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Models of Alcoholism
From Days of Old to Nowadays

by
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About the Author

Mark Keller has been involved in alcohol-related research and teaching since the mid-1930s, beginning at the New York University School of Medicine, then at Yale University where he took part in founding the original Center of Alcohol Studies, and since 1962 at Rutgers University. He has also taught at Brandeis University and is now Professor Emeritus at Rutgers.

Beginning in 1939 he was associated with E. M. Jellinek in the Review of the Biological Effects of Alcohol on Man, and subsequently in the original statistical efforts to gauge the numerical size of the alcohol problem. And with aid and encouragement from Selden D. Bacon he founded the unique reference library of the Center of Alcohol Studies.

Keller is the author of over 200 articles, chapters and books on alcohol and alcoholism, including the *Dictionary of Words about Alcohol*. He edited the Yale and Rutgers *Monographs of the Center of Alcohol Studies* as well as the multivolume *International Bibliography of Studies on Alcohol*, and is Editor Emeritus of the *Journal of Studies on Alcohol*. He has lectured in twelve countries and has been published in nine languages.

Since he was officially retired Keller has been teaching at the Rutgers Summer School of Alcohol Studies; lecturing throughout the U.S.A. and abroad; and writing, chiefly on the history of alcohol, alcohol-related problems and policies, and alcoholism. He vacations by working in archaeological digs at Biblical sites and has begun to write on historical aspects of the Biblical texts.

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Before we can discuss models of alcoholism we must decide what we mean by alcoholism; otherwise, how will we know what we are talking about?

Going by the *Dictionary of Words about Alcohol* (Keller et al., 1982), I will define alcoholism as *alcohol addiction*. There are many behaviors — and misbehaviors — with alcohol, and with other drugs, which are problems, or even crimes. (For example, driving a motor vehicle on a public road while intoxicated.) But they may be committed by people who are not — or not yet — addicted. In the present pamphlet I will be focusing on models of the condition of alcohol addiction, widely considered a disease and commonly called alcoholism.

Now that we are clear about what I shall mean by alcoholism, we need also to define the idea *model.* My original acquaintance with models happened to be in physics and biology. I think immediately of the famous Watson and Crick model of DNA; or the goldfish model of alcoholic amnesia (Ryback, 1969). And maybe that spoiled me. For when I compare the models, so named, in the nonphysical disciplines they seem to have something less than provable or testable characteristics. A model is, indeed, an image. But I think of scientific models as concrete images, not literary imaginations or fantasies. For the present, however, I will be less than physically strict and allow for models in addiction. Nevertheless, I think that in alcoholism we have not models but conceptions (Keller, 1958, 1975, 1980a, b). That is a politer expression than fantasies and I will here alternate between model and conception as synonyms.

CLASSICAL-HISTORIC MODELS

1. The oldest conception of addiction I have found is that attributed to the Greek philosopher Poseidonius, a Stoic who lived some time between 135 and 50 B.C. It is from him that a later Roman philosopher and mental-hygienist, Lucius Annaeus Seneca (d. 65 A.D.), cited the acute distinction between "a man who is loaded with wine," that is, drunk, and "a man who is accustomed to get drunk, and is a slave to the habit." Seneca himself expressed the distinction as "between a man who is drunk and a drunkard" (Jellinek, 1942).[1]

[1]The quotations are from translations in the Loeb Classical Library.

These distinctions, between the state of intoxication, that is, being drunk, and of being a drunkard, that is, enslaved to the habit of getting drunk — I emphasize the Poseidonian conception, enslavement — speak unmistakably of a distinct image, a model, a conception, of what we call addiction, and specifically of alcoholism. There we have what I would call the *Classical Habituation Model* of alcoholism.

2. Another historical conception is expressed in the Talmud. There, in a discussion of the Biblical law of the accused incorrigible son (Deuteronomy 21: 18–21), he is ruled not guilty if he was apparently a habitual drunkard (Freedman, 1935). That condition, the rabbinic scholars of the 3d-4th century held, rendered the accused boy irresponsible. The conception of what we call mental illness is obvious; and in this Talmudic model the implication of disease is clearer than in the Classical Habituation Model. This, then, I would name the *Classical Mental-Illness Model.* But we may note that this, too, like the Habituation Model, is not a true etiological model, for in neither case are we given to understand the basis of the habituation or the illness.

