

# **The Psychology of Getting High**

*Hans Olav Fekjær, MD, psychiatrist,  
Oslo, Norway*

Printed by ADIC  
in Colombo, Sri Lanka 1993

Appendix written 2010

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## Chapter 1

### Intoxicants as symbols and rituals

#### "Having a glass of wine is so nice and cozy"

A lot of people say that they drink alcohol because it is so nice and cozy.

*Why* is a glass of wine or beer nice and cozy? Do inherent properties of the beverages or of alcohol generate a cozy mood? Does the total abstainer fail to achieve such cozy feelings?

A woman married to a Chilean refugee, recalls from the first time they were together:

To have a good time on Saturday evenings, she put a nice cloth and candles on the table, made pizza and served red wine in tall glasses. Full of expectation, she looked at her friend.

But for the poor Chilean, no special feeling ensued. At the sight of the table, he felt nothing at all!

Why did this plot work so well for the woman and not at all for the man from Chile?

#### Symbols generate moods

In his book "Kritik der reinen Vernunft", the German philosopher Immanuel Kant describes our ways of perceiving the world around us. We do not observe things as objectively as we like to think. Our perception and understanding of an object is often little influenced by its innate properties. We have learned of the object in our cultural surroundings, and our learning biases our perception of it. Therefore, our subjective impression of the object (Das Ding für mich) differs from its objective characteristics (Das Ding an sich).

There are numerous examples.

The Christmas tree certainly contributes to our Christmas mood. However, can a botanical analysis of the characteristics of the pine explain this? Colored fabric pieces can influence people's mood, if the pieces happen to be flags and the occasion is right.

In such ways, objects whose objective properties are very trivial can influence our feelings. The effect is due to the fact that we are used to encountering them on special occasions. The objects have acquired symbolic value. But our symbols have no effect on the moods and feelings of people who have been raised in other cultures and have not gone through the same learning process.

The emotional effects of symbols occur upon recognition. In most cases, this occurs by visual perception. For food and beverages, smell and taste also are not always identified as symbols.

When the Christmas tree influences our moods and feelings, all people know that the effect is not due to the properties of the pine tree. But the symbolic functions of intoxicants are not always recognized. They are often referred to as if they were chemical effects of the

intoxicant. But it is often evident that the intoxicant's inherent chemistry cannot be the cause of the ensuing feelings:

Many people who "indulge in a glass of wine", only drink very small amounts of alcohol. Studies have shown that the effects of amounts of alcohol corresponding to one or two glasses in most cases are not discernible.

Many beneficial "effects" of alcohol turn into effect at the sight, smell and taste of the beverage. When two friends are "having a good time with a glass of beer", they do not sit waiting for the alcohol to be absorbed from the intestines and then reach the brain, so that the good feelings eventually appear. Their mood peaks much earlier - at the first sip, or even at the mere sight of the unopened bottles!

The explanation of such events must obviously be based upon psychology, not upon chemistry. We cannot understand the use of intoxicants without understanding the functions of symbols and rituals in our lives.

## **Symbols are valuable tools**

Symbols and rituals pervade our lives. Candlelight make winter evenings cozy. Expensive food, special clothing, decorated tables and rooms generate a festive mood. By means of well-established symbols we produce the mood of Christmas, New Years Eve and other special occasions. We separate Sunday from weekdays by corresponding procedures.

Symbols are valuable tools for evoking desirable emotions and moods. *When we wish to be in a special mood, we can utilize things (symbols) which through a learning process have become associated with the mood we intend to achieve.*

A social anthropologist writes:<sup>1</sup>

"... members of specific social groups tend to share common understandings about many things in the world around them. Such shared understandings ... are sometimes mistakenly thought to have "objective reality"... The logic of many seemingly "natural" linkages is not intrinsic or inherent, rather it is a cultural artifact ... (They) may differ from one culture to another and can change within a given culture through time - far more rapidly than most people realize."

When we are asked if it is not "nice and cozy to have a glass of wine", the most appropriate answer seems to be:

*It is nice and cozy to have a good time with one's symbols of nice-and-coziness.*

For many people, wine is a well-established symbol of coziness. Others have grown accustomed to other symbols. The choice of symbol is not decisive for feeling the "effect". The decisive element is the learning process which has assigned the appropriate associations to the symbol.

Abstainers too, do of course, easily achieve a Saturday atmosphere and a feeling of coziness by means of other symbols and rituals.

## The symbolic functions of the intoxicants

The most frequently used symbolic function of alcoholic beverages is their function as a token or signal, designed to indicate the distinction between the daily dull routines and the well-deserved leisure time, "Now, I (we) will truly indulge in a little luxury". In different cultures, different things are employed to perform this symbolic function. In addition to alcohol, our culture uses different clothes, expensive food, candlelight etc.

Intoxicants are especially well suited to denote "now-I-will-only-relax-and-have-a-good-time" situations. This is because the effect of intoxicants is a handicap in all kinds of useful work. In, for example, drinking alcohol, a decision is made for the rest of the evening, "Now I am neither going to paint the bathroom, clean up the kitchen or do my homework, but only relax and have a good time."

*The majority of alcohol users do not use alcohol for the purpose of intoxication, but only for symbolic functions.* This is a clear difference from the illegal intoxicants: In most cases, illegal drugs are used with the explicit purpose of getting intoxicated. But illegal drugs also have powerful symbolic functions. Most kinds of symbolic functions are the same for alcohol and illegal drugs.

Use of intoxicants is often perceived as a symbol of *adulthood*. Many things which are reserved for adults are perceived in this way. Smoking and coffee are other examples. Many teenagers demonstrate the use of or effects of intoxicants very deliberately, to make their adulthood clear. Young men sometimes boast of their drinking as if swallowing the beverage required extraordinary skills.

Users of intoxicants often joke about their intoxicant. This reflects the functions of humor, as it was analyzed by Sigmund Freud.<sup>2</sup> He showed that a joke must meet certain formal criteria, and - to be perceived as funny - also should give an outlet for prohibited or taboo feelings. The dominant taboo subjects are sexuality and aggression.

The users' jokes about their intoxicants show that the intoxicant can *symbolize broad-mindedness, a liberal rebellion against prejudices*. Warnings against their intoxicant are seen as prejudices and perceived as giant exaggerations. Users of both alcohol and marijuana consider their intoxicant as safe when it is used in the "correct" way. They argue that most users they know have not suffered any health damage.

Although alcohol for many users symbolize independence and a liberal view, this is still more significant for use of illegal drugs. The establishment views illegal drugs as public enemy number one. This gives the drugs a powerful symbolic value for those who use them, in spite of the vigorous warnings: The use represents a total *rejection of the values of the establishment*.

Because of society's intense fear of the drugs, drug use can provide a tickling excitement similar to mountain climbing and hang gliding: Joy mixed with some fear. Status can be achieved in youth groups by taking risks and living hazardously.

## Rituals and the spirit of community

Man is a social animal. People have a need for meeting other people, but often they will not say that they meet only in order to meet each other. Participating in some shared activity is perceived as less threatening. People can invite each other to "come for coffee" or to "have a beer". Informal rules determines the choice of shared activity.

The increased use of coffee during the 19th century seems to have been linked to the successful fight against "the evil of drinking".<sup>3,4</sup> The intention was to remove a ritual which had very harmful side-effects. But rituals have meaningful functions in human gatherings. Therefore, one ritual was substituted by another, less harmful ritual. Coffee was an exotic beverage which many people could not afford to drink every day. Therefore, coffee was well suited for "Indulge-in-something-extra"-rituals.

Shared activities produce a feeling of togetherness. Toasting one another serves the same function as the marijuana pipe being passed among the group members. It would be naive to believe that the feeling of togetherness and solidarity produced by the rituals, is due to the alcohol in the glasses and the marijuana in the pipes. Temperance groups have rituals serving the same purposes.

The unique aspect of intoxicants is not their use for symbolic and ritual purposes, but the fact that they are believed to alter the user's personality. By selection an intoxicant as a ritual, there is an opportunity to utilize the privileges of intoxication (chapters 2 and 3).

For groups choosing intoxicants for their important rituals, the selection of substance also has a symbolic meaning. The selected substance belongs to the group's identity and image. Different social groups tend to gather around the glass of beer, whisky, French wine or the marijuana pipes. "Tell me which (if any) intoxicant you use, and I will tell you who you are".

A study based on interviews concludes:<sup>5</sup>

"Just as the need for nicotine is not the motivating factor when 10 year old boys smoke in secret, the need for intoxication does not make a 14 year old boy smoke hashish. The aim is acceptance as an equal member of the gang, as "one who dares"."

"We believe we can conclude that the real effect of the hashish is neither sufficient to initiate nor to sustain the smoking of hashish in teenagers. The symbolic value in the circle of friends is the essential factor ..."

The intoxicant which is used, indicates a set of shared values. The choice of values is most strongly communicated by the use of illegal drugs, which fuses the group into a "We-against-the-majority"-attitude. The existence of a collective external opponent or enemy strengthens the unity and solidarity in any group.

## Drug use as a compulsory ritual

Social groups are often distinguished by clothing, jargon and other symbols. Illegal drugs mark a clear-cut symbolic demarcation of the group of users. If you are a drug user, you are "one of us". If not, you are "one of them".

The same phenomenon can also exist in drinking groups: The drinking symbolizes that you belong to the group. But in most cases, this only leads to some degree of peer pressure. Drinking is only compulsory in the most "wet" environments.

At the outskirts of drug-using cultures, individuals may have an ambivalent and irregular relationship to drugs. But at the center of drug-using groups, the use is compulsory for being a member of the group.

Ann had decided to join the drug-using group of the suburb. Her main motive was to get the attention of the group leader (who, in fact, became her boyfriend!) To be accepted as a member of the group, she felt hashish smoking was imperative. She could not stand hashish, but used it all the same.

After one year, she felt that her position in the group was so strong that she could belong to it without smoking hashish. But now and then, she used other drugs which she did not find equally disgusting.

In order to understand drug use, it is important to acknowledge the vital symbolic importance of drug use within the user culture. In treatment of drug addicts, it is often evident that use versus non-use of drugs is more a choice of companions and environment. Long-term addicts most often do not have friends other than drug users, and they often seem to be more dependent on their friends than the drug.

The life as an addict not only provides membership in a social group, but also an active, purposeful life, albeit a deviant one. The addict becomes intensely preoccupied with providing money for drugs, planning and committing burglaries, buying drugs and selling drugs. This life has been said to be analogous to the life of the compulsory hardworking business executive.<sup>6</sup> It can fill one's life with some kind of meaning and purpose, substituting for emptiness and monotony.

## **Ceremonial chemistry**

The supporters and opponents of intoxicants both focus strongly on the chemical effects of the substances. The supporters praise their intoxicant for possessing magical psychological effects. The opponents consider the use to be mainly due to the magnetic attractive force of the substances, their ability to paralyze the will and to enslave the user. The common reasoning against illegal drugs corresponds completely to the temperance movement's reasoning against alcohol.

Supporters and opponents both tend to underestimate strongly the powerful symbolic and ritual functions of the use of intoxicants.

The American psychiatrist Thomas Szasz may deserve more fame for his analysis of chemical rituals than for his controversial writings on mental disease. In his book "Ceremonial Chemistry", Szasz writes:<sup>7</sup>

"Many of these phenomena ... are now discussed in textbooks of pharmacology. This is as if the use of holy water were discussed in textbooks of inorganic chemistry. For if the study of addiction belongs to pharmacology because addiction has to do with drugs, then the study of baptism belongs to

inorganic chemistry because the ceremony has to do with water. Baptism is, of course, a ceremony and is generally recognized as such. Many kinds of drug use ... also constitute ceremonies, but are not so recognized."

"As some persons seek or avoid alcohol and tobacco, heroin and marijuana, so others seek or avoid kosher wine and holy water. The differences between kosher wine and non-kosher wine, holy water and ordinary water, are ceremonial, not chemical. Although it would be idiotic to look for the property of kosherness in wine, or for the property of holiness in water, this does not mean that there is no such thing as kosher wine or holy water. Kosher wine is wine that is ritually clean according to Jewish laws. Holy water is water blessed by a catholic priest."

The fight for a symbol can also be dramatic outside the world of chemical substances. The history of religion offers many examples, with all its crusades and religious wars. In the individual's subjective experience, the need for the symbol originates from the depth of the self, legitimizing drastic methods to take hold of the symbol - whether it is chemical or religious.

### **The wine snobbery and cocaine snobbery**

Wine is not only consumed, but is also praised and worshipped like an idol. Foreign hard liquor and cocaine may be embraced in the same way. This makes it interesting to take a closer look at the symbolic values represented by these intoxicants.

Especially outside the wine-producing countries, wine is mainly consumed in the cities and among the better-off. Cocaine use in the USA has similarly been associated with the middle and upper classes.

In several countries, wine drinking is at present increasing and spreading to new social groups. Studying the history of fashions, we can easily understand this spreading of the wine-drinking habit. Styles and fashions have largely been spread by common people's imitation of the life style of the upper classes. Many fashions can be traced back to the French court in Paris. At the international level, the clothes of the wealthy white man are being adopted by the middle class in all poor countries. In the same way, the intoxicants of the better-off is being disseminated: wine, cocaine and foreign liquor.

Choosing a life style means choosing who is attractive to copy. Do you want to resemble Blake Carrington in Dynasty, peasant Jim Johnson or rock star Bruce Springsteen? Cocaine should be measured in a spoon of gold and be located in the nostril by a folded dollar bill. Mass media pictures film stars and sports heroes using cocaine. The associations link pleasant feelings to the use. The process is the same as with champagne and Russian caviar: While the substance is physically located in the stomach, the accompanying associations are located in the brain.

In social life, wine should be drunk devotedly from tall glasses, while the drinker ought to demonstrate his knowledge of the background of this peculiar brand of wine. For those who do not originate from the upper class, but still want to use knowledge of wine to earn social credit and esteem, there are numerous textbooks. Wine columns in newspapers are also helpful, and if further advancement is wanted, there are wine clubs in several cities.

Knowledge of other agricultural products than wine (e.g., potatoes or cabbage) is associated with dirty fingernails and gives no high esteem. Therefore, no one eagerly gives such information at dinner parties. Knowledge of potatoes gives no membership in Noble Citizen's Club. But knowledge of wine gives a flavor of business executives, university graduates, Falcon Crest and other people whom many people want to identify themselves with.

The status-giving information is not only the wine's background, but also its "quality". The high priests of the wine culture are in command. In other areas, there is no need to account for tastes. Different tastes are met with equal respect. But not for wine: Some brands and vintages *are* the best, while others are inferior. The members of the wine congregation will not jeopardize their status by dissenting. The "scandals" which regularly emerge (when a smart French wine company has sold "inferior" wine under the label of "superior" wine) do not affect the congregation's trust in the high priests. The bottle's name and label have ensured a pleasant feeling and taste for the drinker.

### **Snobbery is not perceived subjectively**

Wine lovers can say:

"Maybe some people drink wine out of snobbery, but I only drink wine because wine happens to taste extremely good."

Such a statement is an honest expression of the subjective feeling. But it is equally evident that taste preferences are socially learned. Why should wine have a peculiar affinity to the taste organs of certain social classes?

Marketing companies are well aware of the impact of associations upon taste preferences. They utilize it professionally in the manipulation of consumers. Advertisements and TV commercials stress the associations between wine/whisky/cognac and yachts/golf/Mercedes. And what kind of beverage would champagne have been without its image (plus the decorated bottle and the cork that pops up to the ceiling).

Esthetic preferences similarly arise from associations: Describing the beauty of Porsche cars or expensive furs may be entirely honest. But equally evident is the fact that preferences are based more upon socially learned associations than objective criteria for beauty.

Claiming that wine has a peculiarly attractive taste, is similarly an honest statement at the conscious level. It is hard to discriminate subjectively the chemical stimulation of the taste organ from the learned associations which are called forth by the substance.

At the unconscious level, the statement may just as much be a declaration of which social group the individual wants to be identified with and which image he wants to leave behind. Imagine an ambitious businessman preferring cheap brandy or even milk to French wine! Strong psychological mechanisms will prevent him from consciously acknowledging such a taste preference, which could have disastrous social consequences.

Symbols with snob appeal are normally imitated by other social groups. But this imitation undermines the symbolic meaning. This happened with cocaine in USA in the beginning of the twentieth century. When the former upper class symbol became the intoxicant of black people in the South, the substance was prohibited!

Hence, the high priests of the wine culture should hope that their manuals and wine clubs do not achieve too wide a distribution. If the cleaning women and mailmen become real wine lovers, the wine culture's high priests will have to look for alternative status symbols.

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## Chapter 2

### Intoxication as alibi for performances

#### The social psychology of intoxication

Ordinarily, the effects which chemical substances have upon human beings conform to a certain pattern:

- The number of different effects are limited
- The effects are characteristic
- Lay persons cannot alone decide which effects can be attributed to the substance

Popular belief on drugs of abuse differs sharply from this general pattern.

A countless number of different effects are attributed to intoxicants. The effects apparently vary infinitely from individual to individual and from one occasion to another. "Well, that's how it affects me", people say. Any feeling and all kinds of behavior are attributed to these substances.

The effects which are attributed to intoxicants, are highly contradictory:<sup>1</sup>

- Some people get happy while others get sad
- Some become pleasant and others mean
- Some become aroused and others sedated
- Some become active and others passive
- Some become silent and others talkative
- Some become friendly and others hostile

People may "become" anything from an intoxicant. When marijuana users are interviewed on the effects of their intoxicant, they respond with the same kind of contradictory effects as alcohol drinkers do.<sup>2, 3, 4, 5</sup>

The idea that certain chemical substances can cause any type of behavior or feelings, has the quality of a social convention, which might be labeled "the convention of intoxicants".

The role of intoxication as an apparent explanation for any behavior and any emotion is a common characteristic of all drugs of abuse. The first man who alleged that this is a decisive aspect of the abuse of drugs, was the Austrian Alfred Adler. He is one of the founders of psychology, who especially stressed the importance of self-esteem in psychology. Adler introduced the term "inferiority complex".

Adler called attention to the fact that intoxicants offer escape from personal accountability by locating the responsibility outside the person. The individual may utilize intoxicants to maintain a better self image than his behavior and performances indicate.<sup>6</sup>

For several years, Adler's analysis was largely ignored. Half a century later, his analysis was elaborated by others.

## Explaining behavior and performances

The American psychologists who further developed Alfred Adler's analysis of self-intoxication, were interested in people's attribution of behavior and performances.<sup>7</sup> As a general rule, we consider behavior to reflect the personal qualities of the individual. But exceptions do exist.

There are sometimes special circumstances to which we attribute inadequate behavior and poor performance: fatigue or illness, bad companions, faulty equipment, immaturity or senility, over-exertion or lack of effort.

Such factors are not merely explanations we use after an event has taken place. When these special circumstances are present, they *can strongly influence the behavior of the individual*.

The opportunity to explain and justify behavior can be used in three different ways:

1. *As an alibi for bad performance.* We often attribute our lack of success to some kind of handicap: "I failed my exam. But I was in bad shape that day, and I didn't feel well, had a headache after a bad night's sleep." These kinds of explanations are especially familiar after sports competitions.
2. *To avoid doing one's duties.* A mild headache may be welcome when we are expected to perform annoying obligations.
3. *To transgress norms.* All human beings have fantasies and impulses which are not converted to actions. The reason for not doing these things is mainly out of regard for one's self-image or one's reputation. If opportunities exist at explaining away the behavior, more of the forbidden impulses are bound to be converted into actions.

