



***How not to be
a monkey
in the
21st Century***

A guide to who you are and how to live

Jeff Rice

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Introduction

Life can be confusing.

What should I do for a career? How best can I relate to other people? Is there a God or Gods? If there's no God, what then? Just what is going on!?

This book is about perspective. When making decisions in life, we need perspective.

This book will help to tell you who you are.

The perspective that this book will give you describes how you got to where you are today, more details of how humanity evolved and the shaping of our psychology, and bearing all that in mind, it'll give some pointers for how you can move forward in a confusing world.

To understand how we got to where we are, I'll take a look at how various aspects of the Universe evolved to produce a clever ape on a small blue-green planet in a spiral galaxy 14 billion years since the birth of the Universe.

Don't worry – I've tried to keep everything brief and easily digestible.

We then move on to have a look at human psychology in more detail. Once you know where it came from, how it evolved and why, it puts a fabulous perspective on how we all behave and why people do what they do.

Then once we know 'how' and 'why' we got to where we are today as an animal like no other on Planet Earth, we'll then look at how things might go in future and play with a few ideas as to how we might actually shape

that future and be active participants in creating a world we all want; whatever *that* is.

Is modern human industrial society some sort of weird, freaky spin-off that'll soon die out and leave life on Earth to get on with business-as-usual? Or will humanity evolve to become Earth's crowning glory; custodians of a beautiful planet? Or perhaps something else will happen?

I'll often refer to humans, throughout this book, as 'cavemen.' Ok – cave 'MAN' is a bit sexist. And we didn't all live in caves. Far from it. But 'caveman' is a relatable and light-hearted image, so if you'll forgive me, I'm going to stick with it.

The main theme of this book is that something new is happening to humanity. Could it be that the confusing and complex state of humanity could be the growing pains of the growth of an entirely new level of existence in the Universe? Something unimaginable; the Next Level of existence?

Part 1 - The Universe is a complex place

So what is the meaning of life? How can you find out? Where do you even start to consider imagining thinking about it?

One popular observation about the Universe is that it seems to be structured into various levels. These levels of complexity, each one the foundation for the next, can be crudely divided into:

- Subatomic particles
 - Atoms
 - Molecules
 - Biochemical molecules
 - The first life forms, e.g. bacteria (Prokaryotic cells)
 - Bacteria band together to form more complex single cells (Eukaryotic cells)
 - First simple multicellular organisms
 - Multicellular organisms increase in size and complexity - They evolve specific bodily tissues and organs with specialised functions
 - Evolution of plants and animals
 - Ecology - The interaction of diverse communities of species - Complex ecosystems are formed (which started with the bacteria)
 - Psychology, including evolutionary psychology
- (Here it starts to break down and becomes less obvious)
- Technology?
 - Human societies?
 - Information/language?
 - ...the Next Level? Something new we're yet to see?

Reductionism

One problem with this description springs immediately to mind. It involves the problem of reductionism. Reductionism is a very useful concept and has played its part in the evolution of science and scientific

method. It basically involves the breaking down of any structure or system into its component parts to allow analysis.

This habit of science has become a very common aspect of our psychology. We use it all the time without really thinking about it. Just think of any one problem in your own life. How would you set about solving it? It might be a fault with your car or computer. Maybe you're having some kind of interpersonal difficulty at work. But how do you go about trying to understand all these things that at first might confuse you? Well, you try to understand the problem by breaking it down into its component parts. Which part of your car is actually faulty? You eventually determine the one problem with your computer - you've not plugged it in. Things aren't going well at work, what could be causing it? Is it X, Y or Z? Maybe you break down your boss's behaviour and work style into specific criticisms in order to have a better understanding of why he should in fact get the sack.

How many elements are there in the Universe? Well initial ancient examination suggested four elements - earth, wind, fire and water. After much examination and further splitting into smaller and smaller parts, we ended up with the atom and the periodic table of the elements.

So reductionism has been and still is a very useful intellectual tool. Reductionism begins to fail though when you start to examine areas of life of increasing complexity. For example, try to describe the beauty of a sunset in reductionist terms. You could argue that the warmth of the sun's rays help to heat your body, thus providing you with a net gain in energy that in turn makes you feel good. Or possibly a sunset creates the image of a stable, functional environment where an organism subconsciously knows that it'll be able to live long and prosper. Or maybe the colours do interesting things to your brain's network. In these reductionist terms, such descriptions sound ludicrous. It's much better to simply say that it's just beautiful, and that's it.