In fairness to those Greek-Roman philosophers and Jewish Talmudists I would infer that they assume an etiology for the addictive drunkenness. Judging from their writings generally, I would attribute to the former the etiology pertinent to a behavioral-psychology model, and to the latter the etiology pertinent to a psychiatric-psychological model.

3. In later times the emergence of still another "classical" model is notable. Drunkenness, whether acute or chronic, is seen in early Christian doctrine, and popularly, as sin (Salvian, 1530; Baird, 1944). The drunkard is bad, he is a sinner. A magistrate in Puritan New England, in 1647, summed up one man's alcoholism in an apt phrase of that conception: "a sinn rooted in him." And in 1673 a woman was formally excommunicated "for her incorrigibleness in her sin of drunknesse" (Baird, 1946). I would designate this the *Classical Moral Model.* The assumed etiology, apparently, is moral depravity; drunkenness is "a vice" (Todd, 1882).

4. Approaching modern times, we see the development of what Siegler et al. (1968) described as the impaired model. The alcoholic is seen as "a drunk" or "a bum" or "a drunken bum." He is a person with a weak will, manifesting an impairment of character. For this model I found even religious confirmation in John Wesley, founder of the Methodist Church. Himself originally a drinker, when finally he preached for universal abstinence, he motivated it for the sake of the "weak brother" (Cherrington, 1930). The drunkard was to be seen as a weakling. Though Siegler et al. preceded me by naming it the impaired model, I would name this the *Weak-Brother Model.*

MODERN MODELS

I have come to modern times. "Alcoholism" is listed among the well-established diseases in the formal American and international nomenclatures of disease (Logie, 1933; Jordan, 1942; World Health Organization, 1967) and as such is bandied generously in newspapers and novels. Some critical observers recognize that the word is used loosely to describe a variety of notions or ideas or conceptions (Edwards et al., 1976, 1977; Keller, 1976; Keller and Seeley, 1958). By some 20 years ago, three scientists of the New Jersey Neuropsychiatric Institute presented a list of the existing "models of alcoholism," numbering eight in all, in the *Journal of Studies on Alcohol* (Siegler et al., 1968). Among them is the impaired model, which I have already mentioned and renamed. They also described the moral model but divided it in twain, as the Dry Moral Model and the Wet Moral Model.

5. The *Dry Moral Model* reflects the Classical Moral Model. It represents alcoholism as "a moral failing" — not a disease but the natural consequence of drinking. The alcoholic has brought his troubles on himself and he deserves them, and deserves to be treated punitively, as an example to others. The only general remedy for this nondisease is to abolish alcohol, make it universally unavailable.

6. In parallel with the Dry Moral Model is a model subscribed to by some adherents of the Alcoholics Anonymous philosophy and some medical and social-science personnel. In this conception too, alcohol — that is, drinking — is the cause of alcoholism. There is no such thing as social or responsible drinking; anyone who drinks any quantity of any alcoholic beverage is already an alcoholic, if only in a mild or early stage (Hayman, 1966; Hickle, 1976). This appears to be a somewhat radical pharmacological model and may be named the *Alcohol-Caused Addiction Model,* for it says that any quantity of alcohol invokes a desire or need or craving for more alcohol and ultimately effects an addiction — just like morphine. Alcohol as the cause of alcoholism is an attractive model for some alcoholics, for it absolves them of all blame: First, because they are to be seen as seduced to drink by the prevailing social mores and the availability of alcohol and the behavior of so-called social drinkers; and second, because they brought no personal failing, especially no "mental" failing, to the initiation of the alcoholism.

7. In the *Wet Moral Model* the alcoholic is seen as an antisocial personality who does not conform to the rules of the drinking fraternity. He can't hold his liquor; he behaves badly when drunk. "Alcoholism is an unacceptable form of drinking behavior." The alcoholic should learn to drink like a gentleman — or a lady. The problem of the alcoholic's responsibility for his alcoholism is aptly contrasted with the disease conceptions by Rule and Phillips (1973).

