

# Yuval Harari

The author of the best-seller 'Sapiens' which relates the history of humankind over 70,000 years looks into the future and tells Alan Philips that human bodies and minds will be the most important products of the 21st century

**You are an academic in the somewhat obscure field of medieval military history. What drove you to take on such a big theme as the rise of Homo sapiens?**

Mainly the realization that humankind is about to make probably the most important decisions in history. After four billion years during which life on Earth evolved according to the principles of natural selection, science is now giving us the possibility of changing the most basic rules of life and starting a new kind of evolution, evolution by intelligent design.

And secondly, science is giving us the opportunity to start creating non-organic life. The combination of these two things, the movement from natural selection to intelligent design and from organic to non-organic life, could be the greatest revolution in the history of life. It's up to us to make the best use of this opportunity and for this we need a better grasp of our place in the world and where we came from.

**So what does this mean for our species?**

The 20th century was a century of closing gaps between human groups, between genders, between ethnic groups, and between social groups.

Equality became one of the most important values of human society. And we got used to thinking that it's an inevitable process – with the passing of time, humans will become more and more equal and will eventually close the gap between, say, Europe and Africa, between men and women, between the upper caste and the lower classes.

But in the 21st century, there is a distinct possibility that all these differences will become much greater because biotechnology might enable us to create real biological gaps between rich and poor.

Throughout history, the differences between rich and poor were all social, economic and political. There were no real differences in physical or cognitive ability between the king and the peasants. Now, with the rise of biotechnology, there is a possibility of making rich people smarter, more creative or more courageous. It's not certain that such a thing will happen but it's now feasible in a way that wasn't imaginable even a few decades ago.

**What is driving this process?**

Market forces. If we allow market forces a free hand, there is a distinct possibility that the result will be the splitting of humankind into different biological castes.

**What do you mean by a caste? Would these characteristics be inherited or bought throughout life?**

You could buy them, but you'd probably need to be born into the right family to have the money for yourself or for your children. And it's easiest to intervene at the earliest stages of life; it's much harder to change the genome or the body of somebody when he's 40 than when he's just a single cell.

**If we look at Silicon Valley, technical advances have been produced more or less exclusively by market forces. Has that got to change?**

Entrepreneurs and private businesses are spearheading some of the most important projects on Earth. For example, Google has established a company called Calico whose stated aim is to solve death. You can say this is nonsense but Google is a serious company with lots of money, and it is not alone in this business of overcoming death. At least in Silicon Valley, equality is out and immortality is in. While governments are busy with the traditional stuff of politics, private corporations are taking over maybe the most important decisions and projects of the current era.

**Do you have a plan for restraining this?**

The first step is to make politics more relevant. Most of politics is still 20th-century politics: right versus left; democracy versus authoritarianism; capitalism versus socialism. I'm not saying these issues are not important; but we now have equally or more important questions on our table that ought to become political questions.

Maybe the two most important questions relate to biotechnology on the one hand and computer and artificial intelligence technology on the other. Bodies and minds are probably going to be the two most important products of the 21st century, and the ability to produce bodies and minds will revolutionize our society and economy. For example, artificial intelligence has the potential to completely disrupt the job market.

**How so?**

Some experts estimate that within 20 or 30 years, artificial intelligence will take over maybe 50 per cent of the jobs in advanced societies. The biggest economic and political question of the 21st century, therefore, might be what to do with all the useless humans. We might have on the one



hand a small caste of upgraded humans and on the other hand a mass of humans who don't have any economic or military use.

In the 20th century, the power of the masses resulted from the fact that a strong nation needed millions of people to serve in the army and in the factories. Now that's changing. In the military field, it's over. The most advanced armies no longer rely on millions of recruits; they need only very small numbers of exceptional humans and are increasingly reliant on algorithms, logic bombs and drones.

