

TRANSCRIPTION OF ADDRESS BY DR. RICHARD C. BATES

*March 16, 1970*

It is my pleasure to introduce to you your guest speaker, who spoke to us, some of you will remember, on "How to Have a Heart Attack" in December, 1968. By popular demand we asked General Motors, who retain him as a guest lecturer, if we could not have him back again and your committee has succeeded in prevailing on them to do just that. Dr. Richard C. Bates is a graduate of both Michigan State University and the University of Michigan Medical School. He trained as a specialist and served as an instructor in the Medical School before entering private practice as an internist in Lansing, Michigan, in 1951. His professional associations include membership in the American Heart Association and the American College of Physicians. He is certified as a specialist by the American Board of Internal Medicine. In addition to his regular practice, Dr. Bates specializes in the treatment of alcoholism, is a contributing editor of Medical Economics Magazine, a lecturer in the School of Social Studies at Michigan State University and a guest lecturer of General Motors, as I told you. He speaks to the United States on his topics of "How to Have a Heart Attack", "How to Live to be 100" and "Alcoholism".

Gentlemen, will you welcome Dr. Bates.

## "HOW TO LIVE TO BE 100"

"The almost universal reaction to this title "How to Live to be 100" is "Who wants to live to be 100?" Well, I've identified at least one person who does and that's the individual who is now 99. Actually although you wouldn't admit it to your closest friend, I suspect that you too nourish a secret desire to live 100 years and get your picture in the paper reading letters of congratulation, looking hopelessly senile. Man has always wanted to avoid death so badly that the thesis of living forever, or immortality is held out as a reward for clean living in most of the world's successful religions. Of course, the rules as to what constitutes clean living change from one religion to another and, in most religions, from one time to another.

Forty years ago it was firmly believed that you couldn't get into heaven if you worked on Sunday. Nowadays many people find that they can't afford to belong to the best churches in town unless they do a little work on Sunday. One variation on this theme of immortality is found in the Hindu religion. They believe, as you know, in the thesis of reincarnation, that animals and people die and then return to life in a different form of animal life, ascending or descending the scale, depending upon how they spent their previous existence. This philosophy has not caught on widely, probably because there is one flaw in the incentive system, since a person does not know what he was in his previous existence he can't tell whether he has

been promoted or demoted. Then in the middle ages man took another tack in his quest for living as long as possible. Those were the days, you know, when people believed in the magic of chemistry, a search for such things as a philosopher's stone that would change lead into gold. Among other things they looked for a universal panacea, one medicine that would cure all of mankind's ailments. That search for a universal panacea came to a halt in 1550 with the discovery of whisky.

And among other things, they looked for some chemical that would assist people to avoid death by rejuvenating them or setting them back to youth again. This search for a rejuvenating chemical reached its peak in 1500 when Ponce de Leon slogged around some of the gooiest swamps in Florida searching for the fountain of youth, only to die himself at the age of 61 from an overdose of Indian arrows. Of course old people still carry on his work in Florida today.

For the last hundred years it's been firmly believed that women could be made younger again by any number of substances that could be rubbed or patted on their outsides but that it would take far stronger than internal medicine to do anything about the problem of aging in men. And so, at the turn of the century a French scientist by the name of Charles

Brown-Sequard decided that, because certain glands in men wear out with age, the answer to rejuvenating men might lie in replacing these glands. He obtained similar glands from animals, operated on his patients, slipped the animal glands under their skin in a primitive transplant operation in hopes that the gland would take root and elaborate its hormone. This notion caught the public fancy and the operation became widely popular but shortly fell into disuse when Brown-Sequard had the misfortune to die at 77, five years after he started his famous operation.