8. A widely popular model in modern times may be named the *Disease Model* (Jellinek, 1960; Alcoholics Anonymous, 1939, 1976). Surprisingly little can be said about it. Alcoholism is conceptualized as "a disease." The locus of the disease is undetermined and its etiology is any sort of personal or circumstantial or physical disadvantagement — for example, endocrinopathy, nutritional deficiency, economic deprivation, social inadequacy, sexual incompetence, and so on and so forth ad infinitum. The treatment of this disease is obvious: Doctors of medicine, or psychologists or social workers or counselors or legislators must administer their special or combined brands of medications and interventions.

9. A very curious model that particularly fascinates me is the *The Medical Model.* I emphasize that I have emphasized the *The* in this model. The alcoholism literature contains many references to the *The* Medical Model, but I have never been able to verify that there actually is a *The* medical model. In my quest I have discovered a variety of medical models (Rimmer et al., 1972), some of which I have just incorporated within the general Disease Model — for instance, the nutritional deficiency and the endocrinopathic conceptions, each of which has been the subject of sophisticated laboratory experimentation, clinical trial, and report in journals and books. The *The* Medical Model seems to be a creation of some observers who are skeptical of any implication that alcoholism may be a disease; thus this model may be a straw man, a mock model, intended for dismissal.

Two types of medical models described by Siegler et al. (1968) they named the Old Medical Model and the New Medical Model.

10. According to the *Old Medical Model* alcoholism is acquired or incurred through the bad or immoral behavior of excessive drinking. Here too the etiology is inconclusive, for there is no theory about the cause of the excessive drinking. The resemblance to the Classical Moral Model is obvious. It appears to be a medical model only because its adherents believe that its treatment belongs to doctors of medicine.

11. In the *New Medical Model* etiology is very much in the forefront. Alcoholism is a disease probably caused by an anomalous body chemistry, or by specially susceptible genes, with a possible contribution of psychological or social factors. Addiction, sometimes called dependence, especially physical dependence, is the specific manifestation of the disease. The alcoholic cannot control his alcohol intake. Under this conception the disease should be treated by physicians in alliance with psychotherapists, social workers, and other trained personnel.

12. While the New Medical Model incorporates a possible genetic component, a separate *Genetic Model* has emerged in recent years. Studies of twins who were separated early in life (Goodwin, 1974; Goodwin et al., 1974), and of offspring of alcoholics (Begleiter et al., 1984; Schuckit, 1984, 1987), have evoked a widely popularized belief that alcoholism is very commonly transmitted genetically. Anyone with a blood relative, especially a parent, who is an alcoholic is specially susceptible. This conception has given rise not only to studies of relatives of alcoholics but also to organizations of relatives presumed to be an endangered species, especially children of alcoholics.

13. Worth remembering, as part of the physiological list of alcoholism models, is the *Allergy Model* popularized some 50 years ago. A warm-hearted physician friend of the early group of Alcoholics Anonymous in New York suggested that alcoholism was a sort of allergy (Silkworth, 1937). Just as some people are allergic to strawberries, for example, and therefore must never eat strawberries, so some people are allergic to alcohol and therefore must never drink. This logical hypothesis was eagerly adopted by the alcoholics in A.A., where it became gospel, for it afforded a scientific rationale for their policy and preachment: An alcoholic must never touch a drop. When the famous physiologist Howard W. Haggard (1944) demonstrated that there is no such allergy, the leaders in A.A. recognized the validity of the critique but were reluctant to give up that useful etiological conception. They solved the problem with wit and wisdom by pronouncing alcoholism a psychological allergy. No physiologist, not even one as great as the founding father of the Center of Alcohol Studies, could disprove psychological allergy.

14. Before leaving the physiological models it would be negligent not to describe one that may be the most original and most imaginative, created by a great chemist, Dr. Roger Williams (1953, 1959). This model proposes that the human brain is endowed with a mechanism here named — in emulation of Dr. Norman Jolliffe's appestat (1952) — an alcoholstat. The alcoholstat, in this hypothesis, regulates the appetite for alcohol. If the alcoholstat becomes disordered — which may happen in consequence of inadequate intake of needed extra quantities of some vitamins, as earlier proposed by Williams (1947, 1951) — then control over alcohol intake is lost and alcoholism develops. This ingenious *Presumed-Neurological Model* is adequately etiological and lacks only confirmation that an alcoholstatic mechanism actually exists in the human central nervous system.