**During the Industrial Revolution the people feared that factories would create mass unemployment. Yet economies keep producing jobs that no one had dreamt of, such as search-engine optimization. Won't that happen again?**

That is certainly an option and maybe we will create completely new jobs. However, there are two problems with this scenario. First, it won't be easy for people to reinvent themselves. If you are a 50-year-old taxi driver who is put out of a job because an algorithm can drive a taxi better than a human, it will be very difficult to reinvent yourself as a search-engine optimizer. And the pace of change is just growing. So even if you somehow re-invent yourself as a search-engine optimizer, a few years later you might need to do it all over again.

The second and bigger problem is that the belief in the appearance of enough new jobs might just be wishful thinking. Humans basically have two types of skills. They have physical skills and they have cognitive skills. In the Industrial Revolution, when machinery took over jobs that required mainly physical skills, humans moved to jobs that required cognitive skills which the machines lacked.

If and when computers outperform us in cognitive skills, we don't know of any third kind of skill that humans might have. We might be in a similar position to horses in the Industrial Revolution. They didn't move on to new jobs; they became useless to the economy.

**Isn't creativity the skill that robotics can't match?**

People who study creativity say that most of creativity is really just pattern recognition at a very sophisticated level. And pattern recognition is exactly what computers are now learning to do better than humans. If this is true, then algorithms may be able

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to outperform humans even in creativity within, say, 20, 30 or 40 years.

**More and more data about us is being collected through social media. Should we be worried?**

The key is to use technology for our own purposes and not to let technology use us for its purposes. It's difficult to get it right because most people are not sure of their purposes. We are reaching a point where Google and Facebook actually know us better than we know ourselves. This threatens the values of individualism and free choice which are based on the assumption that nobody knows me better than I know myself.

Once we have somebody in the world that knows me much better than I know myself, then it can easily control and manipulate me. Moreover, it makes sense to allow this entity to make decisions for me, even the most important decisions. Today, when we decide to date somebody or to marry somebody, we base it on our feelings and instincts. It's unscientific and often we make the wrong choice, but we don't have any alternative. But if Google reads all our emails and eavesdrops on all our phone calls and uses biometric devices to constantly monitor our heart rate and our blood pressure, and if Google also develops the algorithms to analyse this big data – then it could make much wiser choices for us than we can make for ourselves.

**So social media giants are becoming the gods of the 21st century?**

In a way, yes. In the Middle Ages, you prayed to God for an answer to an important question. Now, when you're faced with an important decision, whom to marry, where to work or where to live, you can just ask Google, 'Google, whom shall I marry?' And there is good reason to think that Google can really give you a better answer than your own feelings can give you.

**I understand you do more meditating than Googling. Is that right?**

I do Vipassana meditation. I meditate for two hours each day and on vacation, I go for long retreats of 30 days or 60 days; complete silence, without books, without Google, without Facebook.

**Does this free your brain to wander over millennia and continents?**

I try not to. The main aim of the meditation is to observe yourself. Not to think about anything in particular, but just to get to know reality on the most basic level, on the level of your body and of your mind. If you put aside all the stories, all the theories and all the philosophies, what is the reality of this body and of this mind? Usually, you can't observe this reality because there is so much going on, so many distractions. But when you have a period of complete silence you can observe the reality of the mind and of the body. For me, this is the most important question in the world: what is really real and not just stories in our minds?

**You don't write like an academic. Where did you learn your simple and direct style?**

Mainly from teaching undergraduates. *Sapiens* was written in conversation with my students at the Hebrew University of Jerusalem. If you say something in a very complicated and academic way and you see that nobody understands you, you try to make it simpler. In making it simpler you realize that you don't really understand what you are saying and that this high academic language is a way to paper over all kinds of cracks in your understanding, which you hide behind these fanciful terms. When you need to use everyday language and simple examples, it forces you to think really hard, 'What am I actually trying to tell these people?' I was teaching an introduction to history course for seven or eight years before I wrote the book.

**What's the topic of your next book?**

It's mostly about the human agenda for the 21st century. The working title is 'Homo Deus' but it will probably change.

**Man is God?**

Yes. We're upgrading ourselves into God.

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*'Sapiens: A Brief History of Humankind' by Yuval Harari is out now in paperback (Vintage, £8.99)*