

Tech Talk

Pasteur Institute ©

by John McCarthy

Hello and welcome once again to Tech Talk.

Over the last two or three centuries, technology has affected society and its environment in a number of ways. In this day and age we tend to take it for granted, from the ubiquitous mobile phone to the very latest advances in aviation where planes are crammed with the most sophisticated computers ever created and the fuselage constructed from composite materials to avoid radar detection. Indeed, the progress made over the last fifty years or so has been almost miraculous, and arguably nowhere more so than in the field of medicine. Think of all the innovations brought about by transplants, stem cell therapy, keyhole surgery, neuroscience, pharmacology and indeed cancer treatments.

Here in France, one of the organizations in the vanguard of medical progress and life-changing breakthrough discoveries, is the illustrious Pasteur Institute, whose Headquarters is in Paris. It's a non-profit organization (part of its budget relies on the generosity of benefactors and philanthropists) and of course it's done so much to improve the lot of humanity since it was founded in June 1887. Indelibly linked to the history of this Institute are the names and discoveries of many famous scientists and their quest to find cures for some of the greatest scourges faced by mankind.

It was here that scientists discovered the pathogen of bubonic plague and the roles of the flea in its transmission; it witnessed the development in the first effective anti-tuberculosis vaccine; discoveries on immunity and the implication of antibodies; how typhus is transmitted; the first vaccine for yellow fever... the list is impressive and alas I cannot do it justice in the brief time allocated to Tech Talk. 10 Nobel laureates in all, perhaps the best known of whom are the 2008 winners Françoise Barré-Sinoussi and Luc Montagnier who, with their team of colleagues, discovered the HIV viruses that cause AIDS.

More surprisingly, very recent research has demonstrated that prescribing malaria patients Viagra could help stem the spread of this highly infectious disease, which kills hundreds of thousands every year. This astonishing discovery was made by scientists from the Pasteur Institute, the CNRS, INSERM, and the Université de Paris – at the Institut Cochin – working in collaboration with a team from the London School of Hygiene and Tropical Medicine. Their conclusions were published in PLOS Pathogens on May 7th. In a nutshell, the impotency drug has an effect on red blood cells that prevents the transmission of malaria from humans to mosquitoes, which would reduce the number of these carrier insects who host the disease, thereby preventing further spread. Current treatments target an immature form of the parasite that invades red blood cells and causes symptoms, but ignore a later stage that passes from a human host to a biting mosquito. This all sounds very promising, and together with all the separate hard cash contributions of the Bill and Melinda Gates Foundation, it could be that like smallpox, malaria will soon be consigned to the archives of history.

There have of course been many debates over whether technology improves humanity or aggravates it. Some philosophers maintain that the inexorable rise of personal computers and mobile phones is detrimental to human intercourse and has indeed alienated people. It would appear that it's also responsible for much of the stress that modern man is heir to. A recent study has found evidence that our internet-connected fully-wired lives can prevent us from falling asleep and indeed sleeping well. Apparently, the longer one spends looking at an electronic screen before going to bed, the worse quality sleep one is likely to have. Excessive TV viewing and computer use have been linked to higher levels of depression and anxiety. If you spend time in front of an electronic screen immediately before going to bed, your brain is stimulated, its electrical activity increases and neurons begin to race, which is the exact opposite of what should be happening before sleep. It's been recommended that health authorities should update guidance on healthy use of electronic devices to take into account the ever-increasing use of smartphones and tablets. Bedrooms should therefore be screen-free and it comes as no surprise the general consensus of opinion in the scientific community is that the best way to get a decent night's kip is to turn off the technology an hour before going to bed. Personally, I find that a little snifter or swift nightcap is very beneficial before nestling into the warm, welcoming arms of Morpheus.

That's it for today, thanks for listening and do join me next time for another edition of Tech Talk.