The same applies to my description of the levels of the Universe. One of the first things you notice is that this whole sequence is really a continuum, a spectrum. It's hard to draw a line between two levels. There is obviously a huge difference between simple unicellular organisms and the human body. But if you follow evolutionary history, you can follow the continuum right through from one to the other. The habit of reductionism makes us want to break this hypothetical structure of the Universe down into component parts, as I have done, in order to allow better understanding. And this is perfectly acceptable. However, it's also important to bear in mind that this can be difficult to do, resulting in inaccurate descriptions of, and division into, separate levels. It's also interesting to notice that at the end of this spectrum with lower complexity, i.e. atoms and molecules; it's much easier to make the distinction between the Levels of Complexity in the Universe. An atom is composed of electrons, neutrons and protons. Atoms by themselves are really just atoms. When two or more of them bind together, then obviously, you've got molecules. As the levels become increasingly complex, putting in that reductionist dividing line becomes more and more difficult. Where does the body end and the mind begin, for example? Is technological evolution a separate level or an expression of our psychology? And what of quantum weirdness?

Meaning at each level of complexity

So, reductionism is a useful tool up to a point. You can understand life and its systems by looking at and analysing its components. However, as I've already briefly said, it is also useful to keep in mind that each of these successive levels of the Universe have their own meaning and that they can make more sense if you *don't* examine them in terms of reductionism.

Take the level of ecosystems. An ecosystem works due to the interaction of its component parts. It is made up of parts in the form of individual species and numbers of individuals of those species, but it's the way that

all the species within an ecosystem work together that make the ecosystem. So an ecosystem is about the relationships between organisms rather than being about the organisms themselves. It's about the structure of the network.

One model of this would be the food web. This is one of the first things we learn in biology and is usually represented by spider charts linking the various organisms together in a diagram to create a 'spider-web' like pattern. Such a pattern nicely depicts the network of the ecosystem.

Another example is diagrams of trophic levels. These put organisms into a hierarchy depending on what they eat or what eats them. So at the lower levels you have plants. These are fed on by herbivorous animals, which in turn might be eaten by carnivores. This again is a nice visual representation of an ecosystem, albeit an oversimplification applying a certain amount of reductionism.

An individual human life also puts reductionism in its place in terms of meaning. It's more or less pointless to think of your own life as being that of a bunch of cells that in turn are made up from biochemicals. It's much more meaningful to describe an individual life in terms of human aspirations, plans, desires, love and loss. The level of human life has its own meaning. It means something to experience life as human. And, I'd guess that we all feel pretty self-important and self-focused. There are of course reasons why such psychology has evolved; the preservation of the 'Selfish Gene.' It makes sense to look after ourselves and our own interests and to pass on our genes.

Most people would also agree that there is a significant difference between the pre-biotic soup on the early Earth and the very first simple organisms. The appearance of life out of this unappealing primordial slime represents a new level of meaning in the Universe. The beginning of life! We don't yet know how life started and how the transition from chemicals

to life happened. But the appearance of life, however we define it and however it started, is a pretty special and distinct thing.

Technology often seems to have a life of its own and seems to be something separate to us. It can produce discrete entities that are analogous to life forms, such as cars, computers, robots, rovers to explore Mars and eventually 'life forms' with artificial intelligence. We can relate to technological items as life forms. A car, for example, has a life-span, it gets old, we feed it fuel, we might give it a name and it eventually 'dies' and goes for recycling. When it comes to reproduction and the next generation, the car has to rely on us to do that for it. In the future, machines will be able to reproduce themselves. Technology is something new in the Universe (as far as we're aware) that humanity has created and has new properties and new possibilities. It's arguably a discrete level of complexity in the Universe. You could argue that simple technology in the form of simple tool use has been around for millions of years and has been, and still is, used by a large variety of species. For example, twigs used by crows, stones used by chimps and dolphins have been observed using sponges to protect their snouts when foraging on the sea floor.

To sum up - Each level of complexity in the Universe has its own meaning.

Complexity increases with each level

If you think about each of these proposed successive levels of evolution in the Universe, it's easy to see that complexity increases with the generation of each new level. As you move from one level up to the next, a whole new tier of structure emerges. You've still got all the structure of the previous level but now you also have a new level of structure within a new level. The old structure is now wrapped up in the new structure.