These are universal mechanisms in human functioning. We all utilize such attributions in order to maintain our self-image and reputation.<sup>8</sup> Studies have demonstrated that people tend to attribute their own success to personal characteristics, whereas unsuccessful or unaccepted actions in most cases are attributed to external factors.

Most of the extenuating circumstances cannot be evoked upon request. Intoxication is the circumstance which one can be acquired whenever it may be needed. The object of attribution can be obtained under cover of respectable pretexts: "to get in a good mood", "thirsty", "forget your problems", "relax", "have a little fun".

## The attractiveness of self-handicapping: Principles

A fundamental contribution to the understanding of self-intoxication was given by the social psychologists Steven Berglas at Harvard University and Edward E. Jones at Princeton University.<sup>9</sup> They claimed that human beings actively arrange the circumstances so as to protect their conception of themselves as competent, intelligent persons. Objects of attribution may be utilized for this purpose.

When the chess player Deschappelles no longer felt sure of winning his games, he demanded every opponent should have the advantage of one extra move and a pawn more than himself.

Thus, he established a situation in which he might lose the game, but not harm his self-image or reputation. Having an obvious handicap, he could well stand defeat and would receive extra credit if he won the game.

Berglas and Jones drew attention to the fact that alcohol reduces the individual's responsibility for his performance. Steady drinking fits nicely into phantasies about how well one will be able to perform when drinking stops (or would have been able to if the drinking stopped - it may be too hazardous to try!). The theory was experimentally tested.<sup>10</sup> One hundred and eleven participants were divided into groups, performing tasks of different levels of difficulty. They were offered a drug which allegedly impaired their performances.

Among the men who were given difficult tasks, the majority chose to take the drug which was assumed to give them a handicap.

The report concludes that use of narcotic drugs and alcohol may be motivated by the wish to protect the self-image against the acknowledgement of defeat. This conclusion was later supported in an experiment carried out by other psychologists. Ninety-six participants were offered the choice of alcoholic or non-alcoholic beverages, while trying to solve different tasks.

Those who were given tasks which they could easily solve, seldom chose alcohol. But those who received tasks that were impossible to solve, often chose to take alcoholic beverages.

The experiment was published under the title "*Alcohol as a Self-Handicapping Strategy*". Intoxicants may be used as an unconscious strategy to join the category of handicapped people, for whom judgment is milder than usual.

Later on, several more experiments have shown the phenomenon of self-handicapping.<sup>12, 13, 14, 15, 16, 17, 18, 19</sup> Self-handicapping has now become a topic of research in several countries. It all started with research on the usefulness of intoxicants for the purpose of self-handicapping, and especially alcohol still has a central place in self-handicapping.<sup>20</sup>

There is now abundant evidence that has given empirical evidence for the hypothesis:

*When faced with the threat of failure, acquiring a handicap which can serve as an explanation is very attractive. In case of success, the honor increases when success is achieved in spite of the handicap. Intoxicants are often employed for this purpose.*

## **The attractiveness of self-handicapping: Examples**

We may hear some people say:

"I cannot dance well. Therefore, I always drink before dancing."

The statement may seem paradoxical: Everyone knows that alcohol impairs the co-ordination of arms and legs. But for the handicapped, it is not as embarrassing to dance poorly. In that case, the performance is not due to the person's poor abilities, but to the effects of the drug.

The subjective feeling is that the drug "increases self-confidence" or "relieves anxiety".

A 20 year old girl is remarkably eager to be labeled a "drug addict". When confronted about this attitude, she says:

"I *have* to be an addict. For otherwise I am nothing, just a nobody with poor school records whom no one will employ."

Social outcasts and homeless people continue using intoxicants while seemingly having every reason to abstain - they only become sick, sad and broke. Self-handicapping is a major motive for their alcohol and drug use. Jones and Berglas pointed out how use of intoxicants may sustain an illusion of being successful if not for drugs, so that the individual can maintain the idea that he would otherwise perform well.

Skid-row groups in larger cities gather around alcohol use as their common ritual. In the same way, deviant youth gather around the use of illegal drugs, like other social groups gather around other collective activities. But it is hardly a coincidence that socially deviant groups select intoxicants for major rituals.

Individuals can hardly "drop out of the race" and disengage themselves from society's ordinary way of life (having a job, home, and an orderly life) without chemical intoxication which in a way justifies and legitimizes this kind of life-style. To stop intoxicating oneself means to take over the full responsibility for the situation.

A "special circumstance" can also be useful when an individual faces impossible obligations:

A lorry-owner is presently a client at a half-way house. He says: "Tell me why I drink. I find the taste of beer disgusting, and it only gives me unpleasant and sad feelings. I abstain easily when my job functions well. But when bills start pouring in, I become threatened with distraint and my wife is in despair, I start binge drinking."

Nobody expects him to fulfil his obligations while he is making use of society's offer to be spared from responsibility. In order to treat his "alcoholism", the social welfare office helps him to rescue his business.

While at a psychiatric house call, I observed intoxication as a defence against a another kind of failure:

A man in his fifties is married to a woman who is ten year younger. After some years of marriage, his sexual desire and ability declines, making him feel that his wife is persistently bothering him with demanding expectations. As time goes by, he starts drinking every day after work. This effectively removes the expectations and demands of his spouse, who instead starts criticizing his drinking. Talking with him reveals that he perceives the criticism of drinking as far less humiliating than having his lack of sexual desire and potency exposed. Our culture attaches a strong symbolic value to a man's sexual prowess. That is why this man prefers to "have a drinking problem". A similar case has been described by American psychiatrists.<sup>21</sup>

## **Intoxicants as tranquilizers: Principles**

Research largely does not support the idea that alcohol has anxiety-reducing properties (chapter 6). How, then, can we understand the commonly held assumption that alcohol, marijuana and other drugs of abuse reduce anxiety?

The social psychologists Berglas and Jones were the first to point out that the reduction of anxiety has a plain and obvious psychological explanation.<sup>9</sup> Social anxiety usually means fear of attracting negative attention, "making a fool of oneself". There are less reasons for fear in the presence of a handicap, to which failure can be attributed.

An earlier experiment supported this view:<sup>22</sup>

Persons who scored high on performance anxiety were given a drug which allegedly reduced their skills, but in reality was a placebo (inactive) substance. Testing showed that the participants' belief that they were handicapped enhanced their performances.

This outcome was seen as a proof that energy which had been used to control performance anxiety, was liberated for the tasks which were to be performed.

A study of marijuana users showed that individuals with low self-esteem often felt they became more extrovert and spontaneous when smoking marijuana.<sup>23</sup>

At the University of Wisconsin, an experiment demonstrated the effect upon young men's fear when encountering the opposite sex.<sup>24</sup>

Sixty four male students were told that they participated in a taste test, unaware that their consumption of beverage was recorded. One half of them were told that they afterwards were going to encounter a group of young women, whose task was to rate the attractiveness of the young men.

The young men who were told that they were going to be evaluated by young females, consumed nearly double the quantity compared with the others.

When research had largely undermined the widely held theory that alcohol has a pharmacological anxiety-reducing effect, it left us with a need for understanding common subjective experiences of intoxication. This was solved by understanding the psychological mechanisms involved in attribution of failures.

Apparently, even minimal amounts of alcohol can reduce tension and anxiety. In American soap operas, the actors often take a drink when they feel a little upset. This seems to reduce anxiety even without a feeling of intoxication. How can this happen?

Because the social role of being an intoxicated (handicapped) person clearly reduces social anxiety, intoxicants have a reputation for being effective sedatives. Placebo experiments ([chapter 4](#)) demonstrate that when people expect reduction of anxiety, in most cases they experience it. Intoxicants are hardly an exception. In TV series, the anxiety-reducing effects of a drink seem to take place immediately after consumption, long before alcohol has reached the central nervous system. This evidently shows that expectancy and learned effects are active.

### **Intoxicants as tranquilizers: Examples**

The author Henrik Ibsen gives an example in his most famous play "Peer Gynt": Peer is on his way to the planned wedding of his former lover Ingrid, and he is hoping to prevent the wedding ceremony. Suddenly he stops, feeling fear and anxiety. Maybe I am just going to make a fool of myself? Then he starts pondering a way out:

"If I just had a strong drink. Or if I might do it discretely. Or if the wedding guests didn't recognize me. A strong drink would be the best thing - for then, the laughter would not offend me."

Why does Peer perceive the laughter as less offensive if he has had a strong drink?

If he is sober, people will laugh at his personal traits: "What a stupid guy he is!"

But if he has been drinking, people will laugh at how intoxication can transform a man: "How stupid people can behave after drinking!" In that case, they do not laugh at his own personal characteristics.

Therefore, he feels the beverage increases his courage and relieves his anxiety.

Some people with low self-esteem project their self-criticism to their surroundings and feel other people have a critical attitude (which they in reality do not have). A teenage girl having this problem, declares:

"When I'm walking in the streets without having smoked hashish, I become paranoid and feel that people are staring at me with critical eyes."

The poor girl feels she is inferior and deviant. But to appear inferior and deviant when the intoxicant has inflicted a handicap upon her, does not mean that she herself is *really* inferior and deviant. Her subjective experience is that her intoxicant is a tranquilizer.

A skid-row alcoholic who is 30 years old, tells me:

"I dare not talk to people when sober. I'm afraid of appearing stupid."

Does he believe his talking is more intelligent and wise after drinking alcohol? Probably not. But appearing stupid while intoxicated is not perceived as really being stupid. Anyone says stupid things when under the influence, of course ...

A woman reports:

"I never start flirting without drinking."

The fact that this quote is from a woman, may perhaps reflect that women more freely admit these kinds of feelings. The strategy is, however, more frequently applied by men. If young men stopped using alcohol for this purpose, the breweries would have a hard time.

In case of being refused, taking the initiative can be explained away, as the individual was not accountable for it: "People do a lot of weird things when they are drunk." The rejection can also be attributed to intoxication: "She wasn't interested because I was drunk."

The self-chosen handicap not only reduces fear of flirtation, but also relieves performance anxiety prior to sexual activities. A teenage girl remarks:

"We both felt insecure and embarrassed and never slept together without taking drugs. If I didn't get excited, I said "I was stoned, you know ..." - and he said the same thing if he could not make it."

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## Chapter 3

### Intoxication as alibi for actions

#### Responsibility during intoxication

An interview study demonstrated how intoxication may protect self-image despite performing stigmatized actions:<sup>1</sup>

McCaghy interviewed 158 men who were sentenced for sexual offences against children below 14 years of age. This is one of the most stigmatized criminal acts and is even seen as a symptom of a personality disorder. The study shows that intoxication at the time of the crime offers the perpetrator opportunity to confess the stigmatized act without surrendering his identity as a normal member of society:

"If you've been drinking a lot, your passions are aroused... I was drunk and I couldn't account for myself... Drinking is the reason... If I were sober; it would never have happened... When I drink I get that "I-don't-give-a-damn"-attitude... Every time I have committed a crime I was drunk, I'd never do it if I were sober... I have a drinking problem, not a sex problem."

The study concluded that drinking allowed the child molester to confess the deviant behavior without harming his identity as a normal citizen. The offender can substitute his deviance with a less, more acceptable and temporary deviance, far less detrimental to his identity as "normal". Reference to alcohol enables many molesters to admit their offence and yet avoid identifying himself with other molesters.

McCaghy's study demonstrated how intoxication protects *self respect*. Two female psychologists at Georgia State University studied how *other people's judgment* is influenced by intoxication. One study considered men's violence towards women and the other study rape.<sup>2,3</sup>

The participants heard records from several cases involving violence or rape. In some cases the male offender was intoxicated, in other cases he was sober. In some cases the female victim was intoxicated, in other cases she was sober. The participants were invited to comment on the cases and appraise the issue of guilt.

The answers showed that male offenders are judged more leniently when they are intoxicated. When the female victim has been drinking, more blame is ascribed to her.

The study of the Georgia psychologists was limited to violence and rape. At Washington State University in Seattle, a psychologist wanted to assess the importance of intoxication for several other types of actions:<sup>4</sup>

Eighty participants were presented with 8 stories about excessive talking, insulting remarks, violence, willful damage, over-eating, forgery, embezzlement and robbery. One half of the actions were done during intoxication.

Guilt was attributed to intoxication for all the different kinds of actions. The more stigmatized the behavior, the more guilt was attributed to intoxication.

All the studies verify intoxication's role in providing a good alibi to people who intend to show deviant behavior. This is linked to typical aspects of the moral code in our culture.

### **Forgive them, for they know not...**

The moral code in our Western society is an ethics of intention: We do not judge people by the *consequences* of their actions, but by the individual's *intention*. Irrespective of our religion and view of life, we follow the word of Luke: "forgive them, for they know not what they do."

The conventional view of intoxicated persons is exactly that they "do not know what they are doing". The consequences are obvious. Criticism is not directed towards the intoxicated behavior, but towards the use of the intoxicant. Instead of criticizing the behavior, people say: "You have to stop using drugs!" - "You mustn't drink that much!"

When a woman is beaten by her husband while he is sober, she may call him a "brutal beast". If he neglects his duties, she may call him "lazybones".

If he behaves in exactly the same manner after drinking, she may say: "He is *really* a good man, but he drinks too much. He's got a drinking problem."

The same applies to use of illegal drugs.

The focus of the discussion is transferred from the real issue (the issue of behavior) to a pseudo-problem which is more difficult to handle (how much alcohol is appropriate to consume, whether or not to take illegal drugs).

The redefinition of behavior problems as a problem of intoxicant use may be beneficial for both parties *at short sight*:

The offender is spared feelings of guilt and shame.

When her husband has been rude after drinking, the wife comforts herself with the thought that she does not *actually* have a mean husband. When a teenager has been performing stigmatized actions while on drugs, it is reassuring for the parents to blame the drugs for the actions.

In Ibsen's play, Peer's mother Aase comforts herself before dying:

Peer: I know I am to blame. What do I benefit from being reminded of that?

Mother Aase: You! No, that damned booze is to blame, that was the reason for the misery. My dear boy, you were drunk, then man doesn't know what he is doing; ...

Both parts agree that it happened *because* he/she/I was intoxicated. The sentence is directed towards the intoxicant, not the individual's personality.

This is why substances which are regarded as intoxicants give a unique sense of freedom. The actions of the individual will not be linked to the self-image or reputation. Hence the basic feeling of intoxication, which everyone who has ever been drunk or "high" has felt inside is,

*"Now it doesn't matter what I say and do."*

This feeling is well founded. Society's view of intoxicated people makes it less risky to behave deviantly while intoxicated. The behavior does not have the ordinary consequences for self-esteem and prestige.

### **A sense of freedom - for better or for worse**

The increased feeling of freedom may be utilized in several ways. Most often, we can observe a reinforcement of the individual's personality traits. The talkative person becomes more talkative. The happy one, the sad one and the aggressive all show their emotions in a clearer way.

Which person shows which behavior, does not, of course, happen by chance. The well-controlled individual may permit himself verbal aggression. The individual who shows verbal aggression while being sober, may permit himself violence. The violent person may use a degree of force resulting in a killing.

For better or for worse, the lowered threshold for impulsive behavior will cause behavior which otherwise would not have taken place.

For introvert persons, it may be a good opportunity for being more spontaneous. Some provide more contact or humour than they ordinarily do.

Office parties not only serve the function of pulling the staff together. Some employees want to scold or insult the boss. Others want a flirtation with a married colleague. Wanting to protect their reputation and minimize the undesirable consequences, they wisely postpone this behavior until the office party, so everyone will understand that intoxication is the reason - they are "not really like that".

For better or for worse, impulses and whims are let out. Some of the impulses are pleasant or humorous, others are ruthless or cruel.

The proponents of an intoxicant often claim that the *real* property of the intoxicant is to make people nice and friendly. When destructive behavior is related to the intoxicant, they blame the individual's faulty use of the intoxicant (deviance or disease). Friends of alcohol argue in the same way as advocates of cannabis. They want to enjoy the benefits of relaxing ordinary norms of behavior without having to share any responsibility for the accompanying tragedies. But the social role of being intoxicated lowers the threshold for all kinds of impulses - *both* the pleasant *and* the horrific.

The nice and the destructive behavior are both a logical consequence of the mitigating circumstance. The funny man at the party, the spontaneous friend, the partner who is ready for seduction, the rapist and the pyromaniac are all the logical result of the "Now-it-doesn't-matter" atmosphere.

A psychological understanding of the intoxication confirms the historical evidence: In spite of the long-term hopes, society has never succeeded in enjoying much of the joys of intoxication without having to pay the corresponding price of hardships and tragedies.

## A strict conscience on vacation

Human beings often want to protect their reputation. But self-esteem is often given primary consideration. What is usually called conscience, is in psychoanalysis called super-ego. This quotation is from the International Journal of Psychoanalysis and Psychotherapy:<sup>5</sup>

"During intoxication, one is "allowed" to do things which the superego ordinarily forbids. The abuser cheats or manipulates the superego with the intoxication."

Here is an example, which like most other examples are from psychiatric work.

A high-school teacher in his forties is a work addict. When he is sober, he does not allow himself to limit the number of extra tasks (for the school, extra employers, friends and neighbors).

During his drinking periods, he does not misbehave. He does not, in fact, do much at all. He gets a kind of vacation which is well-deserved and easily understood, but is totally incompatible with the superman-image he struggles to maintain.

The task of the therapist is to give him insight into his unconscious motives and to provide him a sick note when the pressure is too high.

Most people who generally demand much of themselves, do not use intoxication to manipulate their conscience. But many people do have narrow limits in a certain area.

Objecting or rejecting other people is a taboo for some people. Some of these aggression-inhibited persons use intoxication as a "solution":

A lawyer in his fifties has been drinking during all his vacations for the last few years, but has otherwise been functioning well. His wife thinks the reason is his "compulsion for drinking". This is one of the pseudo-explanations for drinking which our society offers.

The couple has largely a good relationship, but have some inhibition concerning aggression, so verbal disagreements are rare.

Towards the end of a Christmas vacation, they have a quarrel and his wife calls for a psychiatrist.

During the years, the two have developed different preferences for spending their winter vacation. She looks forward to skiing and parties, while he would rather pad about in his dressing gown and slippers. He is ashamed of feeling old and weary and doesn't want to concede this to his wife.

But by means of drinking, he gets his way.

Illegal drugs may, of course, be used for the same purpose:

Anne is known as a fair, gentle and smiling girl. But nobody feels that way inside all the time. Feelings of guilt prevent her from frankly opposing her parents. When the internal pressure becomes too strong, she leaves the flat or insists on being left alone in her room.

From puberty, she periodically joins the subculture using illegal drugs, and is often obviously intoxicated when coming home. In those cases, her self-image does not prevent her from appearing grumpy and obstinate in front of her parents. Telling this to her psychiatrist, she

seems well satisfied, stating that "It serves them right that I'm not always smiling politely at them."

Anne is also facing problems when she wants to terminate the relationship with her boyfriend:

For a while, she has been out of contact with the drug culture and has been working. But she feels repressed in her relationship with her friend and wants to quit. But saying this is difficult.

Anne seizes the wine bottle in her parents' cupboard and drinks three glasses. To her, this amount is sufficient to allow her to speak out. "I was quite drunk and told him the naked truth", she later tells her psychiatrist with satisfaction.

The outbursts of aggression which may be displayed by intoxicated persons, may not only be unpleasant for others, but sometimes inexpedient for the aggressive person too. But the basis for the indignation may be easily understandable:

A forty year old woman says: "I drink because my man treats me so badly".

I reply, "I don't think that may be the *entire* explanation. Your drinking doesn't make you less sad, and your husband only becomes more angry when you're drunk. Besides, I don't think most women who have nasty husbands, are especially heavy drinkers."

