



**THE HENRY FORD**  
**COLLECTING INNOVATION TODAY**

**TRANSCRIPT OF A VIDEO ORAL HISTORY**

**INTERVIEW WITH**  
**BILL GATES**

**CONDUCTED AT**  
**BGC3 OFFICES**  
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MARK DICKISON:

Okay, Bill, tell me what incidents or individuals have inspired you to take some of the significant turns in your life.

BILL GATES:

Well, I was lucky when I was young to have a grandmother who encouraged me to read a lot. So I read a lot about history. I read a lot of biographies of great people trying to think what was it that gave them their special opportunities. Once you start reading a lot then you learn about inventors and scientists and leaders. So that's what got me on the path of being a learner and loving science.

MARK DICKISON:

Very good. What contemporary or historical figures do you particularly admire?

BILL GATES:

Well, I think scientists and inventors are particularly important because many of them faced long odds. They

had to see the world in a new way. In fact, if we think why is our lifestyle so much better, whether it's food or medicine or transportation, it's because of these great innovations. I think people underestimate how catalytic those things are. People have a hard time even measuring that incredible change.

So I'd look back and look at the Wright brothers, I'd look at Edison, I'd look at Henry Ford. In the industry I worked in we have a lot of amazing people, Bill Noyes, Andy Grove, Ted Hoff, [and] William Schockley. There were huge breakthroughs that culminated in a personal computer being possible.

That's what allowed my friend, Paul Allen, and I to dream about software and software not just being for big businesses, but for what we wanted, the personal computer we dreamed about having and then that we were able to shape so that eventually billions of people could benefit from it. So there's a lot of great scientists and inventors that I learned from and was inspired by.

MARK DICKISON:

Wonderful. What do you consider your most significant innovation?

BILL GATES:

Well, I think the recognition that software would be important and that a whole industry could be built around it. That the high-volume, low-price approach standard platform, helping small software companies, that insight about software. I doubt I'll ever have an idea as important or as good as that one. Microsoft was built around that.

There was no software industry. Microsoft helped create one. So the number of applications, packages for dentistry and funeral homes and accounting and modeling wind tunnels, you name it, that platform allowed for ideas to be put in the form of software. So that's flourished, even beyond what Paul Allen and I dreamed. It's become a key element. That was because from a young age we were obsessed with software.

MARK DICKISON:

Really cool. What characteristics do you find tend to define innovators?

BILL GATES:

Well, I think a lot of them are young. I'm still trying to innovate in my 50s, but I have to say some of the new and different ways of looking at the world, you have to have a fairly blank mind where you're willing to see things that are quite different.

You often have to assume other breakthroughs. See that those are coming. In our case, knowing the miracle of the microprocessor and this Gordon Moore prediction of exponential improvement allowed us to not worry about the size or the memory or the speed, but just dream of almost infinite capacity and how could software take advantage of that.

An innovator is probably a fanatic, somebody who loves what they do, works day and night may ignore normal things to some degree and therefore be viewed as a bit imbalanced. Certainly in my teens and 20s, I fit that

model. You have to be persistent. Edison tried thousands of things before he found carbonized fiber would actually work in the incandescent light bulb. So it's not an overnight type of thing. It's a kind of a lifetime mindset.

MARK DICKISON:

Very good. What characteristics do you look for in new employees at Microsoft and at the Foundation? Well, let's start with Microsoft.

BILL GATES:

Well, for the employees that are really gonna make a difference, they have to have a strong model of the world. They have to understand why things happen the way they do. They probably have to have read very broadly. They have to have some global understanding because Microsoft was always going to sell throughout the world to get the volume to let us invest in doing new things.

So we went for a mix of experienced people and inexperienced people and tried to get the best blend of being open-minded because we had a lot of young minds,

but still when it came to accounting and law and management, we had some seasoned hands who could provide their advice. We got that mix to work to our advantage.

MARK DICKISON:

Wonderful. How about at the Foundation? Different philosophy in hiring employees and what you're looking for?

BILL GATES:

Well, the Foundation is oriented towards science in the same way that Microsoft is oriented towards software engineering. So you want people who early in their career are very ambitious. You want people who have seen how hard it is to get things out to poor countries where the people who need the help are.

So again it's a different kind of blend but we've tried to get everyone knowing the topics, being very oriented to science, but then at different stages in terms of what they've experienced and what they're dreaming about.

MARK DICKISON:

Wonderful. How do you believe companies and institutions can create an environment that encourages and sustains innovation and creativity?

BILL GATES:

Well, at the very start you have to have a lot of people who from a young age got a great math and science education and got exposed to the idea that new innovations can really fundamentally change things, whether it's a new seed and a new way of generating energy or a new kind of software.