One level acts as the foundation for the next. As each level develops, it encapsulates all of the previous levels. Atoms are composed of subatomic particles. Molecules are composed of atoms that are composed of subatomic particles. The first primitive bacteria were composed of molecules, which were composed of atoms, which were composed of subatomic particles. Single-celled organisms banded together to produce simple multicellular life. Over time, individual member cells started to perform different functions. Think about the variety of cells in your body – skin cells, blood cells, muscle cells, neurons – all very different, performing different functions. Somewhere along the line, the biology gains consciousness, psychology, more complexity... which is now you reading this. You feel like a discrete entity, perhaps a mind that inhabits a body, that has all these previous levels bound within.

After the big bang, there was only electromagnetic energy. This condensed into something entirely new - sub-atomic particles. So, at this stage, a new type of structure developed in the Universe that was more complex than what went before. These particles condensed to form atoms and again, you get a new type of structure and a new level of greater complexity. The origin of life creates a new level of structure and a new level of increased complexity. And so on all the way up to our present situation where life's complexity seems to be overtaking us. Modern human society seems too complex to cope with or understand. Or, perhaps something new is happening and unfolding that we don't, as yet, appreciate? Are there other levels of the Universe yet to unfold?

When we were cavemen, life was pretty straightforward. It was tough, of course, but relatively predictable and went on pretty much unchanged, seemingly indefinitely. Think of all the complexity of caveman society. You've got the biological complexity of the individual human bodies, evolved over millions of years. You've got the psychological complexity of the individual. And you've got the complexity of the caveman society and its social interactions. Both the society complexity and the individual psychology complexity are also tied up in evolutionary psychology. Our

psychology is fashioned by evolution to be most efficient. It's useful to think and behave in certain ways.

Life on Earth today is increasingly complex with interactions of psychology, sociology and technology. Human processes are also interacting negatively with the entirety of Earth's ecology. Is the modern human complexity 'going somewhere?' In some ways it 'feels' like it is. Surely 'something' is going to happen?

Spontaneous generation

It also seems that within a particular level, you get a build up of complexity within that level which results in the spontaneous generation of the next level. So, on the pre-life early Earth, you'd have a huge build up and diversity of chemicals and biochemicals; a rich soup simmering away. Once you get a high level of complexity and diversity in this situation, life seems to spontaneously emerge. How it actually started is still a matter of much debate. One theory suggests that life arrived on Earth, hitching a ride on comets and meteors. People of more spiritual persuasion think that life needed a spiritual spark to get it going. Some relatively simple proteins, such as prions, are able to replicate themselves but it's still a leap to self-replicating DNA. It's probable that the complexity of the pre-biotic soup reached a point where life became inevitable.

When the Earth reached the stage of having an enormous diversity of bacterial life forms, where can it go next? It's like it reaches a bottleneck of activity. It gets as complex as it can be for that level of existence and then, quite spontaneously, does something new and unexpected. Bacteria bind together to form a eukaryotic cell, around 100 times the size of a bacterial cell, containing many more complex structures.

It is worth mentioning that before complex, eukaryotic, single cells appeared on Earth, bacterial life existed for about 3 billion years. During

this time, bacterial life formed the first ecosystems. Think of the complex diversity of the global bacterial ecosystems, flourishing for all that time. These bacterial ecosystems provided the foundation for the multi-cellular, plant and animal ecosystems of the future. Some would say that if all of the complex life on the Earth disappeared, bacterial ecosystems would continue along nicely, thank you very much, and that the Earth would function pretty much as it does now. I'd recommend reading James Lovelock's Gaia Hypothesis to explore this in more detail. As much as I admire Lovelock's work, I don't find him very 'optimistic.' He seems quite happy for humanity to wipe itself out or for all the Earth's rainforests to be replaced by agriculture. I suppose that's the detached scientist in him, simply examining 'what if.'

Once life gets up to the multicellular level, doing new things starts to become a habit. During the Cambrian Explosion, some half a billion years ago, a huge diversity of life erupted in a relatively short period of time, filling the seas with weird and wonderful creatures. If, on any planet, life exists only in the sea, it seems obvious that any organism that can find a way to exploit the bare land surface is going to do quite well for itself. Evolutionary pressure means that plants and animals will always be looking to evolve into slightly improved forms that can take advantage of any particular situation. So foxes will evolve to run faster to be better at catching rabbits and rabbits will evolve to run away faster from faster foxes.