But the philosophy was picked up by a Russian living in France. It's peculiar that most of the male rejuvenation experiments have come out of France, and this Russian, by the name of Serge Varonoff, decided that Brown-Sequard had made a mistake in slipping the glands whole into his patients and that he might better have ground them up and injected them, and so Varonoff embarked on this phase of experiments. He obtained his glands principally from goats and became known as the goat gland man. Millionaires travelled all the way from North America to France for his series of injections, but this, too, has fallen into discard. For one thing, the goats rather resented it and then Varonoff had the misfortune to die at the age of 80. They do say, however, that he was prancing around eating

tin cans and light bulbs until death.

And even today, in Bucharest, Roumania, a woman doctor by the name of Anna Aslund claims to rejuvenate her male patients with injections of procaine, the material that dentists used to use to deaden the teeth. Dr. Aslund is not dead yet but from the looks of her recent pictures she should double her dose shortly ... and, really, if someone did come up with a chemical that would make us young again we would have to think twice before submitting to it, because very few of us would willingly go through again the helplessness of infancy, the frustrations of childhood, the lonesomeness of adolescence, the poverty of our twenties. While we would very much like the physical attributes of youth, we wouldn't at all welcome the emotional and financial problems that inevitably accompany it.

But then modern man's a piker to aspire only to 100 years because the Bible starts right out on page 3 telling of a remarkable series of individuals who lived far longer: Adam, who started this whole dreary business, lived 930 years and the next three generations after Adam died at 900, 895 and 962. The fourth generation had the misfortune to die prematurely at only 365. But that just gave him time to sire Methuselah who broke all records at 969 and Methuselah's grandson was Noah who was 600 years old at the time of the flood, which is a pretty advanced age to be out in a boat in a storm like that ... But you'll be happy to hear that it did him no

apparent harm because he lived another 350 years after the flood, and all of this, if you please, before vitamins and penicillin.

In less fanciful times it has always been held that the best way to live as long as possible is to take good care of one's self. The difficulty comes in determining what constitutes good care and here, too, the rules change almost daily. One of the recent rules involves swimming after eating. As youngsters we were all thoroughly indoctrinated with the fact that it is exceedingly dangerous to swim within one, two or three hours after eating, depending upon how long Mother wanted to rest ... Recent studies have shown that your youngsters may swim with equal safety before, during or immediately after the heaviest meal of their existence.

An old boy in ancient Rome by the name of Hermethes decided that he knew how to take care of one's self. Hermethes decided on philosophical grounds that there must be some substance in abundance in the body at birth that escaped gradually and that the aging process was the result of the escape of this substance. He decided that it would have to get out of the body in the breath and that it should be in its maximum concentration in the breath of pretty, vivacious, young girls and so he spent his entire existence surrounded by these lovely creatures inhaling as they exhaled ... and, presumably, vice versa ... and indeed there seemed to be some merit

in Hermes philosophy because he lived to the age of 114, not a bad way to live, and not a bad way to die either.

In the last fifty years we have learned a few hardcore facts about the influences that determine a man's life span. As you know, about six months ago we finally achieved, for the average person in our countries, the biblical promise of three score years and ten, or seventy years of life expectancy. In 1900 the life expectancy at birth, in our countries, was 47 years. Unfortunately this can't be taken to mean that you and I are going to live 23 years longer than our grandparents because when one has arrived at the age of 50 his life expectancy is only 4 years longer than it would have been had he been 50 in 1900.

This great rise in life expectancy in the last 70 years is almost entirely a reflection of the elimination of the great childhood epidemics of yesteryear. A hundred years ago one child in four failed to survive the first year of life. When you have such a large infant mortality it drops the life expectancy for the remaining population considerably. Even in biblical times it was known that three score years and ten (or seventy) was a good round age for man to live.

