shift in the kinds of tasks that people are called upon to perform. This shift is away from energy-expending tasks, in which the energy-releasing properties of alcohol may have been functional, towards tasks requiring the exercise of motor control and placing other demands on brain function for which the depressant, intoxicating functions of alcohol are distinctly compromising. Thus, drinking behavior that was not considered a problem for those in energy-demanding occupations becomes defined as a problem for those in occupations that demand judgment, precise motor control, and rapid decisions. Consciousness of and concern about the role of alcohol in decreasing the efficiency and effectiveness of personnel has increased sharply among industrial and business employers and also within the military where there are now efforts to reverse long-held traditions that supported alcohol consumption.

In transportation, the increase in traffic density and in the power and speed of automobiles and comparable changes in boating and aviation have raised the relative liabilities of intoxication in vehicle operators. Associated with these changes there has emerged a distinctly greater public awareness of drinking and driving as a threat to public and personal safety.

Health and disease. In the arena of public health and medical care, several major changes have had an impact on public concerns about alcohol use and abuse. As part of a broad national movement for health promotion and disease prevention, alcohol abuse has been identified as a factor that significantly increases the risk for virtually all of the leading causes of death and disability. Also, as the costs of medical care and hospitalization have mounted, the role that alcohol abuse plays in conditions that require longer than usual periods of hospitalization and more costly intensive procedures has become a matter of national concern. Rising alarm about violent behavior, spouse and child abuse, crime, and risk taking that exposes others to danger has also focused public concern about the possible role of alcohol as a facilitating factor in behaviors that threaten the well-being of others.

It is significant that Haggard and Jellinek, while identifying most of the currently recognized alcohol-related diseases, specifically exonerated alcohol as a possible direct contributing cause. Instead they ascribed all such problems to nutritional deficiencies brought about because people who consume large amounts of alcohol acquire so much of their need for calories through the alcohol that they neglect to eat enough of the foods that provide essential vitamins, minerals, and other nutrients. It was their position that, other than hoarseness and gastrointestinal irritation, there were no significant direct toxic effects from alcohol experienced by the body.

They also dismissed as a myth possible associations between alcohol use by women and the production of damaged children. While they were speaking primarily of the centuries' old beliefs that alcohol use during procreation could affect offspring, they implicitly dismissed the probability of any toxic effects from alcohol on the fetus. In contrast, today it is assumed that alcohol has a direct role in the development of fetal alcohol effects, and numerous investigators are trying to identify specific mechanisms, critical amounts of alcohol that can cause fetal damage, and critical periods during pregnancy when damage may be induced.

Heredity. Another topic currently of great interest, but lightly dismissed by Haggard and Jellinek, is that of children of alcoholics. Noting that great interest had prevailed regarding hereditary liability as a cause of inebriety, they concluded that this belief was "entirely obsolete" (*1a*). After reviewing the literature on this subject, they concluded that at most 40 percent of inebriates could be said to have an "heredity taint," but that "the only permissible conclusion is that it is not a disposition toward inebriety which is inherited but rather a constitution which is so unstable that it does not offer sufficient resistance to the environmental risks of inebriety" (*1b*). In the 1980s, although the significance of environmental and behavioral factors is not excluded, it is assumed that certain genetically related traits are associated with both an individual's sensitivity responses to alcohol and risks for developing alcoholism or other drinking problems.