It also seems that in order to navigate a body around, whether you are a human, a fox or a whale, that a mind is quite a useful thing. So again we have spontaneous generation, in this case, of a discrete, singular mind. Psychology must have been around for hundreds of millions of years, albeit very basic at first.

What about the use of tools by humans? So many animals use tools which tend to be naturally occurring objects like twigs and rocks, but only with humans has this tendency exploded into complex tool forms: the

industrial revolution, information technology and the beginnings of space travel. Tools obviously have a use and so they are going to evolve in much the same way that organisms evolve. There is pressure from the human mind for simple tools to be refined and improved. It seems inevitable that high technology has evolved. But why has it for us and not for so many other animals that also use tools? I'll come to that later.

Entropy

The second law of thermodynamics states that with the passage of time disorder increases in the Universe with energy just being spread out like an even layer of heat. This is entropy. So after all the stars of the Universe have burnt out with their energy spent, you end up with a dead, lightless but tepid Universe.

The structure I've outlined so far, for the way that complexity unfolds within the Universe, goes against this. Or at least certainly seems to. In the structure I've described so far, complexity and order increase over time rather than decrease. This is disentropy.

Physicists would argue that ultimately planet Earth will die along with the life on it thus bringing all the complexity that the Earth has gained and developed over all those millions of years back down to zero. Does this feel right to you? It doesn't to me. I'm more optimistic than that. I'm not put off by the vast weight of the huge body of knowledge that is modern physics. I think the complexity that has evolved on this world will persist beyond the eventual death of the Earth. Could it even survive the end of the Universe? That's getting a bit ahead of where this book is going, but who knows what the very distant future will bring?

We need to focus on life as it is now, where we are now and what new levels of complexity in the Universe might come next. It's pointless to get bogged down thinking about the end of the Earth. That's about 500 million years away. We need answers for today and for this century.

The Universe has some more evolving to do yet, possibly much more, and it's happening right here on Earth.

Lack of predictability

Imagine being back in the caveman cave. Think back about 150,000 years from today. Sat there with your hand axe and pointed stick, could you ever have imagined the evolution of the motor car? Looking from then to now, there's no way our early ancestors could ever have known how the level of technology could have evolved and expanded to the level of complexity and diversity that we see today. And it's not finished! Today, we don't know where technology will take us tomorrow. New scientific discoveries are always just around the corner. Digital and information technology are racing away with advancement. In terms of information technology, we've already caught up with science fiction from just a few decades ago.

Now try to put yourself in the position of observing a Universe with no life in it at all. This is hard to do of course, because you're there to think about it. But imagine a planet with no life on it in a lifeless Universe. A billion years from where you are, the planet you're looking at will have life on it, but you don't know that. So, standing there, how could you ever have predicted that something as complex as a bacterial ecosystem or lush rainforest could emerge on this lifeless rock? Or that some time after that, an ape with a pointed stick could be staring back at you.

From the perspective or point of view from each level, it's impossible to predict the evolution of the next level. Because the next level, whichever level it is, is something so totally new, with a whole new level of structure, complexity and meaning, that you can't possibly predict what it's going to look like.

Imagine standing on the Earth when the first fish were crawling out onto the land. Could you ever have guessed that the far, far distant descendants of those fish would one day be walking on the moon, or be sitting chatting in coffee shops?

From the point of view of any one level, it's impossible to know what new level might follow on. That's pretty much where human society is today. Could it be that a whole new level of existence is about to emerge. Could it be happening now? Human life and also therefore all of life on the Earth are certainly changing very fast. For non-human life this change is headed towards extinction, and possibly therefore, extinction for humanity as well. However, I suggest that there are other levels of complexity yet to evolve in the Universe and that a new level is about to emerge within, and through, humanity. Now that's what I call unpredictable. Humanity and associated technology and psychology are the leading edge of expansion of complexity in the Universe, currently expressing itself on Earth.

Life on other planets

If the structure of the Universe does indeed unfold in the way described, then that must apply to the Universe as a whole and not just to the Earth. Life on other planets seems as equally inevitable as the evolution of life and complexity on this planet. As long as the initial conditions are right, and I suspect that there is a wide variability for these initial conditions, then life will spontaneously emerge. If those initial conditions are right, which more or less means the right temperature, which means the presence of water and that there's enough energy available to run the planet's systems, everything else will follow on automatically. The Universe must be teeming with life.

