



UNLOCKING
CONSCIOUSNESS



BRIAN MIND FORUM

Appendix 049

Implications of Computing Ethics, Economics and Employment

We can observe two greatly disruptive periods in relatively recent history.

The Renaissance

After the fall of the Roman Empire the civilisation of Europe barely changed for a thousand years. Various groups tried to orchestrate change, but were put down with ferocity. Four things happened more or less together. It became obvious the earth was a sphere circulating the sun – we were not the centre of the universe. There was a whole new continent we had known nothing about populated by human beings much like us who believed in quite different Gods. Printing spread news and knowledge throughout the community. In particular, the works of the great Greek philosophers, preserved and enhanced by the Muslim World, began to be rediscovered.

The community was split down the centre. Half embraced this explosion of knowledge, stimulated the enlightenment, promoted the study of science and launched the industrial revolution. The other half refused to accept any change, started the Jesuits to maintain the purity of their inherited beliefs then reinforced and policed these beliefs with the inquisition, evicted whole communities and declared war on any nation that disagreed.

Evolution v the Garden of Eden.

Darwin demonstrated that we are just more advanced animals and this contradicted the idea that we are a special race born in the image of God. Again, half the community accepted this and moved on. The other half refused to admit this, claimed their leadership was infallible, and employed the cleverest in their community to prove that evolution was sacrilege. They have had some success. Half the population of some great states believe in 'intelligent design' and mount court cases to make it law to teach the younger generation their views.

A revolution greater than the renaissance

The development of robots, the prosthetic interfacing of machines to our nervous system, the engineering of synthetic biological cells and life forms, and in particular the editing of DNA, are a revolution greater than the renaissance, and the belief communities are already gearing up to impede developments and in due course to try and close down research. They have every right

to make their case, but we must be alert to any attempt to influence the younger generation with their propaganda.

We can see the problem in four examples.

First in Ethics

Undoubtedly, we will build robots and other systems that are vastly more sophisticated than our present software. At what point do we begin to program in ethics and moral standards? People are already discussing laws to limit their activities. The Infallibilists argue that intelligence and mind are tied up with our souls, our beliefs and our link to the almighty. Then, when does a robot acquire beliefs? It is not too difficult to argue ways round this, but it is far more difficult to cope with ideas of brain machine interfaces. No one has ever suggested machines could have belief systems and souls.

If we further blur the dividing lines between living cells and machines by going further than a mere interface, by actually growing tailor made cells, that is far more difficult. We accept replacement organs. We have in prospect additional organs.

By far the most extreme is editing DNA. Our first task is to identify genes that cause hereditary illness, but the next step is to identify much more complex human attributes. We can already select in a limited way. Where a couple naturally create more than one zygote we can scan them with a view to selecting the most desirable – passive editing. However, it is not that different to go further and positively edit traits into the zygotes. How far in the future? A decade? A century? We do not know. What we can be sure of is that it will happen. Best to do it with public knowledge, participation, approval and consent.

We must learn from the past and appreciate the hurt and difficulty people feel when their much-loved belief systems come, in their eyes, under threat. It must feel like being orphaned in a dystopian and friendless world. The Achilles heel of infallibility is that if one brick in the wall is removed the entire wall will come tumbling down.

All the members of the scientific communities and in particular the medical community must devote far more effort to inform the community with what they are doing, why, and what the benefits are. Most people, if not all, accept that medical advances have interfered with our natural state to save the world from many horrendous diseases. All our work to emulate, extend, and improve our mental abilities are an extension of this struggle. After all, ignorance can often be deadlier than disease.

Second and third in Politics and Economics

The communications revolution presents different problems. We have pioneered a form of democratic government that has served the industrial revolution passably well. We elect representatives that argue out our objectives that generally suit the majority of the community. As the most powerful have gradually been challenged by the least powerful, so we have been able to achieve change without serious bloodshed since our revolution in the seventeenth century. At the door of the National Health Service hospital everyone is equal. We look after the poor and mean and lowly. We education the whole community to the best of our ability. We tolerate diversity and many lifestyles. Radio, then television has given us access to almost everything that is happening and, with the other media, now enables the whole population to hold the administrators of government to account as never before.

The old order is under challenge. Social media is changing the whole basis of this settlement. Now, everyone can have their say. People can state their opinions as facts. Established authorities are losing respect. Even the Queen admonished the entire community of economists for having failed to notice the onset of the financial collapse in 2008. Many books, even by leading bankers, tracing the economic history of the previous thirty years completely ignore the

role of computing. Up the 1970's the vast majority of wages were paid in cash. Within a decade computing enabled everyone to have a bank account so the banks received a windfall of the nation's wages, interest free. More credit flowed into the community in the 1970s than from Quantitative Easing since 2008. Computing facilitated credit cards so for the first time in history everyone can borrow thousands of pounds. And not one economist noticed. To be fair they are not the only profession in denial of the impact of computing.

Official, and unofficial think tanks have lost credibility. In the EU referendum, the Leavers even used the unanimous opposition of the economists, Bank Governors, Ministers and Mandarins as an argument to *support* their cause. Twitter and the like are returning democracy to the agora of Athens, and that had some serious deficiencies. Politics and politicians need to be sensitive to these tectonic changes.

There is much talk and experimentation with new forms of money, such as bitcoin and other methods of transferring money. A few economists are beginning to relate stagnant wages growth over the last few decades to the growing impact of AI systems. No economists appear to be giving thought to the implications of a steady fall, collapse even, in governments' revenue from income tax. It is far too complacent to presume new types of occupations will automatically appear. In the past they usually have, but what if they do not this time?

Forth in Employment

Our friendly robots and intelligent systems may well make it possible to free the population from the drudgery of work. That will create winners and losers on a grand scale. Many of the best remunerated careers will disappear and their places taken by people with quite different skills, abilities and attitudes.

Losers tend to be rather more vociferous, so we need to be prepared. If we are going to see lawyers, accountants, managers, administrators, regulators, bankers progressively made obsolescent it is important that they can see their children being given the tools and means to make a success in the creative professions of the future: design, invention, research, computing, engineering, marketing, the crafts and sports, and all the visual and performing arts.

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