It turns out that while drinking, she gives herself permission to let out all her pent-up aggressive feelings and pushes housework over to her husband. Her rebellion is fully understandable and well-founded, and she obviously feels he deserves it. But when her protest is legitimated by drinking, the insubordination undermines her position in the family.

Similar examples are found several places in the scientific literature.<sup>6,7,8</sup>

### **... but more often, a permissive conscience is on vacation**

The peaceful users of intoxicants are no big problem, although intoxication is an unhealthy way of sending a strict conscience on vacation. But the opportunity to feel extra freedom is probably more often taken by persons who do not have a stern conscience. Ruthless behavior during intoxication has given intoxication a bad reputation.

We often observe that someone whom we think might well have a more strict conscience, uses intoxication for further lowering his level of consideration.

The following example is taken from a psychiatric out-patient clinic. The patient is a depressed woman. Like many others, she says her main problem is the partner's drinking.

When the partner accompanyes the patient to the psychiatrist, he has not been drinking for a couple of weeks. But he seems rather unconcerned when he states that: "I do want to stop drinking, but of course, I can't guarantee that I will make it."

*I* (to her): "Why is it so crucial for you that he stops drinking? Are you worried about the money, or his liver, or the risk of an accident during intoxication, or what?"

*She*: "No, my problem is *how he reacts to alcohol - the way he becomes from drinking*. After a couple of beers, he becomes indifferent and hostile towards me. He goes downtown and may stay away for several days. He goes with women he meets downtown. When I try to stop him, he sometimes beats me."

The reason why the partners demand a stop to the drinking, is the same in almost every case - the problem behavior that accompanies drinking.

The partner's reasoning is that *alcohol makes the drinker behave that way*. In the long run, it hardly benefits the partner to see it this way. Intoxication allows an opportunity for a maximum of impulsive behavior with a minimum of sanctions. It is often appropriate to reason the other way around: The drinker *intoxicates himself in order to behave that way*.

If we do not think it is wise to redefine the behavioral problem to a drinking problem, we may say:

*I* (looking thoughtfully into her eyes): "You call it reacting that way to alcohol. But do you really think the alcohol in a couple of beers may force him to go downtown for several days and cheat on you? In fact, I think most beer-drinking men don't do those things?"

If we ask the partners how they would have responded if the partner showed the same behavior without being intoxicated, the usual answer is:

"In that case, I would have divorced him a long time ago, for that would imply that he really was like that - was the kind of man who could do such things to me."

The whole range of the most stigmatized and grotesque actions are related to intoxication, especially to alcohol intoxication. The more sadistic an act of violence is, the more probable that it has been committed during intoxication. A person's self image will seldom endure having committed sadistic behavior without an "extenuating circumstance".

This leads to immense tragedies. In many cases, the partners' despair is not the worst, as they have the possibility of divorce. But children cannot choose their parents, and parents maintain their ties during the whole lifetime.

Weighing the benefits up against the tragedies of intoxication, is an ordinary human issue, not a professional one.

The use of intoxication for harmless or pleasant behavior probably outnumbers the use for ruthless behavior. The problem is that several people behave so utterly destructively during intoxication. Weighing the benefits towards the harm, a huge number of spontaneous, charming party guests will probably be required to outweigh each killer or rapist.

## **Intoxication for different purposes**

Intoxication may serve truly varied purposes.

The phenomenon of "drinking for comfort" is a paradox. In most cases, the drinker becomes more sad, sentimental and tearful for every glass he drinks. What kind of comfort is that?

For people who feel that exposing despair and crying is a taboo, intoxication may manipulate their self-image. They sometimes have a strong need for sharing their despair with others,

display their pent-up feelings and let the tears flow. If the self-image does not permit this behavior during full personal responsibility, it may still be acceptable during intoxication.

While straightforward despair most often is a taboo for males in our society, casual sexual relationships are more often a taboo for females. Here, too, intoxication may be useful.

Overweight and feelings of inferiority are bothering a 21 year old woman. She often drinks excessively during weekends, and comments:

"Sometimes I feel like a nobody, wanted by no one. Then I get drunk and sleep with one man after another."

The intoxicated behavior gives her a certain feeling of being accepted and attractive after all. In the short run, her feeling of inferiority is weakened. Still, the behavior is so much stigmatized that in the long run, her self-esteem is probably further undermined.

Intoxication is, of course, also used as a pretext for amusing behavior:

On my daily route from work, I often meet a drunk man who jokes and teases. To us pedestrians who pass by, he says all the things that we others merely think about each other (about clothing, behavior etc.). He is harmless and in reality quite popular. We hardly get insight into this man's feelings by asserting that he behaves like a clown because he is drunk. *He drinks because he enjoys clownish behavior.* If his self-esteem would allow him to take on the clownish role without an excuse for it, he would have saved both money and health.

Parents and youth often argue over the issue of beverages at teenage parties. The disagreement is apparently over chemistry and blood alcohol levels. But the real issue is the rules for behavior. Several young people want an alibi because of their lack of self-confidence and their wish to let their impulses out. But the teenagers' impulsive behavior is indeed what the parents fear.

## **Advertising the alibi**

When intoxication is merely used for manipulating the conscience and protecting self-esteem, it is sufficient that the individual perceives himself as intoxicated. But if the intention is to achieve a mild judgment from other people, the other(s) must notice the special circumstance.

Anthropologists who have studied alcohol use in various societies, point out that intoxication is often demonstrated in a conspicuously visible or loud way. It also takes place after drinking very small amounts of alcohol. An anthropologist says:<sup>2</sup>

"By advertising that you're drunk and socially irresponsible, others will know how to interpret your words and deeds. It doesn't do you any good to be drunk and try to get away with things if other people don't know you're drunk. You have to make that message clear.

The implications of such a belief for the disinhibition hypothesis are obvious. If it is to people's advantage to behave in a drunken manner, and if such behavior is culturally excused, then many drunks will behave in this way regardless of whether they are physiologically inebriated. Indeed, it's often to their clear advantage not to be too drunk physiologically - (it

applies to) sexual arousal, and ... aggressive behavior - if you're drunk, you get beaten up; if you're not too drunk, then you'll probably win the fight."

The same phenomenon is often observed in our own society. Both at parties and in public places, we often observe the alibi being prominently demonstrated. The method may be exaggeration of the bodily signs of drunkenness (swaying or snuffling) or demonstration of the intoxicant (the bottle in the hand or sticking out of the pocket).

A late Saturday evening, the 16 years old David and some of his friends are sitting in a bus. David has a low self-image and is often bothered by feelings of inferiority. But now, he takes the opportunity to compensate for these feelings. He talks loudly, boasts and is apparently full of self-confidence. He is singing and joking, insulting some adults who are sitting nearby.

He is holding his bottle of beer high and, he is swaying and talking more indistinctly than he actually needs to. This behavior is intended to convey the message: "If somebody in the bus should happen to know me, remember that I am not *really* like this! Now I cannot account for myself!"

At parties, people sometimes focus tremendously on the intoxicant use. Over and over again, the glasses and beverages are commented, are objects for singing and repeated toasting. The intense focusing serves to emphasize that the intoxicant is present, with all the associated opportunities for impulsive behavior. No one is allowed to overlook that the party is of the "Now-it-doesn't-matter"-kind.

Some countries and states have laws prohibiting the consumption of alcohol in public places. If the legislature intended to prevent liver disease or accidents, the ban on public drinking is hopelessly insufficient. What, then, is the intention?

The lawmakers seem to have had an intuitive apprehension of the purpose of visibly demonstrating the use of an intoxicant: It serves to legitimize problem behavior. And for preventing this behavior, the law may seem quite logical. We may choose whom we will associate with in private life and at parties, but we all have to attend public places.

## **The extenuating circumstance in court**

Legislation and court practice reflect society's attitudes. In accordance with society's ethics of intention, people who "do not know what they are doing" are normally not sentenced. In addition to psychoses, this also applies to a kind of unconscious state of mind.

A purposeful action shows that the person is not unconscious in the normal sense of the word. But in order to conform with the public apprehension of intoxicated people, some countries consider intoxication as equal to unconsciousness.

The lawful position of self-inflicted intoxication has been controversial.<sup>10</sup> It seems that in principle, laws in most countries judge intoxicated perpetrators as if they were sober. The actual practice of judges and juries is, however, likely to reflect society's general attitudes towards intoxicated persons. Well-known defence lawyers have stated that they are fortunate if the defendant has been intoxicated at the moment of committing the criminal act, as this fact may lead to a milder sentence or increase the chance for a suspended sentence.

In the USA, it has been shown that in cases of murder, intoxicated suspects more often are found not guilty than sober suspects.<sup>11</sup> Another American study indicates that intoxication is primarily considered an extenuating circumstance when the perpetrator is a young first time offender.<sup>12</sup>

The study showed that for older criminals labeled "alcoholics", intoxication does not have this effect. On the contrary, for elderly alcoholics, intoxication even tends to increase the severity of the sentence, probably because the chronicity of the drinking increases the risk of repeated crimes. The defender may not, as in the case of a young first time offender, claim that the perpetrator "is not really like that" and that "after the crime, he has stopped drinking".

Thus, the legal attitude towards intoxicated behavior is ambiguous. But even in the cases where the perpetrator is convicted, impact of the criminal act upon reputation and self-esteem may be of greater importance than the court's sentence. And as long as the individual does not perform criminal acts' when being sober, the individual and his surroundings will probably infer that "he is not really like that".

### **What is meant by "drinking too much"?**

Sociologists at Massachusetts State University scrutinized the connotations of the common phrase to "drink too much".<sup>13</sup>

More than 4000 (!) individuals were asked to comment on 30 fictitious, but characteristic stories about people drinking from a minimum of 2 drinks to a maximum of 13 bottles of beer. The quantity of alcohol was not found to determine primarily whether the label "drinking too much" was used. The behavior that accompanied the drinking was more important.

If the drinker was pleasant and kind, there was a considerable tolerance for drinking a large amount of alcohol. But if the drinker was destructive or quarrelsome, it was easily labeled "drinking too much" although the actual consumption was not reported to be large.

The popular phrase "drinking too much" does not have the connotation we could immediately believe - drinking a large quantity of alcohol.

In social life, we often conclude that someone has been drinking "too much". Our idea is not based on counting the number of glasses which the drinker has been consuming. Which person is said to have been drinking "too much", is based on something we hear or see from a distance of several meters. The evidence is unusual or inappropriate behavior. Other party guests may have been drinking far larger amounts of alcohol!

Several persons who drink "too much", do in fact consume moderate amounts of alcohol. There are also people who consume large amounts of alcohol without conspicuous changes in their behavior. They are seldom perceived as problem drinkers, but are still at risk for accidents or diseases due to their drinking. Personally, I have met heavy drinkers who had even developed the serious complication delirium tremens without having been labeled problem drinkers by their wives and children. As long as they did not show problem behavior, the family did not object to their drinking.

The behavioral problems are the sort of problems related to alcohol which causes most concern. The relatives' demands for compulsive treatment very seldom come in cases of life-

threatening disease (for example cirrhosis of the liver). The demands are in the vast majority of cases provoked by the intoxicated behavior which the relatives can no longer bear. This applies to both legal and illegal intoxicants:

"The last time he forced his way into our apartment, he molested his stepmother - she fractured three bones and was admitted to the hospital. Are we expected to merely submit to such behavior?"

"Last year, he has smashed and pawned family belongings of more than 3000 dollars value. So, now he *has to* be taken into treatment for his drug addiction!"

The redefinition of these behavioral problems into treatment problems probably leads to a more gentle handling of the intoxicant users. But it seldom resolves the problems. The public, politicians, the social welfare agencies, the judicial system and others have unrealistic expectations of the ability of the treatment system to sort it out. But the cure for ruthless intoxicated behavior has not been invented and probably never will be.

Prevention is easier than cure. In earlier times, the tragedies people witnessed often inspired combatting the drinking culture. In the last decades, it has more often led to unrealistic demands for treatment.

### **The cause of counter reactions: Problem behavior**

Understanding that the popular phrase "drinking too much" in reality means to display ruthless or unwanted intoxicated behavior, makes it easier to understand that intoxicant use becomes associated with problems of guilt and morality. Moral reproaches are seldom directed towards peaceful, considerate drinkers. The drinkers that profess feelings of guilt are primarily those who have shown ruthless intoxicated behavior.

The moral reproaches are in most cases less due to moral prejudices than to the actual behavior of the drinker. As time goes by, the drinker's surroundings tend to hold the drinker more responsible for his behavior, and the normal (and moral) condemnation of the behavior takes place.

The fact that counter reactions mainly are due to intoxicated behavior, explains why drinking is more controversial in some countries than in others.

The wine countries in the Mediterranean area have the world's highest per capita consumption of alcohol and the world's largest mortality from alcohol. In France, liver disease is ranked as number three among causes of death in males. The yearly death toll attributable to alcohol equals one of the nuclear bombs which were dropped over Japanese cities in 1945. Still, controversies and concern over drinking remain modest in France.

On the other hand, controversies over drinking have been strong in a number of countries with a lower per capita consumption and a lower alcohol mortality. This applies to a part of the world which might be labeled the "booze belt" - Soviet Russia, Poland, Finland, Sweden, Norway, Scotland, Ireland, Iceland, the English-speaking Canada and in the melting pot USA, which has a mixture of several styles of drinking.

In these countries, alcohol use for the purpose of intoxication is common and drinking often makes other people suffer. The skepticism towards drinking is hardly due to "pietism", but rather to the intoxicated behavior that actually takes place.

In earlier times, the temperance movement was a mighty force in these countries. If we read the writings of the temperance movement, we find that the movement was not a "Popular movement for saving livers". The argumentation indicates that it was rather a "Popular movement for the protection of wives and children against husbands' ruthless intoxicated behavior".

In recent times, the frustration over harmful drinking has been channeled into alcoholism treatment and alcohol research. More than 90 % of the world's treatment and research is found within the "booze belt". At international congresses and seminars on alcohol problems, the Mediterranean countries have very small delegations, as opposed to the countries in the "booze belt", where the actual consumption is modest.

Thus, there is no doubt that counter reactions towards drinking are chiefly due to behavioral problems, not to health problems.

### **Do they really "not know what they do"?**

In support of the idea that intoxicated people do not know what they are doing, two types of arguments are often used:

Firstly, it is argued that intoxicants dull people's minds. Professionals often label this phenomenon "impaired cognitive function".

The functions of the brain are impaired by large doses of most intoxicants. But this is the case with several other substances, and the capacity to physically do things is more severely impaired than the ability to remember behavioral norms. The peculiar aspect of common ideas about drugs of abuse is that they apparently gives a *selective* effect on remembering norms, while physical abilities and vigor are functioning unimpaired.

People are under the influence of sleeping pills almost as often as they are under the influence of alcohol. Sleeping pills are most often used by ordinary people, not drug addicts. The medicine only makes them tired. But although their minds are at least as "dull" as those of people who are drinking alcohol, their behavior does not indicate that they are unable to remember behavioral norms. We remember norms until we are fully asleep.

Thus, there is no necessary or natural connection between "dullness" and transgression of norms.

Secondly, it is argued that some drunk people do not remember things the day after. But this is no evidence that they had forgotten the norms while drunk. The memory seems to function as in senility (senile dementia). What primarily is lacking is not the ability to remember past events, but the ability to ingrain new impressions into one's memory.

This is clearly demonstrated by the commonly observed ability for drunk people to "sober up" if needed. Most people have observed this phenomenon, which can hardly be accounted for

by chemical processes. We also hear drinkers say that "suddenly, I became sober", describing situations where unanticipated events made it very unwise to have lost one's inhibitions.

## **Intoxication as a collective self-deceit**

Educational leaflets have warned: "Do not drink, for if you get intoxicated, you do not know what you are doing! Anything may happen!" Why do not these frightening prospects keep people away from drinking?

The answers may be found in surveys, which show that although people frequently criticize each other's behavior while drunk, they are generally well satisfied with their own behavior when intoxicated. In a Nordic study asking people questions about the consequences of their drinking for the last year, only 13.7 % regretted things that they had done while drinking. 4.8 % had done something they regretted more than twice.<sup>14</sup>

There is, of course, a larger percentage who have done something they regret while being sober. Thus, the tendency to do regrettable things during intoxication is very moderate. Far more people have used the privileges of intoxication to do pleasurable things:

- 28 % of alcohol users have expressed their feelings more freely than they usually do
- 35 % think they have been funnier than usual
- 22 % think they have been less afraid of being together with other people

An American study confirms that intoxicant users in most cases are well satisfied with their doings while intoxicated.<sup>15</sup>

If it were true that people under the influence "did not know what they were doing", events during intoxication would have happened by chance and seemed unintentional. People's reports from their own intoxication would have been accompanied by tears rather than by smiles. A large proportion would have regretted their intoxicated behavior and few people would have reported pleasurable experiences during intoxication, or gone on repeating the experience.

What we actually observe, is the opposite. If we ask people in the drinker's personal environment, the intoxicated behavior is frequently criticized. But although people often are critical towards other people's intoxicated behavior, they tend to be well satisfied with their own.

The studies demonstrate that *the feeling that "Now-it-does-not-matter-that-much" is generally utilized in a pleasurable and highly intentional way*. People obviously know what they are doing, they are only following the principles of lust and pleasure to a larger degree.

For most people who have been intoxicated, there is another road to acknowledgment of the truth - total honesty. Transgression of norms did not take place because the norms were forgotten, but because of the feeling that "now-it-does-not-matter". People who have been drunk, know for example that if somebody does not remember (because of alcohol) that rape is a wrongdoing, he is physically totally unable to carry it out.

People would, of course, not expose themselves to health risk, physical discomfort and large expense if they really did not know what they were doing!

The studies demonstrate that intoxicated people only in rare, exceptional cases do things they regret. The main rule corresponds to the common observation: *Intoxication apparently produces an irresistible urge to follow one's immediate impulses and desires*. And people can certainly feel that such a condition is worth a good deal of money and health risk.

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## Chapter 4

### Are intoxicants magical substances?

#### Magical substances or learned effects?

The most important conscious motives for intoxicant use are the beneficial effects upon mood and behavior. They are reported to:

- produce a feeling of well-being
- produce a good mood
- increase self-confidence
- remove inhibitions
- make people more sociable
- relieve anxiety
- increase sexual desire

Marijuana smokers and alcohol drinkers attribute many of the same qualities to their intoxicant.<sup>1, 2, 3, 4, 5, 6, 7</sup>

Thus, the motives for use are not very different. Similar effects are to a large degree attributed to other intoxicants.

The popular idea is that any feeling and all kinds of behavior may be attributed to drugs of abuse. Not surprisingly, wishful thinking is prominent: *Any feeling and behavior that people may desire* is attributed to intoxicants.<sup>8</sup>

There are many metaphorical descriptions of pleasurable experiences during intoxication (chapter 7). In most cases, the descriptions have an "as-if"-character:

- as if I saw the world in a clearer light
- as if the music was more beautiful and the colors stronger
- as if I were present and at the same time not present

Can widely different chemical substances really have such similar effects? Can chemical substances have so many, specific, marvelous, and even supernatural, effects?

Drugs are, of course, used in psychiatric treatment, because research has established that these drugs have beneficial effects on certain symptoms. But the effects are rather non-specific and do not influence such specific dimensions as self-confidence and inhibitions.

Knowledge of psychiatric drugs leads to skepticism towards the apparent effects of intoxicants. Intoxicant effects appear to represent true magic. A psychologist labeled his lecture on popular belief about alcohol effects: "*Alcohol - the Magic Elixir.*"<sup>2</sup>

Medical doctors have traditionally said that intoxicants induce "euphoria". The word means a good mood and a pleasant feeling. At first sight, this labeling seems convincing. But the research supporting this theory is lacking. Medical doctors were expected to explain why people choose to use harmful drugs. The explanation was a word - euphoria - which apparently provided an adequate explanation.