On planets with life, the evolution of an intelligent, technological species is also inevitable. Except perhaps, on ocean planets. Put simply - you are never going to discover fire under water. So, no Bronze Age, no Iron Age,

no metals and no industrial revolution. Well, possibly. If we want to discover and understand sentient life in an aquatic environment and how sophisticated it may or may not be, we need look no further than our own planet and take a closer look at the dolphins and whales. My suspicion is that as they've been out there for millions of years with a rather large brain, and mainly *because* of their large brain, that they must have reached a certain degree of psychological and social complexity, and in some small way or other are in fact superior to humans. We just don't know what that is yet.

It's likely that another planet with its own technological prodigy has advanced to greater levels of complexity than we have. They could be a million years further on than we are now and have a whole new level or levels of understanding and knowledge of how the Universe actually is. It's probably why they more or less leave us alone and ignore us. To them, we're just a bunch of apes throwing rocks at each other. Perhaps they are waiting. I think the breakthrough will come when we finally train a planet-spotting telescope onto a sister Earth across the galaxy, get a good look at it, and determine that it supports complex life and even high technology. At that point our stellar neighbours will probably say "Ok. Hi there. You've found us. How are you?" The next step would probably be an invite over from them, with us meeting the technological challenge to get there. Well, it's a nice image, a polite interstellar invite over for tea.

Summary

So, it seems that the Universe and the way that it expresses itself on our planet, evolves in a series of levels. Each level represents a new plane and type of existence in the Universe. Complexity increases with each level. It also increases to a maximum within each level to allow the spontaneous generation of the next level. Each level has its own meaning, it means something different. This evolution also seems to be going against the tide of entropy in the Universe.

The human race is changing so fast and in so many ways. Never before have we found it so easy to travel around the planet. Information technology allows data to flow around the planet further, freer and faster opening up an ever expanding intellectual and horizon. This also means that we are undergoing rapid cultural change. New planets in distant solar systems are being discovered all the time.

And on top of all this, we're causing the Earth's sixth mass extinction through our activities, thus eroding the foundations of all this growth. If levels of ecosystem diversity collapse does human society collapse?

It's certainly a time of change, a time of transition. Where is evolution in the Universe taking us? If the Universe does evolve in a series of levels of complexity, what's coming next? What new level might we be currently being born into? Where are we now and where are we going next?

This first chapter serves as a foundation for my description of where we are now and where we are going; what levels are coming next. For further reading and more detailed analysis of what I've described as 'Complexity in the Universe,' have a look at the work of Peter Russell and also of Fritjof Capra.

Part 2 - Prehistoric People Problems

Now we need to take a look at the current situation. I use the phrase 'current situation' rather broadly here. We're looking at the evolution of the levels of complexity in the Universe, in relation to humanity. Human evolution has, so far, taken about 3 million years. What leads us up to the point where we are now? What elements and events in our recent past allowed us to evolve as we have up until now, today?

Positive feedback

Take a creature, any creature. They all probably have a fairly similar and basic psychology. Mammals, birds, lizards and amphibians all evolved from the first fish to walk out of the sea. It is likely that the more complex an organism is and the more convoluted its evolutionary path, the more complex its psychology, however, on the whole, non-human animals probably don't differ that much. Dogs are probably more psychologically sophisticated than lizards and lemurs could almost certainly outwit sheep.

If an animal has had a convoluted evolutionary path, it has probably lived in a variety of habitats and in a variety of ways to get it where it is. Dolphins, for example, are now ocean-going mammals but, at one time they would have lived on the land as cat or dog-like creatures. If an animal occupies a certain ecological niche, lives a certain way, it's likely that its brain will evolve to be efficient in that niche. An efficient brain equals an efficient mind. New and subtle brain structures could evolve to allow the animal to be effective at what it does. As the animal evolves into a new niche, like dolphins taking to the water, it seems reasonable that the animal would hang on to useful brain structures that it had evolved for use in its earlier form and that are still useful in its new form. To survive in new environments, an animal might need new 'bolt-on' bits of brain structure and so the 'brain kit' would become more complex as an animal progresses along its evolutionary path. Not all animals upgrade their brain as they progress through evolution. If your role in life doesn't

need much of a brain, the brain will become more simplified, as in marine filter-feeding tunicates. It's tempting to add a joke about politicians...but moving on...