15. The inevitable *Psychoanalytic Model* classifies alcoholism as a form or manifestation of neurosis (Abraham, 1908; Blum, 1966). Any unfavorable experience or deprivation, especially during infancy or

childhood, and especially in the protosexual realm, may provoke a neurosis. The victim may discover relief in self-alcoholization, with consequent development of addiction to the magical medicine.

16. A *Psychiatric-Psychological Model* is by now historic and was elaborated by Karl M. Bowman and E.M. Jellinek (1942) nearly half a century ago in a review based on 491 references. The conceptions of psychiatrists and psychologists almost exhaust the list of potential etiologies. Addiction to alcohol may be rooted in early deprivation of parental care and love, or parental inconsistency in rearing; it may be due to any of a variety of so-called personality features, such as low tolerance of frustration or stress, or insecure self-sex identity, or a weak ego. It may even be due to psychopathic personality, or inferior coping capacity, or psychological predisposition (Lisansky, 1960). Or it may be due simply to low intelligence; thus Cimbal's (1926) classification of alcoholics included "the stupid drinker." The contribution of physiological factors, such as high tolerance for alcohol, or physical handicap, and social factors, such as lack of recreational opportunities, or group drinking customs, or poverty, or wealth, is usually taken into account. In justice, it should be noted that the psychiatric weak ego is not the same as the moralistic weak brother.

17. Distinct from the broad Psychiatric-Psychological Model is the *Behavioral-Psychology Model.* Based on the theories and teachings of Sechenov and Pavlov, it is hypothesized that by a circumstantial process of learning, an individual becomes conditioned to respond routinely to idiosyncratically significant cues or stimuli by resort to alcohol, and eventually by drinking to drunkenness (Kingham, 1958; Kepner, 1964; Nathan, 1988). The addictive behavior, then, should appropriately be treated by the techniques of behavioral psychology (Franks, 1963; Nathan and Bridell, 1977; Nathan, 1988).

18. A *Sociological Model* of alcoholism has been felicitously formulated by Selden D. Bacon (1958, 1973). "A slowly developing pattern of altered alcohol intake" is said to be "related to increasing social difficulties and continuing emotional disturbances," with a steadily growing "dissocialization." The function of the social group, in allowing and sometimes even facilitating and socializing the deviant alcohol-ingesting pattern ("alcoholics do not drink") is emphasized. But as sociological factors may not sufficiently explain why some people enter and complete the process of becoming addicted, the importance of the pharmacological action of alcohol is recognized for its role in the process.

19. After the Sociological Model it is requisite to take account of what may be considered a nonmodel, and I will designate it the *Nondisease Model.* Some social scientists (Cahalan and Room, 1974) along with some physicians (Schmidhofer, 1969) do not consider alcoholism a disease. They recognize only a variety of degrees and patterns of drinking, ranging from the occasional small quantity to the frequent gross intake — heavy drinking (Fingarette, 1988) — with resulting intoxication. They hold that it is arbitrary to set a marker at any particular degree of alcohol intake and pronounce any that exceed it a disease, alcoholism. They would apparently agree with the psychiatrist, who does not believe in mental illness, who considers "alcoholism" merely "a different behavior" (Szasz, 1961).

20. Also in line with sociological conceptions and joined to psychology is the *Family-Interaction Model* described by Siegler et al. (1968). One person in a family may be assigned a role or roles predictive of the alcoholismic behavior and career. It may be the most dependent child, or the incorrigible one, or the poor learner. The other family members, who may be designated codependents, assume complementary roles: disgraced parents, martyred wife, neglected children, and so forth. The enactment of the several roles constantly reconfirms the inevitability of the alcoholic's repetitive behavior. Accordingly, only family therapy can sometimes succeed in breaking into and dissolving the familial enclosure.

21. The *Games Model* is outlined by Claude M. Steiner (1969) after the system described by Eric Berne (1964) from the perspective of transactional analysis. Alcoholism is depicted as a process in which the alcoholic is the motivating player — the dealer, as it were — enjoying the game of manipulating relatives, friends, social institutions, by his role as hapless alcoholic. In this model alcoholism is not a disease but a role assumed, apparently consciously, in order to achieve undeserved gratifications from unenlightened victims. The alcoholic, nevertheless, is treatable by a sufficiently "tough" technique.