But popular opinion is ambiguous. A survey in Norway concluded that<sup>10</sup>

- 45 % of adults believe alcohol produces a good mood
- 55 % do *not* believe that alcohol produces a good mood

The figures indicate that among those that have personal experience with alcohol use, the popular opinion is divided almost down the middle. Who is right?

## Research with humans and animals

In establishing the effects of chemical substances upon human beings, animal research plays an important role. By measuring a drug's physical effects on animals, scientist learn about the effects on humans.

For psychological and behavioral effects of drugs, drawing conclusions from animals to humans is not so simple. But several experiments on animals and intoxicants have been carried out.

Do animals appreciate the effects of intoxicants?

The answer is largely negative. As a rule, animals avoid intoxicants. Some experiments which really have succeeded in making animals choose intoxicant use, have usually placed the animals in very artificial situations. By isolating the animals from social life and for a period forcing them to take intoxicants, it has sometimes been possible to make them prefer intoxicants.

But when animals are allowed to choose different social activities which can give some satisfaction, they seldom care about intoxicants. Here is a characteristic experiment:<sup>11</sup>

Rats were allowed to choose between two solutions with almost identical taste. One of them contained morphine.

For the first 8 hours, the animals drank equal amounts of the two solutions. For the rest of the 19 days which the experiment lasted, they avoided the morphine almost completely.

This means that the rats avoided morphine when they got to know the effects of morphine and learned which container it was in.

Even a psychiatrist who is known to seek biological explanations for drug use, concludes:<sup>12</sup> "most animals cannot be made into addicts ... Although the pharmacological effects of addictive substances injected into animals are quite similar to those seen in human beings, animals generally avoid such drugs when they are given a choice."

The least difficult is to make animals choose stimulants and the most difficult is to make them choose alcohol and hallucinogenic drugs. Opiates are in the middle position.<sup>13</sup>

But these conclusions from animal experiments cannot be applied directly to human beings. How are, for example, researchers supposed to assess mood and disinhibition in rodents?

In order to evaluate which research methods can be applied in experiments with humans, we must look at the mechanisms which may be involved in all the alleged psychological and behavioral effects in humans.

The first alternative is, of course, that enthusiastic users are right: The intoxicant stimulates a center of joy in the brain, relieves anxiety, enhances self-confidence etc. If these are *pharmacological effects*, the effects should be observed in all groups of users, regardless of the users' previous learning about the effects.

The second alternative is that psychological and behavioral effects take place as a result of *social learning*. In that case, these effects will only occur among those users who have learned about these psychological effects.

Learned effects may be a matter of either *expectancy effects* or of *learned interpretations*. Because these phenomena are less well-known, we shall take a closer look at them.

## How do we identify our feelings?

A textbook of psychology which was published in 1890, laid the foundation for later research on the psychology of feelings.<sup>14</sup> The textbook stated that our feelings are accompanied by bodily reactions. We notice internal cues which we recognize from earlier experience. These cues have vital importance for our interpretation of a feeling. Subjectively, we experience that these bodily reactions *are* the feeling and inform us of the strength of the feeling.

Several years later, this viewpoint was confirmed in an experiment which has become a classic in social psychology.<sup>15</sup> The researchers gave the participants epinephrine, a hormone which makes the heart beat faster and gives a feeling of excitement. When we experience strong feelings, we usually have an increased production of epinephrine.

Some participants were placed in amusement-inducing situations, others in anger-inducing situations. Some participants were informed of the effects of epinephrine, while others were not informed.

Those who had been given information about epinephrine's effects, had little change in behavior and feelings during the experiment.

But those who were ignorant of the effects of epinephrine, showed more amusement in the funny situation and more anger in the anger-situation. They interpreted the bodily reactions as an evidence of strong feelings. A non-specific influence was interpreted as a distinct feeling. The conclusion was: "Given a state of physiological arousal for which an individual has no immediate explanation, he will "label" this state and describe his feelings in terms of the cognitions available to him. ..."

A non-specific reaction has to be interpreted in order to be meaningful. Those who did not know the effects of epinephrine, were unconsciously reasoning: "I have a strange feeling of being different. My heart is beating and I'm feeling restless. I presume this is because I'm very amused/angry."

The researchers presumed that the effects of epinephrine might also be interpreted as feelings other than amusement and anger, dependant on the situation:

When a shady type directs his knife towards you, saying "I'll take either your money or your life", you interpret the epinephrine's effects as fear. When your loved one reaches out for you after a long period of absence, you interpret the effects as love and affection.

The individual notices internal cues which in themselves are neither pleasant nor unpleasant. The cues may be interpreted as delightful or nasty, based on the explanations that are available in the situation.

The researchers assumed that the same phenomenon could apply to other bodily conditions, such as the influence of intoxicants. In this area, they could refer to research which had been performed by others.

### **Can chemical effects be learned?**

The sociologist Howard S. Becker held interviews with 50 marijuana smokers.<sup>16</sup> The study revealed that smoking marijuana was quite insufficient to become "high". The desirable effects certainly did not occur spontaneously. In starting their careers as marijuana smokers, the users first had to learn the proper technique of marijuana smoking. As the effects are rather mild, they also had to learn to interpret the internal cues as effects of marijuana.

After a while, most users were able to feel reactions which they attributed to marijuana. They largely felt physical effects. But most beginners felt the effects were unpleasant. Many thought the effects were frightening and became frightened. Experienced users calmed them down, telling them their reaction was normal. They taught the novice to regard the ambiguous experiences, initially considered unpleasant, as enjoyable:

"The same thing happened to me. You'll get to like that after awhile."

Those who do not have experience with marijuana smoking, will recognize the description from their first time use of alcohol and tobacco. In the words of Becker's report, "enjoyment is introduced by the favorable definition of the experience that one acquires from others."

Becker's well-known conclusion was this:

"Marihuana-produced sensations are not automatically or necessarily pleasurable. The taste for such experience is a socially acquired one, not different in kind from acquired tastes for oysters or dry martinis. The user feels dizzy, thirsty, his scalp tingles, he misjudges time and distances; and so on. Are these things pleasurable? He isn't sure. If he is to continue marihuana use, he must decide that they are. Otherwise, getting high, while a real enough experience, will be an unpleasant one he would rather avoid."

Becker is here describing how psychological "effects" which the drug in itself does not produce, may occur as *learned interpretation of a "feeling-different"-sensation*.

Later on, a Scandinavian study presented similar results to Becker's.<sup>17</sup>

## The power of expectations: The mighty placebo effect

In the examples which have been mentioned so far, a real, noticeable chemical influence was present, which could be interpreted in different ways. But "effects" may also occur without any discernible chemical influence. These effects must be labeled pure *expectancy effects*.

Expectancy effects occur when the individual has been taught that a drug has certain effects, and then takes the drug (or believes he takes the drug). Well-known examples are the substantial effects of "sugar pills" or injections of physiological saline solutions in a patient who is expecting such effects.

In medicine, this is labeled "*placebo effect*" and the pharmacologically inactive drug is labeled a "placebo". Placebo drugs may lessen pain and other symptoms and may also produce side-effects.<sup>18</sup> Until this century, most effects of medical doctor's prescriptions were based on placebos. In our time, suggestion still plays an important role in medical treatment. Expectations are powerful factors. A group of researchers administered a drug while instructing the participants that the drug would either be stimulating or depressing.<sup>19</sup> The instructions were not only reflected in the participants' feelings and behavior, but also on measurement of heart rate and blood pressure. Addiction to placebo drugs has also been reported.<sup>20</sup>

If we want the hard facts about drug effects, separating learned effects from pharmacological effects is a crucial issue. A method often used is *blind tests*, in which one half of the participants are given the drug to be tested and the other half are given a placebo.

In blind tests, a potential source of error is the conscious identification of the active drug because of side effects, which reveal that the drug is no "sugar pill". In order to avoid this trap, researchers sometimes use an "*active placebo*" which is a drug with certain effects (often one which resembles the drug to be tested).

## Can intoxicants be studied by blind tests?

The drugs which are tested in medicine, are usually new and unfamiliar. The persons taking part in the studies are inexperienced with them and have no particular expectations. But intoxicants are well-known. Many people have personal experience with intoxicants, and still more have learned about their effects. This may lead to difficulties in interpreting the outcome of blind tests.

If anticipated psychological effects do *not* occur in blind tests, then this indicates that these effects are learned.

If anticipated psychological effects do occur, then we face two possible interpretations. It *may* be due to true chemical effects. But it may also be caused by the errors due to the participants' previous learning about the intoxicant.

Firstly, there is a risk that the substance may be recognized. Unfortunately, all blind tests with alcohol have employed alcohol drinkers as participants. This also applies to most of the blind tests with marijuana and several with other intoxicants. The risk of recognition is obvious. Taste and appearance may be concealed or camouflaged. But on noticing the bodily effects, learned associations may provoke learned psychological effects.

Secondly, learned interpretations may occur without consciously recognizing the intoxicant. Although the participants do not overtly recognize which substance they have ingested, internal cues may be interpreted as the feelings they have become associated with: *"I do, of course, understand that I have not been drinking alcohol, but what I'm feeling is exactly the same ..."*

Thirdly, even non-users of an intoxicant may have learned expectations to the substance. At all the experiments, the researchers have felt obliged to inform the participants: "You may perhaps get alcohol" or "perhaps you will be given marijuana". When a drug produces noticeable effects, the participant may conclude that he has ingested the active substance (not a placebo). He may then associate these bodily effects with the psychological and behavioral effects he has heard of.

Thus, learned effects *may* occur even in blind tests which technically seem successful.

The conclusion is:

If the anticipated psychological effects do *not* occur in blind tests, then this weighs against considering it as pharmacological effects.

If anticipated effects do occur in blind tests, the outcome must be controlled by another method: *Only studies using people who have not learned the anticipated effects of the intoxicant, may definitely discriminate all learned effects from the real pharmacological effects.*

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## Chapter 5

### Do illegal drugs have pleasant effects?

#### The pioneer study of marijuana

The psychological effects of marijuana were not the subject of scientific scrutiny until the end of the 1960s. Andrew Weil initiated the first study. He later became a professor in Arizona, but at that time, he was a medical student at Harvard University in Boston.

Weil was using marijuana himself. He made several reflections on its effects. But when he looked for exact information, he discovered that serious research had not been performed. He decided to do it himself.

He encountered substantial problems. The authorities feared he could turn the participant into dope fiends and hesitated for half a year before giving their consent. He also met difficulties in obtaining controlled marijuana for the experiments. But one of his teachers, the psychiatrist Norman Zinberg, joined in with him, and they finally could start the project.<sup>1</sup>

Among the participants, 8 were marijuana smokers and 9 non-users. Many of those having no previous experience with marijuana sensed they were smoking something different from ordinary tobacco. But they did not become "high" and did not evaluate the effects as pleasant. From an objective point of view, the effects would be the same in marijuana smokers and the non-users. Still, the subjectively experienced effect was totally different. The outcome confirmed the conclusion which the sociologist Becker had made some years before ([chapter 4](#)): Although the inherent effects of cannabis are not very pleasant, people may learn to appreciate the feeling of "being different" which the effects bring about.

Labelling the effects as "being high" was also not a natural phenomenon. But non-specific internal cues may be *interpreted*, as the epinephrine study had shown ([chapter 4](#)).

Some years later, Weil draws parallels between intoxicants and so-called active placebos ([chapter 4](#)):<sup>2</sup>

"To my mind, the best term for marijuana is *active placebo* - that is, a substance whose apparent effects on the mind are actually placebo effects in response to minimal physiological action. Pharmacologists sometimes use active placebos (in contrast to inactive placebos like sugar pills) in drug testing, for example, nicotinic acid, which causes warmth and flushing, has been compared with hallucinogens in some laboratory experiments. But pharmacologists do not understand that all psychoactive drugs are really active placebos since the psychic effects arise from consciousness, elicited by set and setting, in response to physiological cues.

Thus, for most marijuana users, the occasion of smoking a joint becomes an opportunity or excuse for experiencing a mode of consciousness that is available to everyone all the time ... Not surprisingly, regular marijuana users often find themselves becoming high spontaneously."

## Later research on marijuana intoxication

Andrew Weil's conclusions have later been supported by other researchers. After performing various studies, psychologists at Washington State University concluded:<sup>3,4</sup>

"The results indicate that previous experience (with the substance) is a socialization process where the individual learns to identify and label the influence as being "high".

"The judgment of being "high" may be a function of interpretation, not of the symptoms as such. The response to marijuana is at least partly based upon pharmacology, but the *interpretation* of the symptoms which constitute the reaction is a vital factor in determining whether the individual is "high" or merely forgetful, light-headed etc."

Not all researchers have concluded that the intoxicant is a necessary prerequisite for the experience of being "high". Psychiatrist in San Francisco and New York found that marijuana users became equally high from placebo as from marijuana, even though the active marijuana dose was quite significant.<sup>5,6,7,8</sup> They concluded that "high" is learned and that it is triggered more by smell and taste than the active substance in marijuana, THC.

Two groups of researchers studied the importance of the smoking ritual for experienced marijuana smokers.<sup>9,10</sup> The intoxicant (marijuana extract or THC) was ingested by the mouth and compared to placebo. As cannabis is easily absorbed in the intestines, the chemical influence was the same as by smoking. But when the intoxicant was taken without the usual ritual, marijuana smokers felt the effects were only unpleasant.

A peculiar aspect of drug taking is the varying expectancies of the individual users. A Canadian group first recorded the individuals' expectancies about probable effects.<sup>11</sup> Then they studied each individual's reaction upon marijuana. The reaction was highly influenced by the individual's initial expectations.

Another Canadian group demonstrated that after being instructed to stay "sober" during smoking, even characteristic effects as increased heart rate and erroneous judgment of time were absent.<sup>12</sup>

As with other intoxicants, different user groups experience very different psychological effects.

When USA prohibited marijuana in the thirties, an important argument was that marijuana made the (mainly Mexican) users aggressive. But now, one of the arguments against marijuana is that it makes the users passive. Cannabis intoxication is now often characterized by silent, introvert meditation.

Nevertheless, some street addicts claim cannabis to be a disinhibitor, while American college students seldom claim this. Within North America, significant differences have been demonstrated between effects on users in Montreal and users in California.<sup>13</sup> Users mostly became introvert in Montreal and extrovert in California. Other researchers have reported that in some cultures, marijuana intoxication is characterized by aggression and transgression of norms, in others by quiet and peaceful behavior.<sup>14</sup>

It is also noteworthy that the many people who used cannabis as a medical drug in the 19th and the 20th century, obviously did not discover the ability of cannabis to make people "high".

## **Do amphetamine and cocaine have pleasant effects?**

Amphetamine came into use as nose drops in USA in 1931. Patients reported psychic side-effects, and the first study was made in 1937.<sup>15</sup>

Eighty young hospital employees were given amphetamine and placebo.

More than half of those who got amphetamine, reported positive effects like feelings of increased energy and strength. A reduction in the need for sleep was reported as positive by some, while others reported they were bothered by sleep disturbances.

The following year, Danish physicians made another study:<sup>16</sup>

Twenty eight per cent of the participants considered the effect as more pleasant than placebo, while 18 % thought it was less pleasant. Positive effects were increased energy and well-being. The negative effects were restlessness, anxiety and insomnia.

These findings were confirmed in further studies.<sup>17,18</sup> At the start of the 2nd world war, it was an established fact that amphetamine reduces fatigue and the need for sleep. This was utilized in warfare. 180 million tablets were administered to American soldiers and 72 million to British soldiers. It was also used by Japan and Germany.<sup>19,20</sup>

After the war, amphetamine was used by many people when facing extraordinary efforts. It was common during preparation for exams, during night-time work and as "doping" at sport competitions. Later on, it was used as a slimming agent.

In the post-war period, users of amphetamine were ordinary people and nobody classified it as a dangerous drug. Nowadays, several people are highly surprised to hear that the stimulant Benzedrine, which they took during hard work in the forties or fifties, was identical with the present "hard drug" amphetamine.

Not all subsequent experiments confirmed that most people experience the effects of amphetamines as pleasant.<sup>21,22</sup> But the dominating tendency is clearly positive.<sup>23,24,25,26,27,28</sup> In one experiment, amphetamine was compared to morphine, heroin, a sleeping medicine and placebo.<sup>29</sup> Amphetamine was the only drug which several of the participants said they gladly would take again.

The placebo studies of amphetamine are numerous and are especially reliable because most participants have no prior experience with the drug. Thereby, learned effects are eliminated.

Cocaine has been far less studied. In addition, most participants in experiments have been experienced cocaine users. In these studies, learned effects have been difficult to separate from the properties of the drug itself. But different types of research show that the effects of cocaine resemble the effects of amphetamine. Among other evidence, it has been shown by a placebo study.<sup>30</sup>

Experienced cocaine users were given amphetamine, cocaine and placebo by intravenous administration. The participants met great difficulties in discriminating the effects of amphetamine from those of cocaine. They experienced both drugs as pleasant.

An experiment which administered cocaine to depressed psychiatric patients did not demonstrate favorable effects.<sup>31</sup>

The conclusion must be that amphetamine is experienced as pleasant and positive in a large proportion of people given the drug. The drug leads to a feeling of increased energy and often enhanced performance as measured by testing. Some people feel the drug is unpleasant because of restlessness, anxiety and sleep disturbances.

Cocaine seems to have largely the same effects.

### **Are addicts and drugs users motivated by the chemical effects?**

Amphetamine and cocaine stimulates activity and gives sensations that many people think are pleasant. The problem is that the extra energy is not derived from inexhaustible sources. The normal resources of energy are consumed at a higher rate. The post-intoxication reaction ("down- trip") may be brutal and harsh.

The masking of symptoms of over-exertion may be dangerous. Amphetamine-using athletes and bicyclists have died during competitions.

Although certain drugs have favorable effects, this does not necessarily mean that these effects explain the addicts' use of the drugs.

We easily understand the attraction of amphetamine for an individual facing an extraordinary effort, just like diazepam (Valium) is taken to cope with anxiety. But only in exceptional cases<sup>32</sup> is it the motive for an addict to achieve the drug's pharmacological effects (as established by research). Drug addicts most often take their drugs in other to "get high", "get a kick" and other vague labels intended to describe subjective experiences. In addition, drug-using subcultures produce colorful folklore on the drugs' effects, attributing varied and splendid effects to the drug.

There is an enormous difference between the scientifically established effects of a drug and labeling the effects as "being high" or "getting a kick". Soldiers using amphetamine during the last world war and students taking amphetamine before exams felt they became less tired and exhausted. They did not perceive the effects as more than just this. Classifying the effects as "highs" is a far more global and totally different phenomenon.

Labeling the drug as a substance giving "highs" or "kicks" links it to our culture's ideas about self-intoxication with drugs. The labeling establishes a link between amphetamine and alcohol, heroin and other substances which virtually have opposite effects. This is a highly unnatural link. There are no scientific basis to explain how the same people should consider as enjoyable these highly different drugs.

A female drug addict says:

"Last winter there was trouble in the supply of hash. So, I used amphetamine instead." Considering the chemical properties of the drugs, this corresponds to substituting penicillin with potatoes. The drugs have no pharmacological characteristics in common, merely a culturally learned idea that both drugs lead to "getting high".

## Psychological effects of morphine and heroin

For a long time, researchers have studied the bodily effects of opiates. Many of them noticed that "euphoria" ([chapter 4](#)) did not occur. Students testing morphine at Pennsylvania State University, spontaneously remarked that they did not understand why some people take such an unpleasant drug voluntarily.