Then, about three or four million years ago, one organism found itself in a unique position. By complete chance, it found itself with the right configuration of language, a small amount of brainpower, hand-eye coordination, opposable thumbs, manual dexterity and tool use; and it got stuck in a positive feedback loop. And we've never looked back.

What's a positive feedback loop I hear you ask? Well there are two kinds of feedback loop or feedback mechanism - positive and negative. Most systems have these feedback mechanisms including weather cycles, human body regulation and the balance of ecosystems.

The human body regulates itself with negative feedback. It operates at a temperature of about 37 degrees Celsius. Negative feedback means that if this temperature goes too high or too low, various bodily processes kick-in to bring it back to normal. If your body temperature goes up, you start to sweat, thus bringing your temperature down. If you get too cold, you start to shiver. This brings your temperature back up. This is negative feedback. The same happens with the regulation of blood sugar. Not enough and some of your body's stored carbohydrate is released into your bloodstream to bring the sugar levels back up. Too much blood sugar causes higher levels of insulin, which brings the level back down with the spare sugar going into storage.

Positive feedback mechanisms work the opposite way around. Current popular examples are those associated with 'Global Warming' and 'Climate Change'. For example, in a warmer world you get more melting of ice at the poles. Ice reflects sunlight. If there's less ice at the poles, less sunlight is reflected and the planet absorbs more of the sun's energy. This makes the planet even warmer causing further melting of ice at the poles. Global warming via positive feedback leads to more warming. Another

climate change example of positive feedback concerns arctic tundra. In a warmer climate, the tundra permafrost begins to melt. This means that the organic compounds in the newly unfrozen soil begin to breakdown. This releases methane and carbon dioxide into the atmosphere. The addition of more of these gases to the atmosphere causes more global warming and yet further melting of tundra. So, melting tundra causes yet more melting tundra. This is positive feedback.

As a brief aside; global warming and climate change are different things. Global warming is the average global temperature increase. Climate change is the regional effects of average global warming. So any one region might get hotter or cooler, wetter or drier.

Four or so million years ago an ape creature finds itself stuck, fortuitously, in a positive feedback loop. The ape creature in question was not much smarter than any of the other animals around it. It did however have good hand-eye co-ordination, opposable thumbs and it was good with tools. It also had a slightly better language capacity than its other animal colleagues in their ecosystem. Many of the other animals around it used language and/or tools or had a social structure, but in this particular ape, these features come together in a unique and compatible configuration; a configuration in which each element encourages the expansion of the others via positive feedback.

The ape uses tools. It also internalises the tools that it uses as a psychological concept. It has a mental image of the tools and how to use and make them. Because of its language, it's also able to convey these simple concepts to its colleagues. The idea of a particular tool can quickly spread throughout the ape population. Soon they all share a similar mental image of the tool and other simple tools and how to use them.

These apes, four million years ago, would have lived in groups with a social structure. All ape species and indeed many other animal species live like this today. This communal living has a certain amount of

psychological complexity that goes with it and relates to the various ways in which the group interact. This includes conflict, cooperation, defence against outsiders, group bonding and family relationships. And if you think about it, that's very easy to relate to as we are today. Also, these apes have psychological concepts about their group. Each member of the group has an internal image and understanding of how things are with the group.

The language, tools and social structure of this pre-human ape are all bound together as concepts in the individual brains of the group members. This is where the feedback loop starts. The brain, in conjunction with the language, hands and tools facilitates the further evolution of the tools and language. This feeds back into the brain, creating more and more complicated concepts and a bigger brain to contain and operate them. The brain is an energy-hungry organ and it takes a lot of feeding, so there needs to be a pay off. Your food and energy intake needs to be greater than the energy expenditure in running a bigger brain. If you've got better tools and better communication, it's likely you're going to be quite successful in the way you live and in the way you out compete your competitors and other animals in the environment for more food to feed your bigger brain.

Having this compatible configuration of tools, language, dextrous hands with opposable thumbs and a small amount of brain power only needs to convey a slight selective advantage for natural selection to work on it and for it to expand through the generations. Positive feedback expands on these features via natural selection. This ape ever so slightly out-competes other animals. This creates an 'energetic space'; the luxury of having slightly more food than you need. It gives you wiggle room. Therefore you can spend less time acquiring food and slightly more time expanding and diversifying other behaviours. This creates the selective pressure to further enhance and develop this configuration of brain, tools, language plus the energetic advantage of having more energy than you need, giving the brain space to expand. Not physical space, but energetic

space. A slight surplus of energy means that you can re-invest it in the positive feedback loop. A bigger brain allows the further evolution of both tools and language and so these become increasingly more sophisticated. Once this compatible configuration has expanded in complexity, it makes our pre-human ape even more successful at gathering further energy, more energy, as food, than it needs. This creates yet more energetic space for the brain to continue its pattern of enlargement, along with the expansion and diversification of other behaviours.