22. The *Alcoholics Anonymous Model* (Alcoholics Anonymous, 1939, 1976) is by now the best known. Alcoholism is described as a disease. The common implication is that a physiological pathology underlies it, and recently the genetic reports have been emphasized. Equally important, however, is a presumed spiritual defect, but any implication that it may be a "mental illness" is strictly resisted. Some members of the A.A. fellowship emphasize either the physiological or the spiritual etiology but most tend to concede to both elements in combination. Recently too a tendency has emerged to blame the development of the gross drinking on alcohol itself as an available tempter. The remedy for the disease is membership in Alcoholics Anonymous, frequent attendance at A.A. meetings, reliance on a

Higher Power (within or without formal religion), helping other alcoholics to resist alcohol, and practice of the Twelve Steps. Adherence to the A.A. program has unquestionably helped and enabled multitudes of alcoholics to remain abstinent for long times and for lifetimes. Curiously, regardless of the tenet that alcoholism is a disease, some devout members fanatically oppose any medical intervention, holding that the A.A. program only and alone is efficacious. On the other hand, and regardless of the denial that alcoholism might be a form of the severely stigmatized category "mental illness," some members find it necessary and beneficial to obtain, additionally, some form of psychotherapeutic help.

A WHOLISTIC MODEL

23. Finally there is what I will describe as the *Wholistic Model.* This conception (Keller, 1958, 1975, 1980a,b) recognizes a possibly differential primary vulnerability, among individuals and groups, probably to addictiveness generally. A genetic factor may underlie the increased vulnerability (Lester 1989), possibly in the form of superior gastric and neural tolerance. Next, an unfortunate infant-rearing and childhood developmental history, possibly rooted in deprivations, is presumed to lay a foundation for further increased vulnerability. The form of this development might be excessive dependency or dependency conflict. A combined personality and social developmental factor, possibly a continuation of the maldevelopments initiated earlier, then adds further vulnerability in adolescence, and now involves heavy drinking, sometimes along with other deviant behaviors. Social and cultural phenomena begin to play a significant role. Thus, where drinking by adolescents is prohibited or discouraged, the already vulnerable young may compensate for feelings of inadequacy or insecure self-sex image by defiant drinking. If the surround grants stature to grandiose or macho drinking capacity, then the most vulnerable are specially set up for alcoholism. For, then, not only is heavy drinking rewarded by peer admiration, but owing to the magical pharmacological property of alcohol the drinker experiences profound internal reward from intoxication. The drunken person can feel himself to be the manly or womanly, erotic or charming, clever or sophisticated person of the wished-for self-image. The insecure adolescent who experiences this double reward from drinking is likely to resort to alcohol in any troublous or problematic situations in the developing adulthood. Now a conclusive factor enters: learning or conditioning. The protoalcoholic learns, becomes conditioned, to resort to enough alcohol unfailingly, even reflexively, to relieve troublous emotional states and self-doubts whenever certain sorts of problems or situations arise. Moreover, by the rule of generalization, heavy drinking tends to become the routine resort whenever any sort of personal problem arises. The process of learning to become an alcoholic is complicated and may be lengthy.

There is a range of vulnerability and reinforcive experience. Those most vulnerable originally, whether genetically or by early maldevelopment with reinforcement in adolescence, are likely to achieve helpless addiction — confirmed alcoholism — soonest. The ranges of societal permissiveness and environmental encouragement are also influential.

The Wholistic Model, in summary, incorporates a genetic or constitutional factor allowing special susceptibility; errors of infant relationships or childhood rearing, with resultant personality maldevelopment; misdirected maturation in adolescence, with reinforcement from internally well-rewarded heavy drinking; and a subsequent learning or conditioning process of relief drinking, embedded in cultural and societal mores, with a negative balance of interpersonal relations; and finally, the pharmacological properties of alcohol assuming a dominant indispensable role in the individual's way of life.

CONCLUSION

The Wholistic Model clearly draws upon dominant features of many of the other described models, especially the genetic, the psychoanalytic and psychiatric-psychological, the social, the behavioral-psychological, the pharmacological and an implicit neurological model. The latter is implicit in that the hypothesized learned-conditioned responding must be activated by still-hypothesized engrams in the central nervous system. The proponents of some of the 22 preceding models may therefore seem to resemble the blindfolded folk feeling and describing different parts of the alcoholismic pink elephant. The Wholistic Model, instead, describes the beast whole, and that is what justifies its name. If it should be the true picture or approximate the true nature of the self-healing but self-injurious behavior in alcoholism, then it suggests a scientific — a biological — answer to the question, is alcoholism or why is alcoholism a disease.