This span is set for man by factors of which we have no knowledge as each individual species of animal and plant has its own indivi-

dual life expectancy. Among mammals, rats are old at three, dogs at fifteen, elephants at fifty and man at eighty. Within this unknown and unchangeable lifespan there are, of course, many other factors operating, chief of which is possibly heredity. We are aware that there are long and short lived families. This seems to be a function of at least two things that are inherited and then modified somewhat by the habits of living: the blood pressure and the blood cholesterol. The normal blood pressure is 120 over 80; the top figure represents the pressure with each heart beat, the lower figure the pressure between beats. But actually the lower your pressure is below 120 over 80, the longer you can expect to live, provided you don't pass out every time you stand up ... while even slight elevations of pressure, particularly in that lower figure of 80, are associated with a measurable decline in lifespan.

The average blood cholesterol, in our country, is 250 but most people feel that there is practically no such thing as an ideal blood cholesterol, in North America, and that we all run too high. Over in Japan there is a little tribe of people who average about four pounds of meat per person per year and their blood cholesterols run around 100, a figure lower than we almost ever find in health in this country. Generally there is concern if your cholesterol reaches 300 and we would like everybody insofar as possible, through a combination of exercise and diet, to get his cholesterol down to 200. Sex is an important determinate of lifespan because females

invariably outlive males throughout the animal kingdom, even down to insects.

In our country the average woman lives seven years longer than a man. In European countries the difference is but four years. This greater lifespan for the woman is, of course, the whole basis for the life insurance industry and accounts for the fact that two out of three married women survive their husbands. It can't be taken as proof that men work harder, and work themselves into an earlier grave, nor does marriage shorten life despite common doubts.

Married women, at least, have a better chance of arriving at the age of eighty than do old maids. However, at the age of eighty a serious reversal takes place and those old maids who do make it to the age of eighty have a better life expectancy than those who have been married. This is apparently because at about the age of eighty, old maids become virtually indestructible ...

As an increasingly important factor in life we will have to mention accidents which are now the fourth cause of death, or the leading cause of death between the ages of 1 and 40. At the present state of medical ignorance, we will have to classify most deaths from cancer as accidental. And then, of course, there is the worst accident of all, picking out an incompetent physician.

Well, so far I haven't discussed much over which you have any control but you still have about twenty years of life that you can treasure or squander as you will, depending upon your habits of living ... good and bad ... and among bad habits we will have to mention prominently the smoking of cigarettes.

Pipes and cigars do not shorten life, all they do is cause cancer of the lip and tongue ... but these cancers are cureable if you don't mind giving up your lip and tongue ... while the average pack-a-day cigarette smoker, if he persists in smoking to the time of his death, gives up, for his pleasure, seven years of his life. Broken down this means that a pack-a-day smoker puffs himself 5.9 minutes of life for each cigarette he smokes. It hasn't been sufficiently publicized that the chief danger in smoking cigarettes lies not in the direction of lung cancer, although cigarette smokers have a tenfold likelihood of that disease, but there is a peculiar association between cigarette smoking and heart attacks such that a two-pack-a-day smoker has four times as many chances of having a heart attack as a non-smoker. Interestingly enough, this association of cigarette smoking and heart attacks is completely reversible and six months after smoking your last cigarette your chances of having a heart attack are no worse than as though you had never smoked, so you are perfectly safe in continuing to smoke until six months before your heart attack ...

Alcohol in moderation does not harm health or shorten lives in any way. Moderation is anybody who drinks less than you do ... and moderation is the keyword there because alcoholics are known to die fifteen years younger than the regular population.

The most important cause of premature death in our country is overweight. Extremely overweight people may shorten their lives by as much as 25 years. Twenty-five years for obesity, fifteen years for alcohol, seven years for cigarettes ... I realize some of you have been dead for ten years already ...

And of these all, overweight is distinctly the most difficult to treat. We can expect that about a third of all cigarette smokers will eventually mature out of their addiction. At least half of those alcoholics who ask for help can be induced to a permanent sobriety. But it is distinctly unusual to find a truly overweight person who can come down to his ideal weight and remain there.