The beginning of this positive feedback for mind growth, as part of the 'Next Level' of complexity in the Universe, starts here with early humans. With positive feedback, you get an increasing rate of change, an acceleration over time, as the system feeds back on itself speeding up the process. With early humans, this would have had quite a slow rate of change initially. It would have taken millions of years to work our way up through the simplest tools, through the Stone, Bronze and Iron ages and the slowly changing culture and mental concepts that go with it. This long period of time is long enough for our genetics, our bodies, physical aspects of mind and psychology to have evolved along with the growth of the Next Level. As the accelerating pace of change of the Next Level runs away with itself, we increasingly get left behind, a Stone Age human in a Space Age World. Our genetic rate change can't keep up with the accelerating sophistication of the Next Level. I'll come back to this in the last section.

There could be other compatible configurations that allow an organism to expand its brain and brain-power. The way dolphins use sonar is probably far more complex than we currently understand. It could well have diverse uses, both socially and as an environmental tool; a tool to manipulate the environment. As dolphins are very physically different to humans, if they have achieved a high degree of psychological complexity, then it's likely to have taken on a very different structure to ours. How could we understand it? The immediate impulse is to use reductionism. It's my guess that you'd have to go back to a common ancestor, working

back down through psychological evolution and then using complexity models, work your way back up through evolutionary time to reach and construct a new model for psychological complexity. Computer modelling will soon be able to handle this, if it can't already. I suppose the input variables and characteristics will create a huge challenge for such modelling.

In humans at least, the beginning of this positive feedback loop or mechanism is the origin of the Next Level of complexity in the Universe, a new plain of existence bursting forth, a whole new order of consciousness on planet Earth - Us.

Biological basis for psychology

Evolutionary psychology is the idea that some or all of the various aspects of our psychology have evolved according to the laws of natural selection. As our minds evolve they are shaped by the physical and social, psychological environment, as indeed are our bodies. Evolutionary psychology also assumes that some or all of our psychology has a biological, genetic basis. An extreme way of putting this would be to say that aspects of our minds are expressions of various genes. This would be the extreme reductionist approach.

The best way to examine and clarify evolution and natural selection in psychology is to start with examples of biological evolution. In biological evolution, various physical features change over time due to the random mutation of genes. Occasionally, a mutation will offer an advantage to an organism therefore enhancing its life chances. When most mutations occur, they are damaging or have no advantage for the organism. Only very occasionally is the mutation advantageous.

There is also variation in a population, for example, in height. Humans, on average, tend to be about, let's say, five feet six inches tall. Most people are close to this average height. A few people will be very tall and equally a few people will be very short. So, most people are average height with a

few people being unusually tall or short. This is called 'normal distribution' and occurs for many aspects of any organisms physical characteristics. Other examples in which you get a normal distribution include intelligence, pattern variation in the fur of tigers, beak length in toucans, the speed of swimming in tuna and just about any physical characteristic that you can think of. Once a particular evolutionary design stabilises out, it becomes perfectly adapted and then the level of variation diminishes. The human heart, for example, works just fine as it is, there will be some variation, but not much.

Imagine a population of giraffes. There's been a drought and life is pretty tough. There aren't many leaves on the trees. Due to the natural variation in the population, some giraffes will have longer necks than others. These giraffes stand a better chance of reaching the furthest, highest growing leaves and are therefore more likely to survive. Let's be cruel and say that all the giraffes with shorter necks die out. Animals don't have to actually die for natural selection to work they just need to fail to pass on their genes for one reason or another. Being dead... is a pretty good reason. Being out-competed by a rival for a mate because they've eaten more and are stronger, is another.

After the drought ends, there is less variation in neck length within the giraffe population. However, the remaining giraffes have on average, longer necks. Let's now imagine that the climate is favourable for the next few thousand years and the giraffes can relax. During this time, you might get a few random mutations of the genes that control neck length, resulting in some giraffes having even longer necks than before. Once again, a drought comes along, leaves on trees are scarce and only the giraffes with the longest necks survive. So over thousands of years, after each drought, the giraffe neck gets longer and longer.