Chemical environment. Still another type of change that has altered both human responses to alcohol and the nature of alcohol problems for some users involves what may be called the chemical milieu in which alcohol use occurs. In 1940, when an individual became intoxicated, it was almost always due to alcohol use. There were some incidents of

overdose involving the use of barbiturates and alcohol, but there were few other recognized, commonly occurring problems of adverse interactions between alcohol and other drugs. This picture has changed vastly in 50 years. There are now a large number of widely used medications that have a potential for undesirable or dangerous interactions with alcohol in a number of different ways. Of special concern are the anti-anxiety, anti-histamine, and sedative-inducing preparations that can interact synergistically or additively with alcohol to produce brain function compromises that far exceed what the user is accustomed to experience from alcohol alone. When marijuana and other illicit mood modifying drugs are added to this picture, the potential for complex chemical interactions with alcohol increases further. The question of chemical contamination is still broader when interactions with certain industrial compounds are included. Changes in the chemical environment in which drinking occurs constitute a significant but inadequately measured aspect of drinking behavior and drinking problems, and they also constitute a substantial challenge for future research. It is quite clear today that much intoxication is the result of multiple substance exposure and that many problems of alcoholism and other drug dependence are really cases of poly-addiction.

Biological Research

Of all the changes that we will identify, those that seem most dramatic from the viewpoint of knowledge advancement have occurred in the biological sciences. Here important research, much of it in the last 10 years, has substantially altered our perceptions about the relationships between alcohol and the human body. Research in genetics, biochemistry, physiology, and neuropharmacology has replaced rather simplistic notions about the actions of alcohol in the body. We now have much more complex and sophisticated explanations and descriptions of these mechanisms. Furthermore, current knowledge has permitted the formulation of new questions that, along with ever advancing technology, offer promise of even greater advances in our understanding of the actions of alcohol in the human body within the near future. A major impact of new knowledge has been to shift our perceptions about human responses to alcohol from a primary emphasis on homogeneity in response mechanisms to one of heterogeneity and the recognition that a substantial number of responses vary from person to person and, under different circumstances, within given persons. These variations include such factors as metabolic rates and processes; the nature, distribution, and roles of relevant enzymes; the sensitivity of target tissues; the action on membrane fluidity; the role and distribution of neurotransmitters; and many more. Much of what we have learned in recent years, and can expect to learn in the future, pertains to our understanding the relative sensitivity of individual persons to alcohol and the relative risks that individuals have of experiencing compromised task performance, intoxication, dependence of alcohol, alcoholism, or one or more alcohol-related diseases or social complications.

Of significance, along with new biological knowledge, is the growing recognition that the understanding of the actions of alcohol on the human body has limited meaning apart from knowledge about factors that determine whether people ever use alcohol and, if they do, what factors influence the quantity, frequency, and patterns of their exposure to alcohol. Put another way, biological knowledge can help us identify and understand ranges of relative individual sensitivities to alcohol and ranges of relative risk for experiencing one or more of the acute or chronic problems of alcohol. But such knowledge must be correlated with knowledge about factors that determine an individual's drinking experiences and cumulative exposure to alcohol.

For an understanding of drinking experiences and exposure to alcohol, we are dependent on the social and behavioral sciences. These disciplines are concerned with culturally influenced beliefs, attitudes, values, and customs; socially determined practices and pressures; psychologically related responses to environmental cues and the reinforcing significance of alcohol's mood modifying effects; and economic and political factors that influence relative ease of availability and access. Changing knowledge in the social and behavioral sciences has also been substantial in the period under review.

Social and Behavioral Research

In 1940, relatively little was known about the drinking practices of American society. Such data as were available were per capita consumption estimates derived from statistics reported by the distilling, brewing, and wine producing industries, augmented by reports on the number of illicit stills confiscated by the Internal Revenue Bureau. There were virtually no data on such questions as who in

our diverse population were the drinkers and abstainers or such basic criteria as their ages, sex, ethnicity, occupations, education, income, religious preferences, places of residence, recreational patterns, and the like. Nor did we know anything about drinking practices such as what, how much, when, where, why, with whom, or in association with what activities or events people used alcohol. It was assumed, perhaps because of a post-prohibition paranoia, that most people considered their drinking practices very private and would not be willing to discuss them. Knowledge about drinking problems and problem drinkers was also sparse. This information was little more than what could be learned from the captive populations of mental hospitals and jails, and it provided a very limited and distorted picture of the characteristics of problem drinkers and the progression of their problems.