The Department of Anesthetics at Harvard Medical School recorded the reactions in 386 patients receiving morphine. Only 3 reported something which might be labeled "euphoria". This finding led to an investigation of the psychological effects.<sup>33</sup>

In a pretest, 9 persons received morphine, heroin and amphetamine. The reports did not match the text-books: Opiates gave no "euphoria".

In a more comprehensive study, the same three drugs were given in addition to a sleeping pill (a barbiturate) and placebo. The drugs were administered by intravenous injection to 80 persons, who belonged to one of three groups: Healthy, ill patients and addicts.

The majority of participants classified the effects of amphetamine as positive. Placebo and the sleeping pill were characterized as neutral. Morphine and heroin were largely classified as unpleasant, except by the addicts. Very few would consider taking them again - most of the participants would rather have placebo!

The findings correspond to Becker's and Weil's findings with marijuana: People may grow accustomed to a chemical influence which is basically unpleasant.

During the next years, more studies were published:<sup>34,35</sup>

Patients suffering from pain were given morphine, codeine or placebo. Psychological side-effects were particularly scrutinized. Morphine was clearly perceived as negative and worse than placebo.

In another study, 20 healthy college students were given injections with morphine, heroin and placebo. More than 90 % found the psychological effects of opiates were unpleasant. Again, the drugs were judged as more unpleasant than placebo.

In every study, there has been a small minority claiming the opiate effect was pleasant.<sup>36</sup> Is it feasible that the morphinist and the heroinist have a physical abnormality which accounts for his positive attitude towards the drug effects? In theory, this might apply to the few isolated abusers of medical drugs, but not to street addicts. Lots of people try the drugs once or twice and choose not to use them. Those who go on to become drug users, are those giving a positive answer to the crucial question: "Did you want to be together with those who used the drug?" *Those who do not want to join the drug-using culture, seldom classify the effect as attractive.*

This not only applies to opiates, but to most drugs of abuse - stimulants seem to be the only exception. Thus, recruitment to drug-using cultures is obviously based more on social than on biological criteria.

The number of studies of the research on psychological effects of opiates is limited. The studies do, however, seem to have a sound methodology. In most cases, participants had no previous experience with the drug and could hardly have been influenced by social learning.

The studies demonstrate conclusively that opiates are normally perceived as having unpleasant psychological effects. This conforms well with the well-known fact that only a very small proportion of medical patients receiving opiates, want to continue use when the medical indication is absent. A university hospital in Boston reported that among 11 882 patients who were given morphine or other opiates, only four - 4 - became addicted.<sup>37</sup>

Drug addicts learn that opiates make you "high" or give you a "kick". But patients receiving morphine (in Britain, heroin is also prescribed) only expect relief of pain and do not experience more than that, except side-effects, most often nausea.

Different groups of drug users have different expectations and experience different psychological effects. The expectancies serve as self-fulfilling prophecies.

### **Psychological effects of LSD, inhalants etc.**

Hallucinogenic drugs are a mixed group. The label indicates that the use gives false perceptions, while in practice, perception is more often distorted. Therefore, the drugs should rather have been labeled "illusinogenic drugs".

The most well-known hallucinogenic drug is LSD, synthesized during world war II and tested on humans a few years later. The drug tends to leave a strong impression on the user. But exactly which psychological effects LSD and other hallucinogenic drugs have, varies even more than the effects of other drugs. Effects seem to be extremely dependant on the set and setting.<sup>38</sup>

The question has been raised whether LSD itself has any psychic effects at all. But the drug obviously gives a strong feeling of change, of *being different*, while the interpretation of the effect is more determined by situation, personality and expectations.

A blind test with participants lacking experience with LSD, confirmed that the drug may trigger numerous psychic symptoms.<sup>39</sup> Most participants found the effects were unpleasant.

Valium (diazepam) is a very popular drug in drug-using cultures. But in blind tests, most participants prefer placebo to Valium.<sup>40,41</sup>

Another group of substances which during the last few decades has achieved the status of being an attractive intoxicant, are the organic solvents (inhalants). Youngsters around puberty are the most frequent users. Their loud-voiced loss of inhibitions is often very visible and audible.

Although research has not been carried out, there are numerous "natural experiments".

Inhalation of solvents was common long before teenagers started sniffing. The big "sniffers" in our society are the professional house painters. They get symptoms of both long-term (chronic) and short-term (acute) intoxication with the very same solvents as youth use for sniffing.

Painters sometimes inhale large quantities of solvents. It may happen during the application of spraying paint and when they are working in inadequately ventilated rooms, within tanks etc. Other "sniffers" in construction use solvent-containing glue in large amounts to fix floor covering or other objects.

Craftsmen in these professions know the symptoms of solvent inhalation very well. They feel misty and sick and have a most unpleasant time. Sometimes they have to cease working because of the symptoms.

These craftsmen have neither experienced that solvents are disinhibitors nor that they give a pleasant intoxication. They do not expect getting "high" and consequently do not perceive the unpleasant effects as "being high".

Before inhalation of solvents became widespread in the sixties, another intoxicant was used by teenagers in Europe and North America. The intoxicant was a mixture of Coca Cola and aspirin. The mixture produced a "good mood" and loss of inhibitions. Some people considered this with a patronizing smile, saying the mixture did not induce a "real high".

What, then, is peculiar about the Coke-aspirin-intoxication? Is not getting "high" and "kicks" a learned phenomenon for other intoxicants as well?

There is an interesting difference: As opposed to other intoxicants, Coke-aspirin did not induce distinct inner effects producing a sense of "being different", effects which might be interpreted as "highs" or "kicks" by user groups who have learnt it. Coke-aspirin can only give pure expectancy effects, not learned interpretations of real bodily effects.

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## Chapter 6

### What are the psychological effects of alcohol?

#### Blind tests with alcohol

The blind tests which have been performed with alcohol have one potential source of error in common - all participants have already learned about alcohol in our culture). Later on, we will look at the best method of eliminating learned effects - studies of effects of alcohol in other cultures. But first we will look at the blind tests, of which far more have been carried out with alcohol than with illegal intoxicants.

To mislead people as to whether they have or have not consumed alcohol, two conditions must be met:

Firstly, *the taste must not disclose the alcohol content.*

Alcohol's impact upon the taste of beverages is much less than most people believe (chapter 8). Experiments have established that the alcohol content is scarcely discernible in ordinary drinks (6-8 % alcohol) and common beer (4-5 %).<sup>1</sup> Hence, these beverages have been used in several blind tests.

Stronger beverages have also been used. Research groups in New Jersey and Montreal have used drinks with 13-15 % alcohol, and some others have used 20-30% alcohol (!).<sup>2,3</sup> This makes the conclusions less reliable. Secondly, *internal cues must not disclose the presence of alcohol in the blood.*

The concentrations of blood alcohol that human beings can detect, varies between individuals and between situations.

One blind test aimed at finding which internal cues most reliably informs an individual of having alcohol in the blood.<sup>4</sup>

The participants drank various beverages and were asked to fill in a questionnaire where several internal cues were mentioned. For some internal cues, even an alcohol content corresponding to a little more than one ordinary drink made a small difference - a modest, but statistically significant tendency that answers were more often correct than false. But uncertainty was the rule at this level of blood alcohol.

This shows that even a little more than one ordinary drink, has effects which may be detected *under optimal circumstances*. But the participants knew that some did not get alcohol, they had been instructed to use their senses well and were even told which internal cues they should look out for. They were concentrating on a questionnaire instead of participating in the social activities of a normal drinking situation.

Most of the blind tests with alcohol have used quantities of alcohol corresponding to 2-3 drinks or glasses of wine. Such amounts of alcohol are most commonly consumed, and the most enjoyable psychological effects are also attributed to these quantities.<sup>5</sup> But as these amounts produce internal cues which *may* be detected, there may still be a danger that in

"blind" experiments, effects are attributed to alcohol which in reality are caused by the identification of cues associated with alcohol.

Because the experimenters' deception *may* be revealed, this method can perhaps not prove behavior effects of alcohol, but may possibly indicate cases where expectancy effects may be sufficient to produce behavioral changes which are commonly attributed to alcohol.<sup>6, 7, 8</sup>

## The "Marlatt Method"

At blind tests, alcohol is served in concentrations and quantities at the brink of what people may detect. Therefore, the conditions during the experiments are of crucial importance.

The best procedure has been developed by a group of researchers led by Alan Marlatt, who is a professor of psychology at Washington State University in Seattle. The group published their first experiments in 1973-74<sup>9, 10</sup> and since then, they have further developed their technique.<sup>11, 12</sup> The participants are divided into 4 groups:

	<i>One half is told vodka-tonic:</i>	<i>One half is told tonic only:</i>
<i>One half gets vodka-tonic:</i>	Told alcohol and does drink it	Told tonic but drinks alcohol
<i>One half gets tonic only:</i>	Told alcohol but drinks tonic	Told tonic and does drink it

Each participant's beverage is apparently decided by tossing a coin. But the coin is rigged - both sides are identical!

The mixing of drinks is observed by the prospective drinker. Smirnoff vodka and tonic is poured into the glasses from correct bottles. For those who only receive tonic, but are told they will receive alcohol, the vodka bottle contains de-carbonated tonic.

When vodka and tonic is mixed in the ratio 1 to 5, there is little risk that the participants will recognize alcohol by the taste. But to make sure, the participants receive a dose of mouth-spray prior to drinking.

The blood alcohol level is apparently measured by breathing into an electronic alcometer. But the alcometer is rigged and only confirms the instructions given on the beverage content.

Because alcohol is served in quantities which *may* be noticeable on the basis of internal cues, Marlatt and his co-workers want to avoid the artificial situation that participants stop their normal activities in order to concentrate upon internal cues. Avoiding questionnaires, the participants are encouraged to take part in social activities while research assistants discreetly observe behavior and measure reactions.

Concluding the experiment, the success of the beverage manipulation is checked by asking how much alcohol each participant believes he has been drinking.

To make the drinking situation as realistic as possible, Marlatt and his group have even made a "simulated bar-room", which is situated in the basement of Guthrie House on the campus in

Seattle. At least for a visitor, it is hard to notice any difference between the simulated bar-room and a real bar-room.

This is the most convincing method for blind tests with alcohol. But in spite of the sophisticated technique, sources of error still exist, as the participants have experience with the substance being tested. The participants may recognize taste or effects of alcohol and reason that "I know I didn't receive alcohol, but my feeling is the very same ..." Learned effects may also operate at the unconscious level: Internal cues which through learning have become associated with, as an example, joy or loss of inhibitions, may be interpreted as these feelings. This is why blind tests with participants experienced with alcohol, cannot totally exclude all learned effects.

Most of the blind tests which have been published, have used far less convincing techniques than the one which was described here.

Many blind tests have used the "Stop, sit down and concentrate upon internal cues"-method (questionnaires). This does not resemble an actual drinking situation and reduces the validity.

Numerous studies have not included a check on the beverage manipulation. In other studies, the check shows that manipulation has been deficient. In addition, recent studies indicate that even if certain manipulation checks may give erroneous evidence of apparently successful beverage manipulation.<sup>13, 14</sup>

In the following pages, an outline is given of most of the blind tests that have been published. Only experiments with major errors in methodology have been omitted from the review.

## **Alcohol and sex**

A quotation from Shakespeare says that alcohol "increases desire, but takes away the ability". Several people claim that moderate amounts of alcohol also increases ability, just like users of marijuana claim that their intoxicant does.

Numerous blind tests have been performed, especially at Rutgers University in New Jersey.

In most of the studies, the sexual arousal has been assessed by objective measurement. The methods are commonly used in sexual research. Small devices measuring the reactions are located on the participants, while they are watching films or listening to tapes with sexually stimulating content. Males have a little rubber ring measuring the penis diameter, while females have small device in the vagina, measuring blood pressure and vein volume.

The experiments have shown conclusively that alcohol reduces sexual arousal.

The two experiments with females have demonstrated a decrease in arousal following alcohol consumption.<sup>15, 16</sup>

In studies with males, the given dose of alcohol has weakened arousal in 4 experiments<sup>17, 18, 19, 20</sup> and produced no change in 5.<sup>21, 22, 23, 24, 25</sup>

In one study, the male participants were instructed to suppress their sexual reaction. The conclusion was that alcohol reduces the ability to control the reaction.<sup>26</sup>

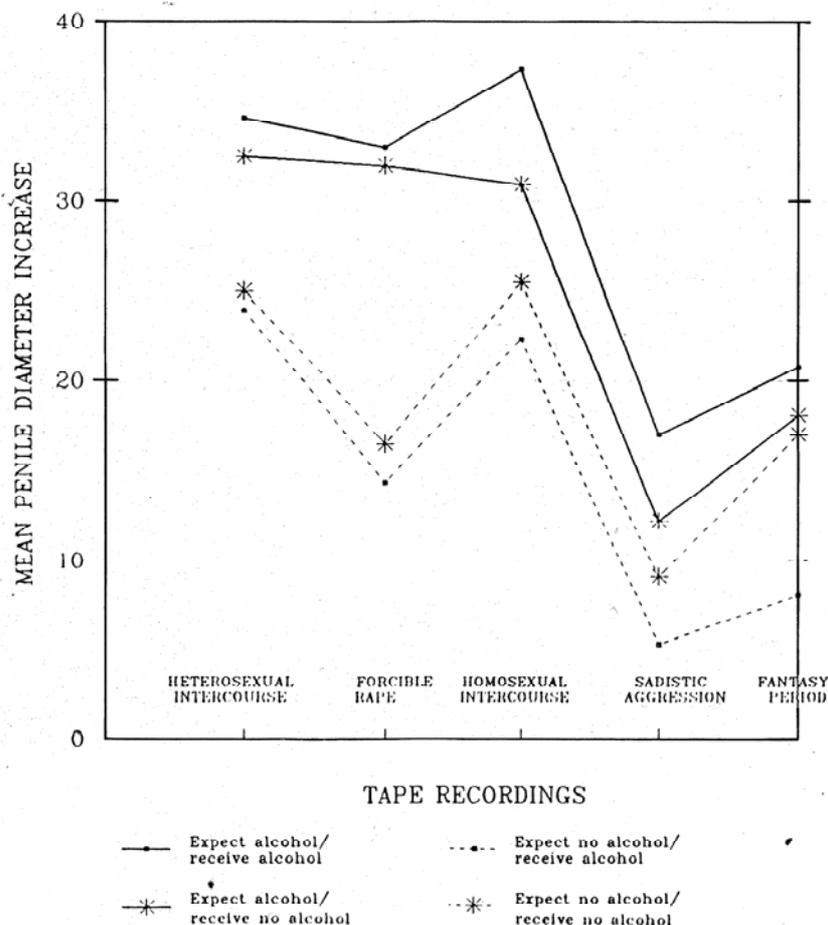
The conclusion of the research is obvious: Alcohol reduces sexual arousal, and most of the doses served in these experiments (approximately 2-3 drinks) are sufficient to demonstrate the reduction.

When objective measures are not employed, and the participants are instead instructed to concentrate upon their internal cues, the response could be based on interpretation of the internal cues. As might be expected, this method produces more varying outcomes:

In two studies, the participants declared they had increased arousal when actually drinking alcohol, while objective measures taken at the same time showed that the opposite was the case.<sup>27, 28</sup>

In two other studies, the participants also declared that they had more arousal when they actually had alcoholic beverages. It is not clear, however, whether this reflected the obviously deficient manipulation of beverages.<sup>29, 30</sup>

Studies of chemical substances' effects upon human sexual functions have become difficult to finance in the United States, as federal funding is no longer granted. Congressman Michel from Illinois proposed and got support for a law banning federal support, claiming that the studies "offended the feelings of most Americans". His assertions were widely publicized and happened to coincide with his bid for reelection, which ended with the voters' granting him renewed confidence.<sup>31</sup>



*Male sexual reactions, alcohol and expectancy*

## Alcohol and inhibitions

Few blind tests have dealt with alcohol and inhibitions. Some studies on sexual reaction throws light on the topic.

Research groups have shown that men's increased sexual arousal when they *believe* they have been drinking alcohol, is strongest if the erotic stimulation has the character of a taboo, indicating that consideration for self respect normally dampens arousal.

In one study, the stimulant material was homosexual practices<sup>32</sup> and in the other cases rape<sup>33</sup> or other violence related to sex.<sup>34</sup> The mean penile diameter increased significantly when the participants *believed* they had consumed alcohol, while the actual consumption of alcohol had no effect.

The report concludes that this finding throws light on the frequency of alcohol intoxication at the time of rape and other sex crimes - when men think they have been drinking (and in most cases, they do have been drinking!), they let out more of their forbidden impulses. The report also concludes that alcohol itself does not seem to remove inhibitions.

A group at the University of Wisconsin used other techniques to study the effects of alcohol on sexual interest:<sup>35</sup>

Seventy-two young males were divided into groups which were convincingly manipulated into believing that they either did or did not receive alcoholic beverages (the "Marlatt method").

Pornographic pictures were passed around, and the participants were instructed to record to what degree they judged the pictures as sexually stimulating.

Those who believed they had received alcohol, found the pictures clearly more stimulating than those who believed their drinks did not contain alcohol. Alcohol itself made no difference.

Observers discreetly recorded the time they kept the pictures before passing them on. Those who believed they had been drinking alcohol, kept each pornographic picture 2.4 seconds more than the others. Alcohol itself made no significant difference.

Two additional experiments have concluded that the participants displayed most sexual interest when they *believed* that they had been drinking alcohol, irrespective of the actual content of the glasses.<sup>36, 37</sup>

One study, based on personal reports, concluded that level of disinhibition varied with expectancies and social setting, not with the actual beverage content.<sup>38</sup>

The studies which have used other methods for measuring the effects of alcohol on inhibitions have used less reliable techniques, especially for beverage manipulation. Three studies showed no significant effects, either of alcohol or of expectation.<sup>39, 40, 41</sup>

One single study indicates that alcohol does weaken inhibitions:<sup>42</sup>

The frequency of drawing graffiti was measured in a blind test with small amounts of alcohol (corresponding to less than one ordinary drink). Among the 29 participants, 8 drew graffiti, 7 of whom had been drinking alcohol.

This experiment has some obvious weak points - low alcohol doses and few participants, of which only a minority showed the behavior which was used as the measure of inhibitions. Nevertheless, the outcome is statistically significant.

A recent experiment studied the tendency to risk-taking behavior in people inclined to risk-taking ("high sensations-seekers") and a group of more careful people. They reacted differently to the expectation of having taken alcohol, while alcohol itself did not influence risk-taking.<sup>43</sup>

The participants took part in simulated driving. High sensation seekers took more risks when they believed they had consumed alcohol. Low sensation seekers became more cautious in driving when they believed they had consumed alcohol. Alcohol consumption did not produce a significant effect.

While blind tests may give us a hint on the relationship between alcohol and inhibitions, we have much material in studies of drinking in different cultures.

## Is alcohol a tranquilizer?

One of the most deep-rooted ideas on alcohol and other intoxicants, is that they are able to relieve tension and anxiety. The theory that alcohol has a pharmacological effect on anxiety, is called the Tension Reduction Theory (TRT).

Around 1970, American researchers made systematic observations of "alcoholics" during drinking. They found that symptoms of anxiety, tension and restlessness increased, although on sobering up, the alcoholics often argued that the opposite had been the case.<sup>44</sup> They had to watch video films of themselves to be convinced of what actually had taken place.

In 1972, leading Canadian researchers published a review of the research.<sup>45</sup> They concluded that the findings were contradictory at best, and largely weighed against TRT.