There is always a great deal of interest in the role of stress in work on health. It is popularly believed that a man can work himself into an earlier grave. I find many businessmen nourish a secret fantasy wherein they daydream of being found some day slumped dead over their desk, at which point their secretaries, their stockholders and their customers and their families will all regret having pushed things on them all those years.

Unfortunately for this cozy daydream, there is no good evidence that hard work or stress is in any way harmful to a healthy person. The notion that you can wear out from hard work comes about, I suspect, from the machine concept of the human body.

We are taught as youngsters that our body is a machine and we must take care of it. Well, of course, it is true for machines that the longer and harder and faster they run, the sooner they wear out. But the body is not a machine.

It is a living organism and, paradoxically, healthy living organisms invariably improve with use. This observation has changed a great deal of medical philosophy; take for example the matter of eyesight.

When we were youngsters we were always taught that we must read big print under a bright light which for some reason or other had to come over the right shoulder, or we'd permanently wear out our eyes. Now it's believed that the eye is a lens with a system of muscles and if you want your youngsters to have the best vision you should put them in the darkest corner, with the finest print, and keep them there exercising their eyes all day. To the contrary, there is increasing evidence that phlegmatic people in sedentary jobs die younger.

In a study carried out in the DuPont organization, confirmed by another in A.T. & T., it was demonstrated that the lowest level of heart

attacks occurred in the top level executives with the maximum responsibility. The highest rate of heart attacks was in people doing routine, clerical, sedentary, desk jobs with a minimum of stress. After all, if hard work, worry, were harmful to health, electing a man president of a large country would be tantamount to a death sentence. In recent times we've seen people like Churchill, Adenaur, MacArthur, Hoover, Truman, living well into their eighties after decades of enormous pressure.

It is true that those people who live to extreme old age, ninety-five, over a hundred, generally tell us that they have enjoyed moderate habits of living throughout their lives and that they have slept soundly and well. This doesn't mean, necessarily, that you and I will live longer if we get more sleep. It may as well be that whatever lets a person live a hundred years in the first place requires him to get more rest along the way.

In the matter of diet, we are faced with a quandary. Dentists are convinced that starches and sugars are bad for the teeth. Proteins are thought to aggravate kidney disease and high blood pressure. Fats are pretty well shown to promote hardening of the arteries. Since all foods are composed of starches, sugar, proteins and fats, we are left with only poly-unsaturated dry martinis ... that's the kind without an olive... The current medical thinking would hold that the most important thing to watch in your diet is probably that of saturated fats.

We're in the midst of what's been called the greatest epidemic in medical history, that of coronary artery disease - a disease that will take as many men in this room as all other diseases put together ... a disease unknown to the medical profession before 1912 - now a disease more common in our countries than in any country in the world.

In searching for the reasons for these observations it has been noted that, among other things, there has been a great change in the North American diet in the last seventy years. In 1900 our people consumed four times as much in the way of cereal, starch, grain food, as they do today and since we are no thinner now than people were in 1900, we must have replaced all these starches with something else.

One need go no farther back than the depression years to discover that we have lately become a great nation of meat and dairy product consumers. In depression days families counted themselves lucky to have meat three times a week ... now many people feel deprived if they don't have meat three times a day.

We'd like to have people go back toward the poverty, starchy diets of the early nineteen hundreds regardless of the cost to their teeth. It doesn't do a man much good to have a beautiful set of teeth at fifty if his arteries are all shot, and particularly we'd like to have you take a close look at your current habits regarding the intake of meat and dairy products.

Granted that these are excellent sources of protein in moderation, in excess they contain large amounts of saturated fats. Saturated fats raise the blood cholesterol and the higher the blood cholesterol, the greater the likelihood of a heart attack. So the chain of evidence appears fairly complete - we should modify our diets to some extent. I find a great deal of misunderstanding about the role of meat in the diet. Many people have the notion that if you want to lose weight you ought to eat a lot of steak. Actually, mouthful for mouthful, steak is as fattening as fudge. It is popularly believed that broiling steak is healthful, while fried meat is unhealthy but actually there isn't a steak in the world with enough sense to know whether it's been cooked from above down or below up ...