I refer to a biological law: Organisms avoid self-injurious behavior. Organisms — worms, mice, pigeons, cats, dogs, sheep, horses — that discover that a certain behavior, even the sole approach to food, results in self-injury, will stubbornly avoid that behavior.[2] If one of those creatures would repetitiously engage in the self-injurious behavior, even to gain the good reward, we would diagnose that animal as abnormal; sick is another word for it.

An alcoholic is just such a sick creature. Consider, for example, this model alcoholic: A successful lawyer, he repeatedly gets drunk. When drunk, he has had two automobile accidents; he has been arrested twice, fined and jailed; he has gotten into fights and was beaten up; he

[2]As beautifully demonstrated in the experiments of Masserman et al. (1945, 1946) and elegantly confirmed by Smart (1965).

has fallen down a flight of stairs and was hospitalized for his injuries; in the hospital a physician, a clergyman, and a member of Alcoholics Anonymous, each told him he is an alcoholic and should go to A.A.; he has lost his office and two jobs, and now his wife has left him; he is about to descend to Skid Row. Nevertheless he gets drunk again. He rationalizes that his misfortunes are the reason for his "drinking." I suggest that this behavior is abnormal. Sick is another word for it. I suggest that the self-injurious behavior in alcoholism evidences an engrammed specific response circuit in the central nervous system which, since it causes self-injury, since it is abnormal, must be classified as a pathology, diagnosed as a disease.

The Wholistic Model, thus, is not merely complex; it is useful: It tells where to look for the biological nucleus of the alcoholism and then for the appropriate treatment.

REFERENCES

Abraham, K. Die psychologischen Beziehungen zwischen Sexualität und Alkoholismus. *Zschr. Sexualwiss.*, Lpz. 1: 449-458, 1908.

Alcoholics Anonymous: The Story of How More than One Hundred Men Have Recovered from Alcoholism. New York: World Publishing Co., 1939.

Alcoholics Anonymous: The Story of How Many Thousands of Men and Women Have Recovered from Alcoholism. 3d edn. New York: A.A. World Services, 1976.

Bacon, S.D. Alcoholics do not drink. *Ann. Amer. Acad. Polit. Soc. Sci.* 315: 55-64, 1958.

Bacon, S.D. The process of addiction to alcohol; social aspects. *Quart. J. Stud. Alc.* 34: 1-27, 1973.

Baird, E.G. The alcohol problem and the law. *Quart. J. Stud. Alc.* 4: 535-556, 1944; 7: 110-162, 1946.

Begleiter, H., Porjesz, B., Bihari, B. and Kissin, B. Event-related brain potentials in boys at risk for alcoholism. *Science* 225: 1493-1496, 1984.

Berne, E. Games People Play. New York: Grove Press, 1964.

Blum, E.M. Psychoanalytic views of alcoholism; a review. *Quart. J. Stud. Alc.* 27: 259-299, 1966.

Bowman, K.M. and Jellinek, E.M. Alcohol addiction and its treatment. In: Jellinek, E.M., ed. *Alcohol Addiction and Chronic Alcoholism;* pp. 3-80. New Haven: Yale University Press, 1942.

Cahalan, D. and Room, R. *Problem Drinking among American Men.* (Monographs of the Rutgers Center of Alcohol Studies, No. 7.) New Brunswick, NJ: 1974.

Cherrington, E.H., ed. *Standard Encyclopedia of the Alcohol Problem;* Vol. VI, p. 2816. Westerville, OH: American Issue Publishing Co., 1930.

Cimbal, W. Trinkerfürsorge als Teil der Verwahrlostenfürsorge. *Allg. Zschr. Psychiat.* 84: 52-86, 1926.

Edwards, G., Gross, M.M., Keller, M. and Moser, J., eds. Alcohol-related problems in the disability perspective; a summary of the consensus of the WHO Group of Investigators on Criteria for Identifying and Classifying Disabilities Related to Alcohol Consumption. *J. Stud. Alc.* 37: 1360-1382, 1976.