In the last decade, numerous blind tests have been published. The results are highly contradictory. Alcohol has

- *increased* anxiety in 4 experiments<sup>46, 47, 48, 49</sup>

- had *no effect* in 7 experiments<sup>50, 51, 52, 53, 54, 55, 56</sup>

- *decreased* anxiety in 4 experiments<sup>57, 58, 59, 60</sup>

Among the four experiments in which alcohol decreased anxiety, only one had successful manipulation of the beverage content.<sup>61</sup>

The varying outcomes reflect, among other things, that different methods of study have been employed. But the conclusion must be that alcohol (as a pharmacological agent) largely does *not* relieve anxiety. Most reviews including other types of research than blind tests, also conclude that alcohol largely does not reduce anxiety.<sup>62, 63, 64, 65</sup>

Comparing this research with the research on commonly used sedatives (Valium etc.), we must definitely conclude that alcohol is hopelessly ineffective as an anxiety-reducing drug. The commonly used sedatives have demonstrated their anxiety-reducing effects in almost every study which has been conducted. For alcohol, the number of studies indicating anxiety-reducing effect only equals the number of studies with the opposite conclusion. If drug-producers had considered marketing alcohol as a sedative, existing research would have made the company stop further testing immediately.

But as mentioned earlier (chapter 2), the sociopsychological role of being intoxicated may, together with expectancy effects, fully explain the subjective feeling that intoxicants reduce anxiety.

## **Alcohol and aggression**

In experimental psychology, aggression is often measured by instructing the participants to inflict electrical shocks upon another person. The voltage of the electrical shocks may be regulated. In reality, no electrical shocks are given, but the "victim" is instructed to demonstrate visible suffering.

Alan Marlatt and his co-workers conducted a study in which beverage manipulation was performed according to the convincing method which has been described earlier.<sup>66</sup>

Ninety-six individuals took part and the quantity of alcohol was rather large (corresponding to approximately 4 drinks). One half of the participants were provoked by insulting remarks from the persons to whom they were about to render electrical shocks. The levels of aggression were significantly influenced by the beverage which the participants *believed* they had consumed, while the actual beverage content (alcohol versus no alcohol) had no significant impact upon aggression. The interpretation of the researchers was that alcohol as such hardly influences the level of aggression, but people let out more of their forbidden impulses when they think, "Now, I have been drinking alcohol".

A group of psychologists in Montreal has challenged this conclusion in a series of experiments concluding that alcohol as such increases the level of aggression.<sup>67, 68, 69, 70, 71</sup> But this series of experiments seem to have less effective beverage manipulation. For example, the alcoholic drinks contain approximately 15 % (!) alcohol in orange juice, although another study has demonstrated that alcohol in this concentration is apt to be discovered by taste.<sup>72</sup> Two other experiments with similar unsuccessful beverage manipulation had the same conclusion.<sup>73, 74</sup>

There are also some other studies with varying techniques which have not given clear conclusions.<sup>75, 76, 77</sup>

We may conclude that blind tests on alcohol and aggression have rendered mixed results. As will be shown later, there are several "natural experiments" throwing light upon the issue.

## **Alcohol, mood and self-confidence**

Blind tests on this topic demonstrate interesting discrepancies. In two studies, the participants interrupted their activities in order to concentrate upon internal cues while filling in a questionnaire.<sup>78, 79</sup> Both these reports concluded that the participants receiving alcohol

detected the alcohol, and simultaneously reported elevated mood in the questionnaire. In a third study, the participants remained in social activity as in a normal drinking situation.<sup>80</sup> Control questions at the end of the experiment confirmed that the manipulation of beverages had been successful, although the quantity of alcohol served was no less than in the two previous studies.

Mirth was measured by discretely recording the duration of laughter in response to jokes made by the experimenters.

Alcohol itself had no effect upon mirth. But the participants who believed they were drinking alcohol, laughed substantially more than the others.

Two South African psychologists concluded a study by stating that the expectancy of alcohol did not influence mood, while alcohol tended to make the participants more depressed.<sup>81</sup>

Another blind test tried to test the commonly held idea that alcohol increases self-confidence.<sup>82</sup> The report concluded that "the experience of getting high is rooted in the expectancies of the individual".

## **The effects of alcohol upon skill and performance**

Several placebo experiments have studied the effects of alcohol upon a variety of skills and performances.<sup>83, 84, 85, 86, 87, 88</sup>

Reaction time, coordination, simulated driving and intellectual performances have been studied. All experiments conclude that alcohol impairs skills and performances.

## **Blind tests with alcohol - and so what?**

Many people are surprised to discover that successful blind tests can be carried out with alcohol. This fact throws an interesting light upon the taste qualities of common alcoholic beverages and the fact that the majority of drinkers do not consume more than 2 or 3 drinks on each drinking occasion. Millions of people spend (waste?) billions of dollars on drinking alcohol in concentrations that scarcely are noticeable by taste, and in quantities that scarcely have noticeable internal effects.

The blind tests teach us that suggestion and expectancy play a crucial role in establishing the perceived effects of alcohol.<sup>89, 90</sup>

In one study, the participants were instructed to "stay sober" during drinking. The study demonstrated the ability to "sober up" for behaviors such as loud talking and disinhibited behavior. This finding confirms the common experience that judgment returns if the need arises ("Suddenly, I got sober!").

In another study, all participants did receive alcohol, but were told they had received either a large or a small quantity. The behavior of the two groups differed in many ways. The difference was largest for mirth, the feeling of being drunk, and the amount of "drunk behavior" as measured by observers.

For centuries, human beings have taught each other what alcohol does - for example that it loosens inhibitions, enhances mood and relieves anxiety. Nevertheless, the only effect on

behavior which is convincingly demonstrated by the research, is the reduction of skills and performances.

The main trend in blind tests is that the individual's belief about alcohol consumption is the most important factor, *provided* that reactions are assessed by objective measures and the beverage manipulation is successful. In blind tests with less convincing manipulation and/or with effects reported in questionnaires, the alcohol content often determines behavior.

In addition, there are large numbers of "natural experiments", demonstrating the effects of alcohol in other cultures.

## **Alcohol as a natural adulterant**

Alcohol is no man's invention. The fungi transforming carbohydrates into alcohol exist in nature in most parts of the world. When beverages containing carbohydrates are put aside for some time, alcohol is produced as a natural adulterant.

People discovered that when beverages were made and kept in certain ways, after a while, they contained a substance whose effects might be felt in the body. In many different societies, alcoholic beverages were known before the white Europeans arrived. This does not necessarily mean that the use of alcoholic beverages was *motivated* by their alcohol content.

Some societies chose not to use beverages containing alcohol. In others, it seems to have been unknown. In arctic areas (the Eskimos), in most of North America and the Pacific Islands, alcohol was unknown when white Europeans turned up.

Until the seventies, no anthropologists went out primarily to study alcohol use in other societies. However, their reports often contained amazing reports on the effects of alcohol in other cultures. Only the bodily effects (impairment of skills, nausea etc.) are observable in all drinking societies. The effects of alcohol upon behavior are surprisingly varied.

The classical survey and analysis of anthropological research on alcohol is the book "Drunken Comportment", published in 1969 by Edgerton and MacAndrew at the University of California in Berkeley.<sup>91</sup> The survey presented here is, to a large extent, built upon this excellent analysis. Later on, anthropologists have given us many new reports on different effects of alcohol in different cultures.<sup>92, 93, 94</sup>

## **The best studies: alcohol in different cultures**

Since the 19th century, several reports have been written from cultures where alcohol obviously lacks the magic behavioral effects seen in our own culture. We will look at a few examples.

The Yuruna Indians in South America drank large amounts of alcohol without ever demonstrating any kind of disinhibited behavior, just like the Vicos Indians in the Andes mountains. An anthropologist reported that among the Vicos Indians, criminality, extra-marital sex and similar activities related to drunkenness in the white man's culture, did not at all take place on drinking occasions. On the contrary - such activities mostly occurred when individuals were quite sober.

The Camba people in Bolivia drink a distillate of sugar cane. With good reason, they call it alcohol. Chemical analysis has shown an alcohol content of 89 %, and the Cambas drink this beverage undiluted. The majority drinks to intoxication at least twice each month. The impaired skills due to alcohol could hardly be more evident. But "... drinking does not lead to expressions of aggression in verbal or physical form ... Neither is there a heightening of sexual activity".

The report from a British officer of his experiences with the Kikuyu people in East Africa early in this century, showed that the people maintained complete control of themselves when they were drunk, but were capable of the most bestial acts under conditions of sobriety.

The people of Aritama in Colombia are characterized by subtle aggressiveness hidden behind their formal politeness and over-controlled behavior. According to our ideas, this should be an ideal place for observing the effect of alcohol upon inhibitions. Nevertheless, the Aritamans are even more silent and reserved when they are "under the influence".

The Japanese fishing community of Takashima is also a community where aggressive feelings are obviously strongly repressed, and the sexual norms may be labelled puritan. Nevertheless, this is a society where alcohol lacks its magic power to remove inhibitions.

There are numerous examples. In an anthropological survey of 46 societies, a link between alcohol and violence was only found in one fifth.

Even in the industrialized parts of the world, we can observe fundamental differences in drunken comportment. This is often noticed when people from different drinking cultures meet, for example when Nordic tourists spend their holidays in the Mediterranean countries.

At one restaurant table, a Scandinavian drinks a bottle of wine. Simultaneously, a Spaniard or an Italian drinks an identical bottle of wine at the next table. In most cases, the difference between the effects is strikingly evident. The same bottle which makes one man show disinhibited behavior, has no visible impact upon the other man's behavior.

In some societies, alcohol apparently turns people into helpless victims of whims and impulses which they are unable to control. In other societies, this is obviously not the case. One possible explanation is that the difference might be due to genetic differences. Let us now examine the evidence for this theory.

## **Learning the spell of alcohol**

The Basuto tribe is one of the Bantu peoples in southern and southeastern Africa. They brew a home-made beer with 4-5 % alcohol and consume considerable amounts at social gatherings. The behavior complies with the situation and not the amount of alcohol consumed. They are very peaceful at funerals and show more joking and laughter at wedding parties.

Over the course of time, an increasing number of Basutos moved to the cities to work in the factories of the Europeans. Having moved to the cities, they continued to brew their beer. In the cities - exposed to the influence of the white man's culture - *the same beer, consumed by the same people, had markedly different effects.*

Arguments and violence became so common that the white rulers tried to forbid the native beer. While the beer was brewed illegally, the problems accompanying the drinking were labelled "a threat to the nation".

As long as the Basutos live in their traditional societies, the same quantities of beer could be consumed without apparent problems. People can learn the magic effect on inhibitions.

The Papago Indians live in the border area between Arizona and Mexico. Between 1912 and 1938, three different anthropologists published reports describing the drinking of the Papagos. Their own wine was often consumed in large quantities and caused vomiting and unsteadiness, but never generated disputes or brutality.

In the 1930s, the white man's whiskey came into use in the Papago community, producing the effects the "firewater" used to have when introduced (and taught) by the white man. For many years, the two kinds of drinking existed side by side - the whiskey alcohol producing effects entirely different from the wine alcohol. In the end, the Papagos were drawn into the white man's culture as employees, and all alcohol beverages finally acquired the same effects.

The Iroquois Indians populated an area in northeastern USA and southeastern Canada. They started using alcohol from contact with the whites, but for a long time, they only used it to attain religious visions. Towards the end of the 18th century the area was more often visited by white trappers and traders. At that time, alcohol started to remove inhibitions among the Iroquois.

Alcohol is also used without the disinhibiting effect in large populations like the Jews and the Chinese. The Japanese, who used to drink with great dignity, had a gradual change in drunk behavior during the American occupation after World War II.

### **"Loss of inhibitions" - only now and then**

Among the Maori people in New Zealand, alcohol has very different effects, depending of the type of drinking occasion.

A report says that at "drinking sessions", "the men will sit in the sun - talking, sleeping, listening to the radio ...". They behaved peacefully and the atmosphere was anything but euphoric, rather "drowsy, relaxed, and possibly a little depressive".

But the Maori people also had "drinking parties", during which they were "gay and noisy". During the night, quarreling, violence, and a sexual undertone were common phenomena.

The Tecospa Indians are peaceful when they drink their wine together with people from their own tribe. If they drink with members of other tribes, the wine removes their inhibitions.

There are examples of this "only-now-and-then" phenomenon from many societies. If we take a look at the Western culture, the difference in the effects that alcohol produces at cocktail parties and at boozing sessions is remarkable.

## "Loss of inhibitions" - only in accordance with the norms

In several societies where alcohol use is accompanied by disinhibited behavior, people appear to adhere strictly to the society's norms and rules for intoxicated behavior.

In some societies, aggression is only within the group, while in others, it is only directed towards outsiders. In some cultures, aggression is only expressed in words, whereas in others, it is also expressed by extreme physical violence. Similarly, violating the sexual norms may only be allowed with special kinds of partners, and so on.

The content and extent of the disinhibited behavior in different societies is extremely diverse. This fact may hardly fit in with the theory that alcohol has a direct effect upon the brain which turns people into helpless victims of their instincts and impulses. On the contrary, the "uncontrolled" impulses appear to be controlled by the social conventions of the individual's society, that is, by the society's instructions about the effects of alcohol upon behavior.

In the societies where alcohol "loosens up" behavior, it still complies with distinct rules - "thus far, but no further".

## The behavioral effects of alcohol - conclusions

In their highly acclaimed survey of the anthropological research, Edgerton and MacAndrew drew this conclusion:<sup>95</sup>

"Over the course of socialization, people learn about drunkenness what their society "knows" about drunkenness; and, accepting and acting upon the understandings thus imparted to them, they become the living confirmation of their society's teachings."

Subsequent anthropological reports have given additional support to this conclusion.

Alcohol's removal of inhibition is the most prominent aspect of its effect in the Western culture. It is a very old phenomenon. The effect is substantially stronger in Northern Europe than in Southern Europe. Nevertheless, the difference is one of degree. To some extent, disinhibited drunk behavior also exist in the Mediterranean countries. In several other societies, this effect of alcohol is entirely absent. Some anthropologists have concluded that *disinhibited drunk behavior has been spread by the white man to other cultures*, just like the neck tie and Coca Cola.

The blind tests with alcohol have some limitations in their methodology. For two reasons, the trans-cultural studies of alcohol effects are the most conclusive:

- Learned effects can be clearly separated from pharmacological effects.
- Alcohol effects can be studied at all levels of alcohol consumption.

The anthropological studies of alcohol use correspond to studies of the effects of other intoxicants in groups which have not learned to consider them as intoxicants. These groups experience opiates, solvents and most other intoxicants as unpleasant and the individuals do not spontaneously perceive the effects as being "high".

The decisive importance of learning for the subjective experience of "getting high" and "disinhibited", refutes some biological theories which have been put forward. Through the years, biological researchers have considered different theories as very promising:

- In animal research during *the fifties*, a Canadian psychologist discovered the existence of a "*center of pleasure*" in the brain. This led to theories of intoxicant use as being motivated by the wish to stimulate this "center of pleasure".
- During *the seventies*, researchers discovered the so-called *endorphins*, which are morphine-like substances produced by the human body. This, too, led to speculations on the mode of operation of intoxicants.
- In *the nineties*, yet another set of theories are considered promising for explaining the use of intoxicants. Key words are *neurotransmitters and dopamine*.

This line of research ignores the research demonstrating that *unless people have been through a social learning process, most people perceive the effects of most intoxicants as unpleasant*.

It has also been claimed that these biochemical events may explain the phenomenon of addiction. However, epidemiological research has demonstrated that most users of all intoxicants do not become addicted. The selection of users into addicts is obviously determined by social and psychological factors.

These theories are seeking pharmacological explanations and justifications for socially derived experiences. There is an increasing need for scrutinizing our ideas about intoxicants, intoxicated behavior and the psychological effects of intoxicants. In the next chapter, we will look at the relationship between the chemical effects of intoxicants, the bodily reactions, the subjective experience and the intoxicated behavior.

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## Chapter 7

### The chemistry of "getting high"

#### The adventurous experiences of intoxication and religion

There are numerous colorful descriptions of inner experiences during intoxication:<sup>1</sup>

- "... let you whirl for a second into the atomic nucleus or spin you out on a light-year trip through the galaxies, ..." (Timothy Leary on LSD)
- "Alcohol ... brings its votary from the chill periphery of things to the radiant core." (William James on alcohol)
- "What a resurrection from the lowest depths, of the inner spirits! What an apocalypse of the world within me!" (Thomas de Quincey on opium)
- "At intervals the self-sense left the body entirely, floated off and associated with some other form, a tree, a cloud, even a piano." (Robert de Ropp on hashish)
- "... filled me with a sense of infinite possibilities, which made me an archangel for a moment." (Wendell Holmes on ether)

In most cases, descriptions of this kind are linked to LSD, cannabis or cocaine. Sometimes, it is alcohol, amphetamine or opiates. The experiences are associated with such concepts as "high", "psychedelic", "euphoria" and "transcendence".

The modern wave of intoxicant use started in intellectual American circles in the sixties. "Psychedelic" or "transcendental" experience was a central element. Ideological leaders like Timothy Leary and Richard Alpert asserted that the chemical substances (especially LSD) expanded human consciousness and cognition. They portrayed the effects as heavenly experiences.

Many well-known descriptions of such experiences have been written by authors of poetry or fiction (Baudelaire, de Quincey, Huxley). This is no coincidence. The descriptions are vague, ambiguous metaphors, corresponding to metaphors used in poetry. In fortunate cases, the reader gets a feeling (maybe illusive) that "I understand fully the author's message - I have felt the same way myself". The more abstract a metaphor is, the greater the chance that friendly readers interpret the metaphor as appropriate.

The similarity with religious trance is remarkable. Some former leaders of the psychedelic culture (like Richard Alpert) have replaced drugs with yoga, meditation or other non-chemical paths to corresponding experiences.

Religious sects attain ecstasy, visions or tongue-speaking without chemical substances. Intellectuals often consider it with patronizing skepticism. When proponents of drugs produce similar experiences by ritual intake of chemical substances, the phenomenon often seem to have more appeal. Belief in the chemical heaven may be perceived as more intellectually respectable than belief in the religious heaven.

Do, then, drugs expand human consciousness?

The authors of these enthusiastic descriptions of states of intoxication, have opened their minds to feelings and moods. However, the large majority of people taking opiates, alcohol or ether feel no effects resembling these marvelous descriptions. This is also true for LSD and cannabis, unless the user has learned that the substance has got such effects. Without social learning and peculiar expectancies, most people simply find the effects unpleasant (chapter 5).

The metaphoric portrayals of fantastic intoxicated states bear little resemblance to pharmacological effects. What mechanisms are involved in this phenomenon?

Suggestible individuals use intoxicants as a ritual to obtain subjective experiences resembling experiences achieved through art and religion. The intoxicant produces a feeling of being different from usual. The drug user concentrates upon his inner state, opens up to wide associations and interprets his feelings very freely.

The metaphors are the distinguishing feature of these experiences. It has been maintained that the metaphors trigger the subjective feelings of well-being, that is, that the enjoyable feelings do not occur until the state is labeled by fascinating metaphors.

The appealing narratives operate as instructions, educating novices about the interpretation of the drug's physiological effects. "Psychedelic" effects seem to be most frequent among intellectuals who do not use the drug on a daily basis. The experiences belong to the world of art, religion and para-psychology, not to the world of pharmacology.

## **The pharmacological basis of getting "high"**

All intoxicants have numerous effects upon the human body, including effects on the brain. According to conventional wisdom, pleasant experiences like "getting high" or getting "kicks" are effects of the pharmacological properties of the intoxicants. Research on the effects of drugs does not support the idea that the experiences are directly attributable to pharmacological effects.

