



## **THE DISEASE CONCEPT OF ALCOHOLISM**

Heredity studies done all over the world clearly show that genetics is far more significant in determining whether or not you will be an alcoholic than any other single factor examined. Genetics is more significant than any combination of social or environmental factors examined.

Now, I'm not saying a person is born an alcoholic. No, I've never met an alcoholic who didn't drink. But I think it's conclusive that some people are indeed predisposed to alcoholism because of their heredity; and if they ever start drinking, they run an unbelievably high risk of developing the disease.

Of course, in medicine there are a lot of diseases that work that way. Diabetes has a high family predisposition. So, probably, does heart disease. Now, when medical science notices a family predisposition toward a disease, it will look for some abnormality in body chemistry. What about the body chemistry of alcoholics? In just the past ten years, scientists think they have found the answer.

It all started down in Houston, Texas, with a medical scientist named Virginia Davis who was doing cancer research. For her studies she needed fresh human brain - which is not widely available; you don't run down to the store and buy it. So she'd ride out with the Houston Police in the early morning, and they would pass along Skid Row and collect the bodies of the winos that died overnight. Virginia would take the temperature of these bodies and the warm bodies, so to speak, were rushed back to her hospital, where she removed the brains for cancer research.

One day Virginia was talking to some doctors in the hospital cafeteria. She was telling them about some findings in her laboratory studies, and she said, "You know, I never realized that all those winos used heroin as well as booze."

Now these were hardened emergency room doctors, they just laughed at her, "Come on, Virginia, these guys don't use heroin, they can barely afford cheap liquor".

Virginia shut up and went back to her lab. But she was onto something, and she knew it. She had discovered in the brains of those chronic alcoholics a substance that is, in fact, closely related to heroin. This substance, long known to scientists is called tetrahydroisoquinoline or (THIQ) for short. When a person shoots heroin into his / her body, some of it breaks down and turns into THIQ. But then, these people hadn't been using heroin; they had simply been alcoholics. So how did the THIQ get there? That's where Virginia's research was to lead her for the next few years.

That's where we leave Virginia's, hard at work in her lab so that we can talk about biochemistry.

When the normal adult drinker takes in alcohol, it's very rapidly eliminated at the rate of about one drink per hour. The body first converts the alcohol into something called acetaldehyde. This is very toxic stuff, and if it were to build up inside us, we would get violently sick, and indeed we would die. But Mother Nature helps us to get rid of acetaldehyde very quickly. She efficiently changes it a couple of more times - into carbon dioxide and water - which is happily eliminated through our kidneys and lungs. That's what happens to normal drinkers. It also happens with alcoholic drinkers, but they get what we call a P.S.

What Virginia discovered in Houston, which has been extensively confirmed since, is that something additional happens in the alcoholic. In them, a very small amount of poisonous acetaldehyde is not eliminated; instead it goes to the brain where, through a very complicated biochemical process, it winds up as this THIQ. Researchers have found out fascinating things about THIQ: First, THIQ is manufactured right in the brain, and it occurs only in the brain of the alcoholic drinker; it doesn't happen in the brain of the normal social drinker of alcohol. Second, THIQ has been found to be highly addictive. It was tried in experimental use with animals during the Second World War, when we were looking for a pain killer. However, it could not be used on humans. It turned out to be much more addicting than morphine. So, scientists have to forget about it, and they have left it all these years on some dusty shelf. The third fascinating item about THIQ also has to do with addiction. There are, as you might know, certain kinds of rats that cannot be made to drink alcohol. Put them in a cage with a very weak solution of vodka and water, and they will refuse to touch it; they will literally die of thirst before they would drink the alcohol. But, if you take the same kind of rat and put an unbelievably minute quantity of THIQ into that rat's brain - one quick injection - the animal will immediately go to the vodka and water. In fact, he'll be happier if you mix his drink with less and less water. So, we've taken a sober rat that wouldn't touch alcohol and turned him into an alcoholic. And all we needed was a tiny bit of THIQ.