Edwards, G., Gross, M.M., Keller, M., Moser, J. and Room, R., eds. *Alcohol-Related Disabilities; Report of a Group of Investigators on Criteria for Identifying and Classifying Disabilities Related to Alcohol Consumption.* (WHO Offset Publ. No. 32.) Geneva: World Health Organization, 1977.

Fingarette, H. *Heavy Drinking: The Myth of Alcoholism as a Disease.* Berkeley: University of California Press, 1988.

Franks, C.M. Behavior therapy, the principles of conditioning and the treatment of the alcoholic. *Quart. J. Stud. Alc.* 24: 511-529, 1963.

Freedman, H., transl. *Babylonian Talmud, Tractate Sanhedrin* [Standard edn., 68a, ff.], Seder Nezikin; Vol III, ch. viii, p. 465 ff. London: Soncino, 1935.

Goodwin, D.W. Is alcoholism inherited? In: *Proceedings of the Third Annual Conference of NIAAA,* pp. 175-186. (DHEW Publ. No. ADM 75-137.) Rockville, MD: National Institute on Alcohol Abuse and Alcoholism, 1974.

Goodwin, D.W., Schulsinger, F., Moller, N., Hermansen, L., Winokur, G. and Guze, S.B. Drinking problems in adopted and nonadopted sons of alcoholics. *Arch. Gen. Psychiat.* 31: 164-169, 1974.

Haggard, H.W. Critique of the concept of the allergic nature of alcohol addiction. *Quart. J. Stud. Alc.* 5: 233-241, 1944.

Hayman, M. *Alcoholism: Mechanism and Management.* Springfield, IL: Thomas, 1966.

Hickle, B. *Responsible Drinking and Other Myths.* Lake Mills, IO: Graphic Publishing Co., 1976.

J[ellinek], E.M. Seneca's epistle LXXXIII: On drunkenness. *Quart. J. Stud. Alc.* 3: 302-307, 1942.

Jellinek, E.M. *The Disease Concept of Alcoholism.* Highland Park, NJ: Hillhouse Press, 1960.

Jolliffe, N. *Reduce and Stay Reduced on the Prudent Diet.* New York: Simon & Schuster, 1952.