Intoxicants may, for example, lower blood pressure, slow down brain processes, impair coordination of movements and so on. When individuals take the drugs without expecting to get "high", they only notice these physical, pharmacological effects. The effects are not labelled as being "high" and are usually not perceived as pleasant.

People do not, of course, use drugs and alcohol in order to impair coordination or lower their blood pressure.

What is the relationship between the objective properties of the drugs, as verified by research, and the subjective experiences motivating drug and alcohol use?

*Research indicates that the pharmacologic effects of intoxicants are highly non-specific, and that the effects are mostly emotionally neutral or unpleasant. A number of different mechanisms seem to contribute to the subjective experiences.<sup>2</sup>*

1. *Pure expectancy effects play a significant role. Several experiments with alcohol and some with cannabis demonstrate that the placebo effect is a powerful factor in eliciting the subsequent experiences. Users often consume moderate quantities of intoxicants,*

and at modest doses, expectancy effects alone can account for the subjective experiences.

2. *People can learn to appreciate the chemical effects.* In the same way as social indoctrination and practice can make us appreciate a peculiar taste (for example, coffee, beer or tobacco smoke), people can learn to appreciate the inner cues produced by intoxicants. This was clearly demonstrated in Andrew Weil's pioneer experiment with marijuana ([chapter 5](#)) and has also been established for morphine and heroin ([chapter 5](#)).
3. *People can learn to interpret the chemical effects as specific feelings.* Schachter and Singer's experiment with epinephrine ([chapter 4](#)) demonstrated that physical reactions as such are normally emotionally neutral. Our labelling redefines the bodily reaction into a specific feeling. In the same way, we can learn to associate internal cues with specific emotions, for example joy or relaxation.
4. *Internal cues may be labeled as being "high".* Several people take morphine, solvents and other intoxicants without labeling the experience as "high" or demonstrating unrestrained behavior. In order to get "high", the individual not only needs the chemical influence, but also a socially learned interpretation of the effects as pleasant and "high". Becker's well-known study ([chapter 4](#)) demonstrated the learning process. The novice perceives certain physical effects, which by the help of experienced users is labeled "high" and defined as attractive.
5. *When a state is labeled as "high" or intoxication, the association with related experiences and behavior takes place.* The social role of being "high" or "intoxicated" is a role with certain privileges and fewer obligations.
6. *When internal cues indicate chemical influence, the individual use the cues as a measure of the degree of "high".* The strength of the cues influences the experience, behavior and possibly further consumption of the intoxicant.

### **"Getting high" - not an effect, but an interpretation.**

In several cases, a change has occurred in people's perception of a chemical substance which has been in use for a long time - the substance becomes labeled as (promoted to?) an intoxicant. Cannabis, a medical drug, was turned into an intoxicant. Amphetamine was changed from an "energy pill" to an intoxicant. Solvent vapors, which painters perceived as offensive, became the pleasant intoxicant for groups of adolescents.

When a chemical substance is adopted as an intoxicant, conventional belief regards it as the discovery of an innate property which the drug has possessed all the time. But people consuming the drug without having learned the label "intoxicant", respond differently from other users of the drug. The definition of the substance as an intoxicant operates as a self-fulfilling prophecy.

"High", "kicks" and "intoxication" are essential concepts in our thinking of drug and alcohol use. Such words and concepts shape our ideas and guide our comprehension of the world around us.

"Getting high" exists as a reality in our language and in our thoughts. In the objective world around us, there are physical reactions, drug concentrations in blood, and various subjective experiences. Some of these phenomena are classified as being "high", which is believed to describe a certain biological phenomenon. The attempts to explain intoxicant use as a result of

the biochemical effects of intoxicants are ignoring the research on perception of drug effects in people who have not been through the social learning process (chapter 6.)

A psychologist who has studied the relationship between drugs and "euphoria", writes:<sup>3</sup>

"... the propensity of any drug to produce euphoria is problematic. It is problematic to the extent that a drug becomes euphorogenic or dysphorogenic through its social and cultural learned use. In other words: drugs are not euphoric in and of themselves, but may become so through socialization."

The anthropologist Mac Marshall has scrutinized the use of alcohol in different cultures. He concludes:<sup>4</sup>

"... the pharmacological effects of alcohol make people feel different than when they haven't imbibed. The meanings given to this experience, i.e. how one interprets these feelings and orders his experience, are provided by the culture in which one is a participant."

In a textbook on intoxicants by Andrew Weil, he expressed it this way:<sup>5</sup>

"No substance automatically makes people feel high. The individual must learn to interpret the physical effects of the drugs as occasions for being high. The expectancies of individuals and societies make people associate internal experiences with the physical sensations produced by the drugs. If this association does not occur, or if it comes to an end, people may take the highest doses of drugs without getting high. They only feel drugged."

A brief summary may be put this way:

*Getting "high" is not a pharmacological effect of certain chemical substances, but a socially learned interpretation of the pharmacological effects.*

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## Chapter 8

### Do alcoholic beverages taste good?

#### Taste preferences: inborn or learned?

"There's no accounting for tastes." Nobody is entitled to tell us which foods or beverages taste good and which do not. Nevertheless, it may be interesting to scrutinize the widely held assumption that alcoholic beverages are consumed because of their marvellous taste.

Research on taste preferences has established that only the preference for sweet taste is a natural taste preference.<sup>1</sup> This preference exist in all cultures, and even infants prefer sweet taste.

All other taste preferences are socially acquired through learning. The individual adopts the taste preferences encountered in his surroundings. A certain latitude remains for individual variations. Individual differences are, however, small compared to the vast differences between groups and cultures. This is witnessed by anyone travelling around the world.

Most people remember that initially, they did not enjoy the taste of beer and wine, but rather found it aversive. Drinking is, however, perceived as a symbol of adulthood ([chapter 1](#)). If the neophyte has the courage to show his lack of taste for the symbol, he is told: "After a while, you will enjoy it".

Not until an individual has forced the beverage down his throat several times does he learn to appreciate the taste. The same is true for coffee, cigarette smoking and several kinds of food.

The taste of hard liquor is usually, especially in the first period, concealed by adding beverages with less obnoxious taste. At the start, few people will judge the taste of the mixed drink as better than the added beverage alone (if any taste difference is discernible at all).

Thus, cultural indoctrination is obviously the reason for the notion that alcoholic beverages are consumed because of their peculiarly wonderful taste. An entirely different issue is whether the alcohol itself has a strong impact upon the taste of the alcoholic beverages.

#### Is alcohol of vital importance for the taste?

Pure brandy leaves a burning sensation in the throat. This may have generated an idea that alcohol has a strong taste. The burning sensation is, however, not due to taste properties, but to the fact that concentrated alcohol - above approximately 20 % - is a local irritant to mucous membranes.

At lower concentrations, only the taste properties of alcohol may be detected, and these are not very strong. When alcohol is mixed with pure water, concentrations below 3-4 % cannot be detected.<sup>2, 3, 4</sup> In real life, alcohol is mixed with other taste-producing substances, and therefore, even higher concentrations of alcohol are needed for detection by taste. Moreover, when taste experiments are performed, the participants' awareness is above normal and they make full use of their senses. In blind tests with alcohol, various alcoholic beverages have

been used. Some beverages have contained more than 10 % alcohol, and in those cases, the alcohol may be detected by taste.<sup>5</sup> A study performed in 1973 demonstrated that alcohol is hardly discernible in a vodka/tonic-drink mixed 1:5, containing 8 % alcohol.<sup>6</sup> This drink has often been used in blind tests.

In a Norwegian taste test, the ability to detect alcohol in wine and drinks was studied.<sup>7</sup>

Eleven participants drank 12 drinks each. They were told that 1/3 of the drinks had normal alcohol content, 1/3 had half the alcohol content and 1/3 contained no alcohol. The alcohol content was correctly estimated in 47 % of the cases.

The result seems more correct than we might expect from the American blind tests with alcohol. The cause is probably that the participants were instructed to estimate the alcohol content and knew which alternatives were present.

Red and white wine contains more alcohol than ordinary drinks -10 to 12 %. In similar tests with wine, the alcohol content was largely correctly estimated for red wine (88 %). With white wine, only 33 % of the answers were correct. The taste organ functions less well at low temperatures, at which white wine is served, than at the room temperature of the red wine.

A group at Old Dominion University in Virginia introduced the use of beer at blind tests.<sup>8</sup> A popular beer (Schlitz) with 5.7 % alcohol was used as alternative to non-alcoholic beer. The test revealed that the participant could not determine which beer contained alcohol "at a better rate than by chance".

A number of other studies have confirmed that regular beer drinkers cannot decide reliably by taste whether a beer is strong, medium or very light in alcohol content.<sup>9, 10, 11</sup>

In the 80s, beer was used in several blind tests. <sup>12, 13, 14, 15, 16</sup>

## **Do "good" alcoholic beverages taste better than "poor"?**

Most people take for granted that expensive alcoholic beverages taste better than cheaper ones. Experiments do, however, indicate that this is not at all an evident fact, and that taste differences are often hard to spot.

The British Medical Journal published a taste experiment involving different brands of whiskey.<sup>17</sup> Surgeons at St.Mary's Hospital had grown tired with some colleagues' whiskey snobbery. The colleagues frequently made confident statements on the taste qualities of different brands of whiskey. The report states: "The ability to discriminate plays a part in establishing a social order among whisky drinkers."

The task was to discriminate the expensive malt whiskeys (Glenfiddich and others) from ordinary blended whiskey (Haig, Bells, White Horse).

Four regular and four inexperienced whiskey drinkers participated. They were blindfolded and given a glass of each of six whiskeys.

The novices gave correct answers in 50 % of the cases, that is, exactly what we would expect if they tossed coins. The answers of the experienced drinkers were just a little bit better - 58 %.

A real connoisseur also expects to recognize which brand he is drinking. This was a total failure. Only in a single case did a participant positively identify the area of production. When tested again, he failed to repeat his success.

A few years later, the British consumers' journal "Which" published taste experiments involving several brands of hard liquor.<sup>18</sup> Genuine experts were used, a number of them from the alcohol industry. The experts evaluated cheap and expensive brands according to their taste qualities, while the identity of the brands was hidden. Among blended whiskeys, Co-op's cheap whiskey won, over distinguished brands.

Among malt whiskeys, the cheap malt whiskey of the Sainsbury chain store won, while the "king" Glenfiddich came last!

Among cognacs and gins, differences were small. Once more, the Sainsbury chain store's cheap brands, sold in simple bottles, did very well. They scored even with Hennessy and Courvoisier cognac and with Gordon's gin.

A newspaper correspondent raised the question: "What would happen to the whiskey producers if large groups of consumers see through the snobbery and mystique?"<sup>19</sup>

Corresponding experiments with different brands of beer have largely yielded similar results. Three studies showed no tendency for regular beer drinkers to judge well-known or expensive brands more favorably than others, as long as taste was the only cue available.<sup>20, 21, 22</sup>

One of the studies served the beer drinkers' favorite brands along with other brands. In a blind test, the drinkers' own favorite brands were not rated significantly higher than other brands. The labeling in a subsequent experiment did, however, significantly influence the taste ratings.

Another study concluded: "The beer drinkers in this study were largely unable to taste the differences between three different beers. Although prior to the experiment most of the female participants claimed that they did not expect to do well on the identification task, a majority of the males indicated that they were confident of being able to identify each beer type by taste. Some men actually professed a taste aversion to a particular beer, which they then were unable to distinguish during the experiment."

A fourth study did, in fact, show some tendency towards higher ratings for more expensive brands.<sup>23</sup> It is interesting to note that this tendency was multiplied when, in a subsequent study, the beer bottles were labeled correctly. This signifies that even in this study, labels indicating the brands' prices and images were more important cues for the perception of taste quality, than the real physical differences between various brands. Another experiment studied the ability to discriminate between ordinary and non-alcohol beer.<sup>24</sup> Experienced beer drinker had slightly better results than the others, but no group had more than 65 % correct answers.

Corresponding studies for wine have not been published. Several anecdotes indicate that ordinary wine consumers have large difficulties in identifying even their ordinary wines.

The different brands of wine do not, indeed, have completely similar tastes. At wine taster competitions, distinguished experts try to identify different brands and vintages, and they

often succeed. In addition to their systematic training, these experts employ special techniques. They use the color and smell of the wine, they spit out the wine instead of drinking it, and they clean the mouth with water between each sip. They seem to have very little in common with ordinary wine consumers on natural drinking occasions.

The "wine scandals" provide additional evidence for the limited role played by taste differences. Once in a while, a wine producer markets "simple" wine under the label of a "noble" wine. Such a fraud has often been carried out for several months. The wine's price and label have obviously been sufficient to provide pleasant feelings for the consumers.

The impact of price upon the subjective experience of taste was measured in an experiment with beer at Stanford University.<sup>25</sup>

Sixty beer drinkers got a lager-type beer from a single production, served in three different bottles. The bottles were labeled differently, indicating that the bottles contained different brands at different price levels. The results gave evidence that ideas about pricing have a substantial impact upon judgment of product quality.

## **Alcohol, taste and illusions**

Our conclusion must be that alcohol as such does not have a particularly nice taste. As an ingredient in beverages, alcohol has a marked impact upon the taste of hard liquor and strong (dessert) wines. It has a certain, but overestimated impact upon the taste of ordinary wine. Whether the alcohol content actually enhances the taste, seems to be decided by social learning and indoctrination.

In most countries, however, the larger part of the alcohol is consumed in diluted spirits or beer, in which alcohol has a minimal impact upon the taste. (Different brands of beverages do, of course, taste differently because of ingredients other than alcohol.)

Very often, beverages are consumed in which alcohol has a heavy impact on the price, but scarcely on taste. The motive may, of course, be to get intoxicated. Alternatively, the role of the alcohol must be characterized as a mere ritual.

Twenty five years after graduation from high-school, we had a reunion party at our old school. The welcome cocktails only contained orange juice, ice cubes and vodka essence - no alcohol.

If anyone had drunk 4 or 5 glasses, they would have noticed the lack of alcohol effects. But as it went, no one commented the taste or the content of the cocktail.

The non-alcoholic cocktail played its role with complete success. If, however, the arrangers had proclaimed that "Now, we are going to drink a non-alcoholic cocktail", the subjective experience would have been different for several people. *The element belonging to the festivity ritual is not really the alcohol, but the idea of drinking alcohol.*

In most industrialized countries, people have learned the unfounded dogma that alcohol has a clear impact upon the taste and makes it pleasant. For several people, the presence of alcohol will therefore determine their attitude towards the beverage.

In a taste test, the participants were selected on the criterion that they all "loved beer".<sup>26</sup> The taste test revealed large difficulties in recognizing their most popular beer. But practically without exception, they characterized the brand they believed was their favorite beer, as the one with the best taste. The same phenomenon was observed with common diluted spirits. The idea that the drink contains alcohol, often determines the subjective experience of taste. This was confirmed by an experiment at Vanderbilt University.<sup>27</sup>

Thirty seven men tasted two juice glasses, one of which was labelled "Orange juice". The other was labelled "Alcohol", but only had a thin layer of alcohol floating at the top (the beverage contained less than 1 % alcohol). The participants were invited to rate the beverages on a list of adjectives (e.g. "strong", "sour" and "pleasant").

Among the 37, 5 found out that the beverage did not contain alcohol. For the remaining 32, the labelling had a heavy impact upon their taste experience. In 52 % of the cases, different adjectives were used to characterize the beverage, contingent on the label attached to the glass.

Several perceptions of taste differences may be based upon similar illusions. The leader of an American Coke-movement had bad luck:

In 1985, the Coca Cola Corporation changed the recipe of its Coke. Vigorously protesting the change, Gay Mullins in Seattle founded Old Cola Drinkers of America, which eventually had 60 000 members.

Mullins was challenged to participate in a public blind test. Among the two glasses with old and new Coca Cola, he judged as better the new Coke, against which he had sacrificed so much of his personal time and money.

We may smile at the power of illusion. It may, however, be argued that it is wise to remove those illusions which have the most harmful consequences.

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## Chapter 9

### Research on motives for intoxicant use - in perspective

#### From superstition to science: demystification of intoxicants

According to conventional wisdom, intoxicants have characteristic psychological effects and a unique ability to change the personality of human beings. This idea largely originates from an old popular belief about alcohol, which was widespread in the Western world.

This popular belief evolved at a time when people were illiterate and believed the earth was flat. While modern science has removed several old ideas, public belief on alcohol effects has changed very little. Two leading alcohol researchers at Harvard Medical School remark:<sup>1</sup>

"Empirical findings contradicting public belief on alcohol's effects on behavior, have had an imperceptible influence on attitudes to alcohol."

In our time, we tend to consider ourselves as rational creatures, basing our ideas on facts and science. Why has research had so little impact on popular ideas on intoxicants, especially on the ideas on alcohol?

Two major causes are obvious. The first is that *the conventional wisdom has the quality of a self-fulfilling prophecy.*

Placebo research demonstrates that human beings are highly suggestible (chapter 4). Following the expectation that a substance will change mood, a change will most probably occur. In an individual's subjective experience, expectancy effects (chapter 4) cannot be distinguished from real pharmacological effects.

The belief that a substance removes inhibitions is even more self-fulfilling. If a substance is regarded as the cause of (and thus excuse for) unrestrained behavior, such behavior does occur. Conversely, in groups and societies which do not share this belief, the deviant behavior does not take place.

Whatever the prevailing ideas are about drug effects on social behavior, they are apparently proved by living evidence in each specific society.

The second main factor which tends to sustain public belief, is the fact that the research findings are not popular in any of the two trenches.

The proponents and the opponents of an intoxicant (e.g., alcohol or marijuana) have fought persistent battles. Still, they have agreed that the intoxicant has magical effects upon the personality of human beings.

Supporters of the intoxicant have argued that the substance "tickles" a center of joy in the brain and removes anxiety like a "super-Valium". Opponents insist that the intoxicant paralyzes a "moral center" in the brain and turns the decent citizen into a ruthless scoundrel.

How did alcohol and other drugs become "psycho-active" drugs?

Accepting the research on behavioral effects of intoxicants may require a restructuring of ideas. The behavior of other people and, often, one's own behavior, may have to be reconsidered from a new perspective. And the question may arise: Why, then, were magical powers attributed to these substances?

Alcohol had entered human culture as a natural adulterant ([chapter 6](#)). How did popular belief on its behavioral effects originate?

Anthropologists have answered the question by calling attention to the fact that alcohol does, indeed, produce several unintentional events - stumbling, falling, losing or breaking things, and falling asleep.<sup>2</sup> These involuntary happenings are due to the impairment of skills which alcohol brings about, irrespective of the society in which it occurs.

The idea is not far away that other events which take place during alcohol intoxication also occur unintentionally, even if they are not due to the reduction of skills. If this idea has gained a foothold in a society, it does, indeed, become a self-fulfilling prophecy.

The drugs which came into use in the 1960s, like marijuana and LSD, were marketed as drugs altering consciousness and personality. Later on, there has been an increasing tendency to attribute similar characteristics to more and more drugs - not only pain-killers, hypnotics and sedatives, but also to previously unknown, synthetic compounds.

Considering the learned character of the chemical "highs" and drug-related behavior, we can easily understand the ever increasing number of "psycho-active" drugs: Noticeable, but non-specific physiological effects indicating that "something is different", are the subject of interpretations and expectations based upon social learning. The number of substances which may potentially be perceived as "psycho-active" is virtually unlimited.