Pork has a bad reputation as causing all manner of ailments but lean pork is now leaner than most cuts of beef and a little higher in vitamins as well. The best meats of all are lean meats such as fowl (chicken and turkey), veal and fish, provided that they are cooked in liquid or vegetable fats. Liquid fats lower the blood cholesterol; solid or animal fats elevate it.

There is renewed interest in the role of exercise in health ... in complete reversal of former opinions. Forty years ago we counselled men that at the age of fifty they should retire to the front porch to a rocking chair and not rock oftener than once an hour. Now we find that exercise is beneficial in

different ways. Not only does it build prettier muscles for the beachside and the poolside, sustained exercise cuts appetite instead of increasing it as we formerly thought and, most importantly, the proper exercise encourages a better blood supply to the heart and delays the onset of coronary heart disease.

To have this last effect, exercise should be daily, continuous for a minimum of twenty minutes without resting and vigorous to double the pulse rate and breathing rate. Under this definition a walk is no longer considered exercise at all; it's merely a pleasant recreation in a class with bridge. And even tennis and squash are suspected of being old men's games.

The best exercise of all appears to be jogging, followed by bicycle riding or swimming, provided that they are kept up continuously and vigorously for twenty minutes without resting. The chief advantage of jogging is that it doesn't require a pool or gymnasium or a partner or any special equipment. One can start right off from his own front doorstep, at his own best time of day.

There are two kinds of people in the world. There are morning people who arise with a song in their hearts at six a.m., and who then droop rapidly after dinner. And then there are the evening people who don't get their eyes open much before 10 a.m., but come dinner time, could dance until dawn. For some peculiar reason, morning people invariably marry evening people ... Well, whatever your best time of day, that's the time to go out and do your jogging.

It is important to wear some kind of athletic dress. If you go running down the street in regular clothes, somebody will call the police ... and, look out for dogs. We can practically guarantee any male who will take the trouble to run three miles a day that he will never have a heart attack, provided he survives the first time out. No amount of exercise is harmful at any age provided that a person is healthy to begin with, which is a plug for getting a checkup from your physician before you embark on such a program of exercise.

I could promote physical exams more vigorously if it weren't for the fact that doctors themselves, who presumably see a physician themselves every morning of their lives when they shave, die one year younger than the regular population. And when you go to your physician for a checkup, I hope you understand what it's all about. Many people have the notion that they come to us for this service so that we can pick up some fatal disease in time to nip it in the bud.

This does happen, but very rarely. Most people don't have more than one fatal disease in their whole lifetime... The chief rationale for a physical examination is to get an appraisal of your current state of health so that you will know how vigorously to pursue your exercise and your work without fear of damaging some diseased part of your body and to get advice about which of your bad habits to modify in order to extend your expectancy.

Well, if you give up all of these pleasant things in the world, steaks, cigarettes, alcohol, you are going to have to go through a period of withdrawal which can be distinctly unpleasant. If you've ever tried to diet or stop smoking you know that the immediate and invariable effect is to be plunged into a depression. At the same time you will feel almost impossibly jittery and shaky and cranky.

Of course the medical profession can help you with these difficulties. For the last thirty years we've had various chemicals, originally known as sedatives, now called tranquilizers, that will take the edge off those shaky, jittery feelings. And for the last ten years we've had another group of substances, originally called stimulants and now known as psychic energizers, that will lift those depressed feelings. To date the difficulty with these preparations is that they're taken by mouth. This means there's about a twenty minute lag until they get through the stomach before they go to work. So if you get "shook" in the course of your day, you pop a tranquilizer in your mouth but you must continue to shake for twenty minutes and then just about the time you'd be calming down anyway, the tranquilizer hits you and leaves you sedated for the rest of the day when you don't want it.