Other studies have been done with monkeys, our close animal relatives in medical terms. We've learned that once THIQ is injected into a monkey's brain, it stays there. You can keep a THIQ'd monkey dry, giving him no alcohol for as long as 7 years, then when you examine his brain, THIQ is still there. This, as you've probably seen, takes us back to the progressiveness of the disease. Remember that person who's been sober for 10 or 25 years and then suddenly starts drinking again? The alcoholic will immediately show the same symptoms displayed years before! And it's no wonder. The human alcoholic is still carrying THIQ like those man-made alcoholic monkeys.

You see how beautifully these laboratory findings fit in with what specialists in alcoholism have long noticed in their clinics. Uncle Jack is brought in, and he's drunk again, and even though it's slowly killing him, he somehow can't stop drinking. When he's sober enough, we'll get a family history. Yes, there are other alcoholics in his family; there's a family predisposition - an abnormality in the family body chemistry - which we only saw the shadow of before. But now we see it much more clearly: it's a predisposition toward making THIQ.

Now alcoholics don't intend for their brains to manufacture something stronger than morphine - they've been warned about the evils of narcotics all their lives. But they've heard a good deal

less about the evils of alcoholism. Most normal Americans take a drink now and then, and the young alcoholics-to-be want to be normal. So they take a drink now and then, too.

Unfortunately, the alcoholics-to-be aren't normal. That's too bad for them, but then it could have been a lot worse: they could have been born blind or with crippled arms or legs. On the other hand, of course, potential alcoholics certainly would know about the blindness or the crippling disability. But they don't know about the predisposition toward the THIQ-making their brain chemistry has inherited. Nobody knew about it until fairly recently. So, Jack and Jane and a new generation of alcoholics have their first few drinks and everything seems cool.

The alcoholic-to-be starts drinking, and he or she may well be very moderate at first, just a few on Saturday nights. Maybe a couple of beers with football games on T.V. Maybe a nip or two to calm down while fixing dinner for the family. Two or three drinks to quiet the jitters before high school graduation. In the beginning, the alcoholic-to-be only gets seriously drunk, say, once or twice a year. So far, so good. But all this time the alcoholic brain is humming away in there building its little supply of THIQ, just like the brains of our rats and monkeys. At some point, maybe sooner, maybe later, the alcoholic will cross over a shadowy line into a whole new way of life.

Now medical science still doesn't know where this line is and doesn't know how much THIQ an individual brain will accumulate before the big event happens. Some predisposed people cross the line while they're teenagers or earlier. It won't occur in others until they're 30 or 40 or maybe even retired. But once it happens, the alcoholic will be as hooked on alcohol as he would have been hooked on heroin if he'd been shooting that instead - and for very similar chemical reasons. Now comes that "loss of control" we talked about early in this story. It's chronic, progressive, incurable nature is obvious to practically everyone who knows the alcoholic. Now it's all too clearly a disease. And now all too often, it's a disease that will mainly get treated with other sedatives. Far too often, alcohol addiction is treated with pills that keep the disease raging. When we're done, if the alcoholic is still alive, he will be about as functional as a THIQ rat.

But then, I did promise you good news, didn't I? Well, we're just about to it, and you may well understand it already. Alcoholism is a disease - and that's the good news. Alcoholism is not the alcoholic's fault - and that's good news, too. Alcoholics can today get proper treatment for the disease, which is certainly good news, and that treatment begins when we tell them these facts. The alcoholic patients I see are usually relieved to hear that it's not their fault, because they have been carrying tons of guilt along with the alcoholism.

Now, instead of guilt, the alcoholic person can take some responsibility. Now that the alcoholic knows the facts, he or she can, with treatment, take the responsibility of stopping the drinking. Alcoholics can refuse to put more THIQ in their brains, and they can refuse to reactivate the THIQ that is already there. Alcoholics can't get rid of their THIQ but they can, with treatment, be taught how to control it. Alcoholics can learn how to live like normal healthy people again.

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