### **Chemical hypothesis or indisputable motives?**

The pure chemical effects of intoxicants can hardly explain the motives for use. Some of the motives can be perceived as expectancy effects ([chapter 4](#)). Often, this is an insufficient explanation. For example, skid row alcoholics persist in drinking although they only seem to get broke, sick and sad.

When the conscious motives are insufficient as explanation, how can we comprehend the use?

Two alternatives seem to exist.

One is the hypothesis that future research will produce entirely different results. People insisting on chemical (instead of sociopsychological) explanations for behavior, may claim that future research will demonstrate that intoxicants "tickle" a brain center of joy and that "dependence" some day will have a chemical explanation.

Various types of evidence make the chemical hypothesis improbable. Conventional wisdom on the behavioral effects of intoxicants is so full of contradictions (chapter 4) that it hardly ever can be substantiated. As harmful intoxicant use in most cases is not continuous, "dependence" may not provide an adequate explanation).

Few, if any, substances in the world have been as thoroughly investigated as alcohol. Alcoholics may be the group of people which has been studied most extensively. Therefore, it is very difficult to maintain that future research on alcohol and alcoholism may give entirely new conclusions.

The biological explanations of intoxicant use and the behavioral effects of intoxicants, today appear to be unconfirmed hypotheses. Claiming that we know too little yet and must await future research, certainly sounds scientific. At some point of time, however, we will have to consider seriously the huge amount of research which already has been carried out, and accept the clear trends.

### **Understanding intoxicant use - is it possible?**

Conventional wisdom, which believes in the magic properties of intoxicants, is heavily disputed by a large body of research (chapters 5 and 6). In addition, the psychological and behavioral effects of intoxicants vary so much with learning and culture, that intoxicated behavior can hardly ever be attributed to the chemical effects of the substances.

Thus, alternative explanations must be found.

We can positively state that intoxicants are used for symbolic and ritual purposes (chapter 1). Intoxication serves as an alibi for bad performances (chapter 2) and for otherwise stigmatized behavior (chapter 3). These are certainly no unconfirmed hypotheses, but are the *established* motives for intoxicant use. These factors are *necessary* and *sufficient* explanations of the behavior we observe, as they can also account for the enormous individual and cultural differences in intoxicant behavior.

As long as we ignore the sociopsychological benefits from intoxication and intoxicant use, the use of intoxicants may appear mystical and incomprehensible. Traditionally, the use of intoxicants has been poorly understood. This is reflected in the fact that several publications have been issued on the topic "*Theories of drinking and drug use ...*"<sup>3, 4, 5</sup>

Several different theories have been put forward: Why on earth do people use intoxicants - and why do they use them to a harmful extent? This has been the long-standing enigma in the alcohol and drug field.

The analysis presented here is hardly based on theories. Intoxicants *are*, undoubtedly, used for symbolic and ritual purposes. Intoxication *does* function as an alibi for individuals facing the risk of bad performance or possibly showing stigmatized behavior. And the kinds of magical properties which are attributed to intoxicants, have to become self-fulfilling through learning, suggestion and self-suggestion.

It may, however, be maintained that one assumption is embedded in this sociopsychological analysis of motives for intoxicant use - the principle that these conspicuous motives are sufficient explanations for using alcohol and drugs, even for using it to a harmful extent.

- Individuals strive hard to obtain symbols and rituals which are crucial to identity or group identification (chapter 1).
- Effects attributed to intoxicants are genuinely attractive. These effects are likely to occur through expectancy, self-suggestion and learned interpretations of internal cues, irrespective of the pharmacological effects of the substances.
- If an individual anticipates bad performance or otherwise stigmatized behavior which is perceived as worse than being intoxicated, intoxication emerges as a tempting possibility.

Experience from psychiatry, psychotherapy and psychoanalysis particularly shows that *maintaining an acceptable reputation and - above all - self-image is a primary goal for human endeavor*. The concern for self-respect is, indeed, such a mighty force that it can even motivate excessive risk-taking behavior. The leading theorist of social psychology, Bandura, states that "there is no greater punishment than self-contempt".<sup>6</sup> As suicide is not infrequently motivated by self-contempt, people also go to other extremes to avoid the torture of self-contempt. Intoxication may cause less self-contempt than performing badly or breaking norms in a state of full responsibility.

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## Chapter 10

### May conventional wisdom be changed?

#### Separating alcohol use from disinhibition

American alcohol researchers have discussed the possibility of changing public belief on alcohol.

Alan Lang, a professor of psychology in Florida, says:<sup>1</sup>

"The obvious first step is to inform people of the prepotent role of cultural beliefs in the drinking-disinhibition link. Research subjects and the general public alike always seem astounded to learn of the expectancy effect or to hear about cultures where consuming alcohol does not lead to greater expressions of aggression or sexuality. Next, our laws as well as our informal reactions to the deviant behavior of drinkers need to reflect a new intolerance of undesirable disinhibitions, and hence enforce individual responsibility for those actions we disdain."

This has also been suggested by anthropologists.<sup>2, 3</sup>

In a paper on alcohol as an instrument of intimate domination, the sociologist Robin Room concludes:<sup>4</sup>

"... the link between alcohol and violence is a matter of cultural belief rather than pharmacological action. With this premise, it is possible to embark on a strategy of cultural redefinition of the meaning of alcohol: that alcohol is not to be seen as an explanation of violence. If the power of alcohol as an instrument of domination is the power of a cultural belief that it causes violence, that power exists only so long as we go on believing in its power and acting and reacting on that basis.

To change this belief involves undoing one of the most durable conceptual legacies of the temperance movement, and it is no light undertaking. By now the power of alcohol to make a person mean, vicious and violent is deeply entrenched in song, story and consciousness. Such a redefinition is thus a matter for a sustained campaign of consciousness-changing, and not for a season of thirty-second television spots. But in the long run, such a strategy may be the most effective and socially desirable means of removing alcohol's power as an instrument of intimate domination."

As stated by Room, there are immense impediments. Where people believe that alcohol as such removes inhibitions, intoxication becomes a mitigating circumstance and disinhibition does, in fact, take place. The idea "prooves" itself.

So while research on intoxicant effects may be highly interesting from a theoretical point of view, it may well be maintained that reducing the level of consumption is a more reliable method for reducing problems than diminishing people's motives for drinking, at least at short sight.

## Putting theory into practice

Alan Lang and one of his co-workers recently wrote:<sup>5</sup>

"From the point of view of prevention and resolution of alcohol problems, the demonstrated importance of expectancies may provide reason for optimism. After all, it is probably easier to change what people believe and will tolerate about drinking than it is to change their physiological reactions to it."

In Sri Lanka, the psychiatrist Diyanath Samarasinghe is leading an alcohol education program which has recently been described in an article in the World Health Forum.<sup>6</sup>

While the aforementioned American researchers only contemplated altering public belief on the link between alcohol and disinhibited behavior, the Sri Lankan program aims at a more comprehensive demystification of drugs, involving such beliefs as those which hold that the drug experience is inherently pleasurable, mood elevating, relaxing, and helpful in making people more sociable.

The program trains young persons who are interested in working in drug prevention. They then conduct activities in their village or other local area, reporting back for review and redirection.

At the start of the training, participants are asked how much of the perceived positive effects is produced by alcohol itself and how much by the social environment, rituals, beliefs and expectations surrounding the use. Attention is called to the contradictions in the conventional wisdom (chapter 4).

Through discussions, participants find out that alcohol itself seems to play a minor role in producing good mood and relaxation and that alcohol-induced violence is mostly directed towards weaker victims, not striking at random.

The participants are told that initially alcohol consumption is not in itself pleasurable, apart from its symbolic and social value, until the socializing group makes it so by training the novice over many occasions.

"The next session focusses on the possibility of modifying the social rules governing alcohol-induced behaviour. Participants are encouraged to see that a relaxation of strict social regulations is in itself very enjoyable, whether after drinking alcohol or otherwise. They are then engaged in a discussion of the desirability of continuing to limit this relaxation of social norms to just the drunken state. It is explained to them that changing the social image of alcohol as a magical or glamorous substance would help in reducing the desire of young persons to experiment with it. It is also pointed out that, in nearly all instances of young people trying out alcohol or other drugs, the so-called experiments are conducted with a group of friends who ensure that the novice feels positive enough to try it again, even if the sensations generated purely by the drugs were by themselves quite unpleasant."

Finally, participants are given the challenge of changing the social perceptions regarding alcohol in their own village or other local area. The campaign actually has the form of an idea, which can spread from person to person, irrespective of whether they are against alcohol, in favor, or neutral.

## Altered expectations give altered experiences

Dr. Samarasinghe's program is relatively young and still awaits formal evaluation, but interesting results are reported. Changes in drunken comportment and subjective effects after alcohol use have been unequivocally reported to result.

Although the program primarily aims at reducing alcohol and drug use, a most interesting side-effect is that *the program seems to bring about a definitive confirmation of its own theoretical basis.*

Participants who then have taken alcohol, have reported that the experience was either unpleasant or inconsequential. Several previous social drinkers, who had begun more carefully to examine the effects of alcohol on themselves, have after a time given up alcohol use as they reportedly then discovered that the effects were not pleasant.

In a few locations, the campaigners have already begun to produce small changes in the response to alcohol use and drunk behavior in the wider community around them.

Sri Lanka is a the third world country where a large proportion of the population are not alcohol users. Mass media are less influential than in the Western world. Consequently, conventional wisdom on drug effects is less deeply entrenched. Therefore, educating people on the basis of research may be easier to perform than in the industrialized countries. Still, the experiment in Sri Lanka demonstrates that altering expectations and correcting misconceptions is, indeed, a feasible approach.

In the end, superstition, depicting alcohol and other drugs as having magical properties, will probably have to be eradicated. In the famous words of Abraham Lincoln:

"You can fool some of the people all of the time, and all of the people some of the time, but you cannot fool all of the people all the time."

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## Appendix

### Biologic theories on the motives

#### All human activity is biology, but ...

All human thoughts and all behaviour are based upon biochemical processes in the nervous system.

Does this mean that psychology and behaviour sciences soon will be subdivisions of biochemistry and biology? Will thoughts and behaviour be explained and changed by biochemistry, in our lifetime?

Or is this still light years away, so that we still will base understanding and modifications by psychology and behaviour sciences?

For a long time, many biochemical researchers have been very optimistic. A leading newspaper reported in 1974:

Will there be no sex, alcohol use, gambling or excessive eating in the year 2000? Psychologists believe that at that time, the human brain will be understood and the pleasure centers will be localized. With a technical device, we can stimulate all the brain centers and have complete enjoyment – without eating, having intercourse or drinking alcohol.

The prophecy was wrong. But have we come a long way?

Do the motives for intoxicant use, sex and other behaviour humans seek, simply consist in a chemical stimulation of a certain pleasure center in the brain? Or does our cultural learning have a decisive influence on our perception of the behaviour?

#### Are intoxicants used because of their pleasant effects?

Many biochemical publications seem to take for granted that intoxicants are only consumed because of their pleasant physical effects.

But with large placebo studies in the 1950s and 1960s, published in the most prestigious scientific journals, more than 90 % perceived the effects of morphine as unpleasant and found the placebo to be more pleasant.

Neither did the cannabis research in the 1960s and the 70s indicate that the pure drug effect as such is pleasant.

Does this mean that the consumers of these intoxicants are masochists? No, not more than smokers, beer drinkers and coffee drinkers are. All these activities have taste and other effects which are not perceived as pleasant. But those who are well motivated to become a smoker, or a beer or coffee drinker, are willing to undergo the processes that are required to learn to like the taste or effect. Human preferences are so flexible that we can learn to appreciate something which is not immediately considered pleasant.

The theory that intoxicants are used because they all stimulate a common pleasure or reward center, implies that novices will also find the effects pleasurable. But with the exception of central stimulants, the main rule is that animals and humans avoid the substances unless they have been through the process needed to “learn to” appreciate it.

One of the pioneers in methadone treatment, Vincent Dole, writes:<sup>1</sup> «Animals generally avoid such drugs when they are given a choice.» And he writes: «Most animals cannot be made into addicts.»

## **Intoxicants are not always intoxicants**

For one of the common intoxicants, amphetamine, large placebo studies concluded that the majority finds the effects pleasurable. A minority found it unpleasant because it led to restlessness, anxiety and insomnia. But the majority found it pleasant because they felt more fit, energetic and alert.

The effects of amphetamine were not, however, classified as being “high” and associated with alcohol. In the 1940ies, it was quite common that ordinary, “nice” people took amphetamine in order to stay awake during night watch or preparation for exams. But it was only perceived as a medicine towards tiredness, not as an ”intoxicant”.

There are many examples that chemical substances have been used widely without being classified as “intoxicants” until drug misusers started to consume them. Untill the 1950s, cannabis products were sold freely as medicines in drug stores. It is thought-provoking that users did not discover that it was an intoxicant.

Thus, it seems that the objective properties or effect of the substances do not by themselves decide whether the substance is labeled an intoxicant.

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<sup>1</sup> Dole VP: Addictive Behavior. Scientific American 243:138–154, 1980.

## Dopamine increase – by both pleasant and unpleasant stimuli

Towards the end of the 1980s, research with rodents in American laboratories showed that some intoxicants give a chemical reaction in a brain center called *nucleus accumbens*. An increase in the concentration of extracellular dopamine was demonstrated. The same increase was demonstrated when the animals were eating or having sex.

For some reason, the researchers postulated that the increase of dopamine was not only an accompanying phenomenon, but has decisive importance for pleasurable experiences. The increase of dopamine was claimed to be the main motives for the behaviour. They proclaimed that this is a «reward pathway».

In 1990, Journal of the American Medical Association published a report claiming that most (77 %) of alcoholics have an allele (part of a gene) which is important for dopamine metabolism, while most (72 %) non-alcoholics did not have it.<sup>2</sup> The study was received with enthusiasm and mass media around the world reported that the «alcoholism gene» had been found, and in addition, the key role of dopamine in the drinking motives had been confirmed. But this joy did not last long: A subsequent analysis of several studies concluded that this trait was found in an equally high proportion (18 %) of alcoholics, problem drinkers and non-problem drinkers.<sup>3</sup>

Later on, animal studies showed that the concentration of dopamine in nucleus accumbens did not increase only in response to pleasant stimuli, but also with negative stimuli, which the animals wanted to avoid, as shown by their behaviour:<sup>4</sup>

- Being confronted with aggression and threatening behaviour
- Electric shock
- Pinching of the tail
- Conditioned negative stimuli

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<sup>2</sup> Blum K: Allelic association of human dopamine D2 receptor gene in alcoholism. JAMA 263:2055–60, 1990.

<sup>3</sup> Gelernter J, Goldman D, Risch N: The A1 allele at the D2 dopamine receptor gene and alcoholism. A reappraisal. JAMA 269: 1673–77, 1993.

<sup>4</sup> Abercrombie ED, Keefe KA, DiFrischia DS, Zigmond MJ: Differential effect of stress on in vivo dopamine release in striatum, nucleus accumbens, and medial frontal cortex. J Neurochem 52:1655–8, 1989.

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Animal studies have also demonstrated that the ability to feel the effects of dopamine does not influence the animals' use of intoxicants. Animals lacking dopamine receptors in their nervous system show the same behaviour towards intoxicants as other animals.<sup>5</sup>

A study in the American Journal of Psychiatry reported that the medicine most often used for ADHD, Ritalin (metylenphenidate), blocked the dopamin receptors in the brain.<sup>6</sup> Therefore, it was claimed, the substance could not be misused or used as an intoxicant. But it seemed that drug addicts do not read this journal, as one sixth of the children taking Ritalin had been offered money to sell it to addicts.

Although the dopamine theory is still being advocated, this research makes it hard to believe that this theory is correct. Neither does it make good sense logically:

If intoxicant use, smoking, gambling etc. had as the same main purpose to trigger off the same reaction, *these behaviours should also substitute for each other*: The alcohol would one day provoke the pleasant chemical reaction by gambling instead of drinking, and the smoker could one day substitute drinking for smoking. In the real world, we rather observe the opposite: When drinking, it is customary to smoke and gamble more. In addition, animals would generally choose to consume intoxicants when having a choice, but they generally do not.

## How chemical substances are labeled "intoxicants"

It has been demonstrated that 5–10 among the tens of substances at the list of illegal intoxicants increase the level of dopamine in *nucleus accumbens*, which, however, is not a specific reaction for pleasures or for intoxicants.

If all the substances labeled intoxicants had any chemical/biologic common characteristic, we could have decided in the laboratory which substances are intoxicants and which are not. It would probably also have led to the discovery of intoxicant which did not represent any threat to the health, and could therefore easily be legalized. It does not happen, because no common characteristic does exist.

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<sup>5</sup> Rocha BA et al.: Cocaine self-administration in dopamine-transporter knockout mice. *Nature Neuroscience* 1:132–137, 1998

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<sup>6</sup> Volkow ND et al.: Dopamine Transporter Occupancies in the Human Brain Induced by Therapeutic Doses of Oral Methylphenidate. *Am J Psychiatry* 155:1325–1331, 1998.

A very different process leads to the process of labeling a substance as an intoxicant: When drug abusers or addicts start using a new substance and claim that it makes them "high", the substance is prohibited and included in the list of illegal intoxicants.

When drug abusers have defined a substance as an "intoxicant", the mighty American National Institute of Drug Abuse grants money for research which, to a large degree, aims at showing the health risks related to the substance.

## **Will research with rodents give the solution to alcohol and drug problems?**

Although the dopamine theory seems to be rejected, research with rodents may still find factors which may influence human consumption of intoxicants. Then, the next question will be: How important are these factors – how large part of human motives are explained by chemical reactions which also are found in rodents?

In general, there is little agreement between laboratory findings with animals and what we find in human behaviour. The table on the next page is made by Hartnoll<sup>7</sup> in 1990 and based on the experiences in Great Britain, but the main features seems to be the same in other western industrialized countries. While it is most easy to make animals consume stronger central stimulants, very different substances are most common in human use and human consumption.

The table demonstrates that in practice, sociocultural factors are more influential than what we find in animal studies: Traditions, the substances' juridical positions, availability, social norms, costs and psychological factor are far more influential. Not least, culture has given different symbolic values to consumption of different substances.

<b>Animals: Willingness to consume the substance</b>	<b>Clinical: Frequency of problem use in humans</b>	<b>Epidemiological: Frequency of use in humans</b>
Cocaine	Nicotine	Coffeine
Amphetamine	Alcohol	Alcohol
Opiates	Benzodiazepines	Nicotine
Barbiturates	Barbiturates	Cannabis
Alcohol	Opiates	Benzodiazepines
Benzodiazepines	Amphetamines/cocaine	Amphetamines
Nicotine	Psykedelic drugs	Psykedelic drugs

<sup>7</sup> Hartnoll R: Non-pharmacological factors in drug abuse. Behavioural Pharmacology 1:375–384, 1990.

<b>Animals: Willingness to consume the substance</b>	<b>Clinical: Frequency of problem use in humans</b>	<b>Epidemiological: Frequency of use in humans</b>
Coffeine		Cocaine
Cannabis		Opiates
Psykedelic drugs		

Strangely enough, we still encounter the claim that the key motives for use of intoxicants are common biological reactions (such as effects of dopamine). Although it is often briefly mentioned that multiple factors are involved and that psychosocial factors also influence the use, these claims are contrary to our present knowledge. Research has simply not established any common traits in the substances we label as intoxicants.

The chemical properties do, of course, have consequences. But for use and abuse, psychosocial factors are obviously more important. Research with rodents cannot tell us about the importance of psychosocial factors. Assertions that findings from rodent research can establish the main motives for human use and misuse of intoxicants, are thus unscientific.