



Unless you have children, it may be a surprise to find that some of the "facts" you learnt a long time ago may have changed a little since you were at school. My own kids are constantly discovering "new facts"; all of which may be new to them, but some of which are occasionally different from my own understanding. Fine you say, knowledge grows and times change, but how do you keep up to date with all the changes and can you trust what you now read?

Did you know, for example, that it has now been established beyond reasonable doubt that the Domsday comet that brought an end to the era of the dinosaurs, struck the region that is now the Yucatan peninsula of Mexico, some 65 million years ago? The object was apparently about 10km across and produced a crater 180km wide. The energy released by this lump of cosmic debris being brought to an abrupt halt was equivalent to the explosion of a thousand million megatons of TNT.

Another snippet revealed to me recently is that scientists have now identified 256 different types of cell in the human body. Taken together these all add up to about one million billion individual cells. The approximate size of a cell is 20 micrometres (20 millionths of a metre) across, so it would take about 10,000 of them to cover the head of a pin. My little grey cells seem to recall that the human body is made up of about 90% water which doesn't leave a lot of room for all the rest, however, there are apparently three times as many cells in your cerebral cortex alone as there are people alive on earth at the end of the 20th century.

Scientists have not yet become omniscient however. Some, I understand are still looking for proof of "Cosmic String". Models of the way the Universe emerged from the Big Bang imply that material left over from the Big bang itself, might have got frozen into thin long tubes and trapped. The tube containing the stuff of which the Universe is made would be a good deal finer than the thinnest human hair and it would take a hundred thousand billion of these tubes laid side by side to stretch across the diameter of a single atomic nucleus. Even though it is so narrow, each centimetre of the string would contain the equivalent of ten thousand billion tonnes of ordinary

matter. So a loop of "Cosmic String" with a circumference of just 1 metre would weigh as much as the whole planet Earth. If the string does exist, it will be found in the form of loops, because if it had ends, the stuff in the middle would leak out.

Continuing with the scientific theme, I seem to remember something about the double-helix of DNA from my school days. I was not aware though that the project to map the entire human genome is well on its way to completion. I vaguely remember the headlines in the eighties when the first human genes to be sequenced were revealed, but in the nineties, biologists have been ticking off their gene list so fast, the work has become routine and rarely gets into the headlines at all. Get set though for increasing debate as more and more people realise how close this project is to completion. The ethical implications of this work and what it might lead to are simply enormous.

Sometimes the truth may still be the same, but the way in which it's presented might put a completely different slant on your understanding. For example: Many people will recognise that the modification of plants has actually been going on since agriculture began. The range of fruit and vegetables we now enjoy is the result of crossbreeding different varieties over generations of time. Cabbages, Brussels sprouts, Broccoli and Cauliflower all originated from one type of plant; wild maize doesn't have the even rows of bright yellow seeds that we now see on our sweetcorn; instead the seeds are randomly coloured and arranged. These facts were presented to me over thirty years ago as a wonderful example of human ingenuity, skill and patience. My own kids don't seem to have yet had the benefit of this basic education and have been plunged into the current considerations over "Frankenstein Foods". The furore over Genetically Modified foods may indeed reflect some genuine concerns, but deliberate misrepresentation and over-dramatic news headlines often spoil the debate. Genetic modification is here to stay and there's no doubt that some of the changes that could be made might save lives. What is needed now is careful and extensive analysis of the new opportunity not hysterical reaction versus unprepared gambling with the Earth's resources.

But what else is new and should we believe it when we hear it?

When man first set foot on the moon, the travel agents started to book seats for holiday flights into space. "Holiday in space within 10 years" was the headline. Thirty years on, I thought those early plans had been abandoned but this year I see reports of the new X33 single engine space plane, due for testing next year. Once again the articles say that within 10 years, holidays in space will be as normal as a week in Ibiza! Believe it if you like, I think I'll wait awhile before putting down my deposit.

## FACT OR FICTION