Our future will be defined by those innovations and we have to have all the IQ of our smart, young minds being ambitious and dreaming and understanding that the status quo can be greatly improved. Getting those minds to come together and try out different experiments, have the right incentives so that if they do invent something that there's this great reward and they can be an exemplar promoting that idea.



I think we have a lot of the elements right in the United States, but we have to rededicate ourselves to the importance of quality education and using some of the new tools, the Internet, to do these things better. A lot has to come together and yet the United States has been such a leader in doing this right now others are taking what we do well, which is good, but we want to renew our excellence.

MARK DICKISON:

Very good. America has been described as a nation of innovators. What steps should we take, well, what steps should we be taking to retain our innovative edge?

BILL GATES:

Well, I think American innovation comes from having great schools. It comes from allowing risk capital to be out there. It comes from venerating the cases where somebody does make a breakthrough and allowing them to license their ideas so that they can go on and do more.

Our universities have become a key center of innovation, and having kind of a soft boundary between companies that are commercializing things and the research going on in those universities, the U.S. has been absolutely the best at that. Some level of funding for basic research makes a difference and we're trying to get that pushed up so that the pace of innovation is even faster.

There's some concern that we're not generating enough students internally and so luckily we do have a lot of smart people coming from all over the world, but we want both. We want great openness to smart minds from around the world, but our students also having the full opportunity. Those are areas we could do a lot better.

MARK DICKISON:

Wonderful. What is the biggest challenge facing the U.S.A. today?

BILL GATES:

Well, every challenge, whether it's the environment or medical costs, all of those, I think innovation will be what gets us out of the problem. At the turn of the century,

around 1900, people were projecting how much horse manure there'd be and that our cities would just be inundated.

Well, of course, the car solved that problem. It introduced some new challenges like, okay, where's the oil going to come from. But it's always innovation that gets us out of just straight-line thinking of problems look like. So I have very little doubt that in the next 20 years cheaper, friendly ways of generating energy will come along and that will avoid a big problem and also let us live better lifestyles.

Clearly in health we need big breakthroughs for the big diseases. The diseases in this country and the diseases elsewhere. I think the world is educating more people. We've got better collaboration. So I'd be optimistic that the right things will come, but it's a long list of problems, and the only reason I feel good about them is that innovation will be able to surprise us with solutions that aren't just zero-sum trade-offs, but rather take us into a whole new way of looking at things.

MARK DICKISON:

Wonderful. And what advice would you give to kids today?

BILL GATES:

Well, I'd encourage kids to learn science, to find a way to enjoy it, and experiment. Just the model of the world you get the depth of your understanding, and the opportunities that you'll have will be fantastic. We need society to be more literate about science and innovation.

We need to challenge people and take their innate curiosity, not let it face away. Even innovation in education, using these tools to let you see the best lecturers or learn about an experiment that you might want to try. So if you're young today, you're actually exposed to more things and I envy kids growing up now. They'll have a chance to solve big problems and they have better learning tools than certainly my generation had.

MARK DICKISON:

Bill, speak to what role education can play in innovation and do we need an innovation curriculum or what are your thoughts?

BILL GATES:

Well, I think exposing kids to the stories of innovation is something that's important. I think having them get where the frontier is, what the tough problems are. I'm often saying to my son when he asks, "Is there a product that can do this?" I say, "No, you'll have a chance to invent that."

Show him that he has that ability and should be encouraged. So recent examples, I think, are particularly powerful. Then even the stories of where somebody tried to innovate but hit a dead end get a sense of why it's so daunting and yet the benefits are so incredible when it does come to pass.

MARK DICKISON:

Good. Well, what role do you think families and parents play in fostering innovation with their children?

BILL GATES:

Well, I think every kid starts out with a lot of curiosity and thought that, "Boy, maybe I could invent something." If you don't get a chance to play around, experiment, put things together, you know, read a lot of stories, then probably you start to think, "Hmm, maybe I can't. You know, maybe this is too hard. Maybe there were super-smart people who already invented everything."

So you get kind of discouraged. So it takes a conscious effort on the part of teachers and parents to kind of imbue somebody with the sense of, no, you can. There's a whole frontier out there and older people are kind of closed-minded to looking at things in new ways. So you have this special role to play even though you don't have the breadth of knowledge that these older people have.

MARK DICKISON:

Wonderful. Finally, how does education and innovation play into public policy?

## BILL GATES:

Well, there's a lot of things the United States is exemplary in: supporting public education, supporting universities of different types, funding basic research. In every one of those areas, I'd say we can improve, but the foundation we have has led to the innovation that we've got.

You know, letting smart people come into the country, having the right incentives for inventors, those are big things, but I think most of what we need to do is tune-up the excellence of education, including using technology in new ways to do that, and making sure that the universities are getting lots of people into the areas that drive innovation. That's overwhelmingly science-based activity.