Another handicap is that, many people, like the cigarette smoker and the dieter, are both nervous and jittery at the same time that they're depressed and down in the dumps. For these people we've recently come out with capsules

in two colours to indicate that in one end of the capsule there is a tranquilizer to damp the nervousness and in the other end of the capsule there is a stimulant to lift the depression. The difficulty there is that an occasional patient swallows the capsule wrong end to ...

To meet these various objections I've been working recently on a pill built along entirely different lines. It's built up in layers like an onion and each layer contains a different drug and the pill is swallowed the first thing in the morning and the layers dissolve in the stomach throughout the day, releasing the chemicals that he needs moment by moment and hour by hour through his day. Swallowed first thing in the morning, the outer layer dissolves almost immediately and contains ten grains of caffeine, equivalent to two cups of strong black coffee. About the time he arrives at his desk to face the work shoved aside the night before, the next layer dissolves and contains a tranquilizer. Mid-morning there's a layer that's awfully good for an "Excedrin headache". And just at noon the next layer flakes off and contains five milligrams of dexidrine to cut his appetite so that he doesn't overeat and get fat.

At 1:30 there is a pick-me-up to counteract the early afternoon slump and mid-afternoon when he begins to face the fact that he's still not going to be able to get that desk cleared, he gets a tranquilizer. Just at quitting time, so there will not be a moment lost, the next layer dissolves and is equivalent to two dry martinis ...

Then, about the time he arrives at his front door, say 5:30, he gets a chemical that enables him to greet his wife with compassion ... that word is compassion, it's only 5:30 ... and, at dinner time there's a layer of "Accent" to improve the flavour of his wife's cooking, followed by an antacid to counteract her cooking ... and the next layer makes him a sparkling conversationalist throughout the evening, which brings us up to bedtime.

We'll skip over the next layer ... although it's probably going to be the most popular feature of the whole pill. And, of course, the very centre of the whole pill is made up of 100 milligrams of a barbiturate to send him off to eight hours of dreamless sleep.

I'd have this on the market now but I've been having some trouble with our Food and Drug Administration. So far I've been unable to come up with any volunteers to help me answer their questions. They want to know what happens if somebody makes a mistake and chews it up instead of swallowing it whole ... and this question may not be as far out as it appears at first blush when you realize I've been unable to get the diameter below three inches ...

Well then, the person who's going to make it to the age of 100 will be a person who has inherited and enjoyed, all of his life, a low blood pressure and a low blood cholesterol. He'll be moderate or abstinent in his use of alcohol, will never have smoked cigarettes, will enjoy moderate habits of living.

He'll have a job that keeps him physically active. He'll continue to be physically active even into retirement. He'll prefer a cereal, fruit, vegetable sort of a diet, be skinny and neurotic enough to have a regular check-up.

With all of this in your favour, you have one chance in a hundred thousand of making it ... As for me, I'm not going to try, because the years from ninety to a hundred are simply not worth the sacrifices. Besides, if one gives up all of these pleasant things in the world, he runs great risk of not having lived in the first place ... The trick is to identify the point of diminishing returns in trading pleasure now for a long life in the future.

Really it profits a man very little to set his goal to live a hundred years if he has never known the soft glow of drunkenness ... the luxury of an after-dinner cigarette ... or the sweet guilt of illicit love ... only to be struck down at forty on the freeway.

My advice is that we not pursue the will-o-the-wisps of rejuvenation or reincarnation and that we not forsake the bird-in-the-hand of fun in youth for the bird-in-the-bush of fun in old age, because old people cannot have much fun. Even by the age of forty, half our taste buds are gone so that peanut butter tastes like library paste, and nobody can ever again approach the flavour of Mother's cooking. Old people don't see very well; they can't hear very well and they can't even enjoy pleasure for very long without getting tired. The alternate

is to live a little while we're still young enough to enjoy it and yet to practise moderation in all things, including moderation.

Thank you.