Today, in contrast, there is a vast amount of knowledge that addresses such fundamental questions as the patterns and conditions of human drinking behavior, the problems related to drinking, and societal responses to both drinking behavior and drinking problems. This change has come about in association with numerous factors including a change in public attitudes about drinking practices and problems, changing methodologies in such relevant disciplines as epidemiology, sociology, psychology, and anthropology, increased sources of funding for research and, as has occurred in the biological sciences, the involvement in research on alcohol-related questions of a number of extremely competent scientists. Research in the 1950s and 1960s accomplished much in revising long held assumptions and diminishing the impact of false stereotypes. These advances have been greatly refined and developed in the 1970s and 1980s.

As the Institute of Medicine report notes, current emphasis in social and epidemiologic research reflects a recognition of the significance of continuing change over time in drinking practices and drinking problems, for both individuals and populations, and in relation to variable settings and conditions. There is also a broadening frame of reference to incorporate studies of alcoholism within the context of alcohol-related beliefs, behavior, and problems (*2a*). As one example of current social and behavioral research, psychological studies have revealed important new insights about the significance of drinkers' beliefs and expectations with respect to alcohol and the reactions of others as these can influence certain of the effects experienced from drinking. Also of current interest are studies designed to identify the importance of social expectations or norms in influencing an individual's sense of need to drink or to drink to a point of intoxication. Such research is especially relevant in light of recent biological knowledge on individual variability in various responses to alcohol and capacity to drink safely. Also of note are epidemiologic studies that have provided new insights on the relationship between the prevalence of drinking problems in a population and factors controlling the availability of alcohol, such as cost.

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Summary

In this paper I have looked at several factors of change that appear to interact. These include changes in drinking practices and problems, changes in knowledge and in the pursuit of knowledge, and changes in society's response to drinking issues. The Institute of Medicine report emphasizes the importance of the phenomenon of change and the need for longitudinal and cross-sectional research (*2b*). Although Haggard and Jellinek did not explicitly address this issue, no one reading their book would expect them to have disagreed.

One point on which there is substantial explicit agreement between the 1940s perspective of Haggard and Jellinek and the perspective of the Institute of Medicine's report nearly 50 years later is the importance of integrating biological knowledge about alcohol and the human body with behavioral knowledge about factors that expose the body to alcohol. Haggard and Jellinek summarized biological knowledge rather briefly and devoted more

attention to the need for more knowledge on such questions as what people drink and how much, why and how some people abuse rather than use alcohol, and what problems are associated with different levels of drinking. They repeatedly identified a need to know more about the behavioral and social factors that cause people to consume alcohol as a necessary corollary to knowledge about how alcohol affects the body once it is consumed.

The Institute of Medicine report, while summarizing a vast amount of biological knowledge, notes that "the many ways in which people respond to alcohol, their various capacities to drink safely, and the relative risks they run for the development of alcohol-related problems pose major questions for research. These are complex phenomena, occurring at the junction of biologic, behavioral, and social forces" (*2c*). The report also repeatedly stresses the need to integrate biological and behavioral approaches in the conceptualization and design of research.

In their recognition of the need for truly integrative biological and behavioral research, Haggard and Jellinek were clearly ahead of their time. Even though they established a multidisciplinary center of research at Yale in the 1940s, most of the research efforts there were parallel rather than integrated. The conceptual, ideological, and methodological barriers between disciplines were too strong to penetrate. Today, these barriers have already been diminished within the biological and within the social and behavioral sciences. It is often hard to distinguish between a biochemist and a microbiologist or between certain epidemiologists and sociologists. As we approach 1990, and the end of our half-century review of change in relation to alcohol problems in the United States, it seems clear that one goal for research on alcohol problems early in the next half-century must be a successful penetration of the biological-behavioral barrier.

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