Jordan, E.P., ed. *Standard Nomenclature of Diseases.* Chicago: American Medical Association, 1942.
Keller, M. *Cultural Aspects of Drinking and Alcoholism.* Toronto: United Church of Canada Commission on Temperance Policy and Program, 1958.
Keller, M. Multidisciplinary perspectives on alcoholism and the need for integration; an historical and prospective note. *Quart. J. Stud. Alc.* 36: 133–137, 1975.
Keller, M. The disease concept of alcoholism revisited. *J. Stud. Alc.* 37: 1694–1717, 1976.
Keller, M. Concepçoes sobre o alcoolismo. (Conceptions of alcoholism.) *Rev. Ass. Brasil. Psiquiat.* 2: 93–100, 1980a.
Keller, M. Sei ou ni okelu alucolulizum no gainem. (Concepts of alcoholism in Western countries.) *Japan. J. Stud. Alc.* 15: 290–303, 1980b.
Keller, M., McCormick, M. and Efron, V. *A Dictionary of Words about Alcohol.* 2d edn. New Brunswick, NJ: Rutgers Centrer of Alcohol Studies, 1982.
Keller, M. and Seeley, J.R. *The Alcohol Language.* Toronto: University of Toronto Press, 1958.
Kepner, E. Application of learning theory to the etiology and treatment of alcoholism. *Quart. J. Stud. Alc.* 25: 279–291, 1964.
Kingham, R.J. Alcoholism and the reinforcement theory of learning. *Quart. J. Stud. Alc.* 19: 320–330, 1958.
Lester, D. An assessment of the heritability of alcoholism. In: Chaudron, D.C. and Wilkinson, D.A., eds. *Theories of Alcoholism,* pp. 1–28. Toronto: Addiction Research Foundation, 1989.
Lisansky, E. The etiology of alcoholism; the role of psychological predisposition. *Quart. J. Stud. Alc.* 21: 314–343, 1960.
Logie, H.E., ed. *National Conference on Nomenclature of Diseases.* New York: Commonwealth Fund, 1933.
Masserman, J.H., Jacques, M.G. and Nicholson, M.R. Alcohol as a preventive of experimental neuroses. *Quart. J. Stud. Alc.* 6: 281–299, 1945.
Masserman, J.H. and Yum, K.S. An analysis of the influence of alcohol on experimental neuroses in cats. *Psychosom. Med.* 8: 36–52, 1946.
Nathan, P.E. *What Behavioral Scientists Know — and What They Can Do — about Alcoholism.* (Center of Alcohol Studies Pamphlet Series.) New Brunswick, NJ: Alcohol Research Documentation, 1988.
Nathan, P.E. and Bridell, D.W. Behavioral assessment and treatment of alcoholism. In: Kissin, B. and Begleiter, H., eds. *The Biology of Alcoholism;* Vol. 5, pp. 301–349. New York: Plenum, 1977.
Rimmer, J., Reich, T. and Winokur, G. Alcoholism. V. Diagnosis and clinical variation among alcoholics. *Quart. J. Stud. Alc.* 33: 658–666, 1972.
Rule, B.G. and Phillips, D. Responsibility versus illness models of alcoholism. *Quart. J. Stud. Alc.* 34: 489–495, 1973.
Ryback, R.R. The use of goldfish as a model for alcohol amnesia in man. *Quart. J. Stud. Alc.* 30: 877–882, 1969.
Salvian [Fl. ca. 347–420]. *De Gubernatione.* Basel: 1530.
Schmidhofer, E. Alcoholism is NOT a disease. *Maryland State Med.* J. 18 (No. 3): 59–64, 1969.
Schuckit, M.A. Subjective responses to alcohol in sons of alcoholics and control subjects. *Arch. Gen. Psychiat.* 9: 879–884, 1984.
Schuckit, M.A. Studies of populations at high risk for the future development of alcoholism. *Prog. Clin. Biol. Res.* 241: 83–96, 1987.
Siegler, M., Osmond, H. and Newell, S. Models of alcoholism. *Quart. J. Stud. Alc.* 29: 571–591, 1968.
Silkworth, W.D. Alcoholism as a manifestation of allergy. *Med. Rec.,* NY 145: 249–251, 1937.
Smart, R.G. Effects of alcohol on conflict and avoidance behavior. *Quart. J. Stud. Alc.* 26: 187–205, 1965.
Steiner, C.M. The alcoholic game. *Quart. J. Stud. Alc.* 30: 920–938, 1969.
Szasz, T.S. *The Myth of Mental Illness.* New York: Hoeber-Harper, 1961.

Todd, J.E. *Drunkenness a Vice, Not a Disease.* Hartford, CT: Case, Lockwood & Brainard, 1882.
World Health Organization. *Manual of the International Statistical Classification of Diseases, Injuries and Causes of Death* (ICD-8). Geneva: 1967.
Williams, R.J. The etiology of alcoholism; a working hypothesis involving the interplay of hereditary and environmental factors. *Quart. J. Stud. Alc.* 7: 567–587, 1947.
Williams, R.J. *Nutrition and Alcoholism.* Norman: University of Oklahoma Press, 1951.
Williams, R.J. *Free and Unequal; the Biological Basis of Individuality.* Austin: University of Texas Press, 1953.
Williams, R.J. Biochemical individuality and cellular nutrition; prime factors in alcoholism. *Quart. J. Stud. Alc.* 20: 452–463, 1959.

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About the Center of Alcohol Studies

The Center of Alcohol Studies evolved in the late 1930s and 1940s at the Yale University Laboratory of Applied Physiology and Biodynamics, directed by Howard W. Haggard. Haggard's interest in the effects of alcohol on the body had broadened into a wide perspective of alcohol problems and he brought to Yale a number of scientists with similar interests, among them E. M. Jellinek, who became head of the new Section on Alcohol Studies. The *Quarterly Journal of Studies on Alcohol* was also founded by Haggard in 1940. In 1962, the Center of Alcohol Studies moved to Rutgers University.

The center faculty have been trained in biochemistry, economics, physiology, psychology, psychiatry, sociology, political science, public health, education, statistics and information science. The faculty teach undergraduate, graduate and continuing education courses, including the world famous Summer School of Alcohol Studies. The SSAS alumni have assumed leadership positions in research, prevention and treatment of alcohol problems.

The center's four major areas of concern are: research, education, treatment and prevention. As part of the center's educational mission, this pamphlet series presents current knowledge on important topics in the alcohol studies field.