Marcus Chown
How farming gave us the iPhone

There was no change in the design of stone hand axes for 1.4 million years. I was told this extraordinary fact by Chris Stringer of London's Natural History Museum while researching my latest book. Palaeoanthropologists refer to the period, says Stringer, as the "1.4 million years of boredom".

Of course, it could be that our "hominin" ancestors fashioned tools from wood, which quickly rotted in the ground, or from bone, making them nigh on impossible to distinguish from natural bone fragments. And there is little doubt that profound changes were occurring in our ancestors' societies that left no obvious sign in the fossil record such as the harnessing of fire, the invention of language and the relentless rise in the complexity of social interactions.

But the fact remains that, for about 60,000 generations, nobody thought of any improvement in the design of the stone hand axe. How incredible is that? By contrast, we live in a world today where we expect the iPhone to be revamped next year, let alone in a generation's time. But rarely do we stop to reflect on how unprecedented is this period we live in. For most of human history, nothing changed – or, if it did, it changed at a glacial pace. Literally, since 90 per cent of the past million years has been Ice Age.

What transformed everything was the invention of food production. Beginning shortly after the end of the last ice age, 13,000 years ago, people began to experiment with the cultivation of crops. By 8,500 BC, in the Fertile Crescent of the Middle East, people had successfully domesticated wheat, peas and olives, and by 8,000 BC they had domesticated sheep and goats as well. In China, pigs and silkworms were domesticated by 7,500 BC, along with rice and millet. Suddenly, it was possible for people to live in moderate-sized settlements, with surpluses permitting individuals to have specialised "jobs" not connected with chasing down prey animals or collecting wild berries.

For most of human history, by contrast, people lived in small bands of probably never much more than 50. If anyone invented anything – maybe a design-tweak on a stone hand axe – the invention may have died with them. Fire may have been tamed many, many times, and the secret repeatedly lost.

But, with the advent of large communities supported by the products of farming, suddenly it was possible for ideas and innovations to survive and spread. And, with food production allowing the human population to grow everywhere, the opportunities for interaction grew remorselessly. If there are three words that, more than any others, explain the history of the past 13,000 years they are: Interaction. Interaction. Interaction.

The reason things are changing faster today than in the past is largely because there are more people – more opportunities for interaction, more chances for the virus-like spread of ideas, than ever before. And now, with the advent of the internet, which enables social exchanges between billions of people, often geographically remote from each other, human interaction is skyrocketing.

This in itself is an amazing thing. Just as the last 13,000 years have been unprecedented in human history, the last half a century or so has been unprecedented in terms of technological change. The reason is the doubling of computer power roughly every 18 months, a trend first noticed in 1965 by Gordon Moore, one of the founders of the American computer chip maker Intel, and dubbed Moore's law in his honour. Such a repeated doubling – which will make computers 1,000 times more powerful in 15 years' time – cannot of course go on for ever. There are physical limits which will constrain how small and how fast the components of computers can be. We are therefore living through an extraordinarily unusual period of human history – the time of exponential growth of computing power. We will never see its like again. And we can barely guess what changes it will bring to human society.

But, computers aside, let's get back down to earth – literally. The interaction, interaction, interaction that has created our modern world and makes it unlikely that the iPhone will remain unchanged for 1.4 years let alone 1.4 million years has been made possible by one thing and one thing only: farming. "Man," an anonymous writer observed, "despite his artistic pretensions, his sophistication, and his many accomplishments, owes his existence to a six inch layer of topsoil and the fact that it rains."

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