So, physical features evolve over time, whether it's reptile scales evolving into mammalian hair or into avian feathers, or fish fins evolving into limbs

or a dolphins nostrils migrating, over many generations, up onto the top of its head.

An individual psychology, a mind, is a useful thing. It allows an organism to pull together its component parts to form one holistic individual entity. You are you. It allows an organism to make choices about its life, where to go to look for food, what to run away from or maybe where the best place might be to find, and so have, sex. To some extent, it allows self-regulation of and by the organism.

I've described psychology as being a separate level from biology, a different and more complex level of existence in the Universe. Some evolutionary psychologists would want to describe psychology as just another aspect of biology. This comes back to that problem of reductionism that I mentioned earlier. Where does the body end and the mind begin? Is there a cut-off point or is it a continuum? Some of the more basic elements of psychology do seem very rooted in biology and have physical counterparts. These usually take the form of hormones. For example, we know that endorphins make us feel good or happy. Adrenaline makes us feel on edge, ready to run away, get ready to fight or generally prepares us to do something exciting. Too much testosterone can make males overly aggressive, overly competitive and make them have a stronger sex drive.

It seems obvious that these simple, biologically based emotions and aspects of mind must have been around for millions of years. Adrenaline must be useful for most animals, allowing them to think 'shit!' and then run away from something very scary, very fast. So it's reasonable to assume that those emotions relating to 'fight or flight' must pre-date humanity and have, in fact, been around for hundreds of millions of years going all the way back to fish, possibly beyond. Following back our own evolutionary history, along the generations, over tens or even hundreds of millions of years, we've had this 'flight or fight' response way before we were even remotely human.

The same is true of testosterone. It occurs right throughout the animal kingdom and it's reasonable to assume that many animals have feelings that correspond to our own in relation to this hormone.

I am of course making an assumption here. In my opinion, if certain hormones relate to human emotions, then any animal that shares those hormones with us is likely to share those emotions or something similar. Anyone who has close contact with animals, whether you work with horses or have a dog or cat for a pet, knows that their animals have personality. They know that in some way they can relate to them. Dogs can sulk or be obviously happy to see you. The only reason that some people feel uncomfortable attributing emotions to animals is that it's difficult to prove scientifically. Again we come across the problem of reductionism. If you've got a dog, you don't need to prove that you have a connection with it, you have it and you know that you do. We might never know how a particular animal feels about a particular thing, but it's not an unreasonable assumption to say that animals have emotions and that we share those emotions, or broadly similar emotions. It's just difficult to quantify or demonstrate scientifically.

So, these basic aspects of psychology, our emotions mainly, that are rooted in biology, are something that we share with more or less the entire animal kingdom. Well, vertebrates at least. In this respect, humanity does not differ from animals that much. We have, and other animals have, emotional states that are subject to evolution. This simple emotional aspect of psychology is useful for animals to have. These emotional aspects also evolve over time and express themselves differently in different animals depending on what emotions are most useful and in what quantity. The hormone regulation in relation to emotions will evolve correspondingly.

Simple evolutionary psychology, with regard to emotions, is something that has been around for millions of years and is something we have in common, more or less, with the rest of animal life.

One thing that does, of course, have an effect on our emotions, is the way that our comparably massive intellect interacts with our emotions. What makes humanity distinct from the rest of the animals is the Next Level of evolution of complexity in the Universe as expressed through humanity and its affect on our emotions.

Caveman Psychology

As I said at the beginning, we may or may not have lived in caves. The image of the caveman is an almost romantic one that's been around for decades. The main reason for its appearance was the discovery of human, hominid and hominin (close human relatives) fossils in caves. Caves offer a good preservative environment for fossils. Any hominins living in caves as opposed to out on the plains are more likely to leave fossils behind, and so the image of the caveman is born.

I'm going to stick with this image, and why not? It's a workable setting for the purposes of my argument. I'm also not going to deal with comparisons between hominids or hominins that are similar enough to have similar human-like characteristics, such as the Neanderthals. I'm just going to go straight for Homo sapiens, us, and work with that.

Let's roll back time to about 50,000 years ago. Humans have been around for about 3 million years. These early people would have lived in groups consisting of around 100 members. Another popular image is that of the 'hunter gatherer'. It seems more likely that 'gathering' would have formed the larger part of human activity related to acquiring food. Hunting was also important and would have honed human skills, created a need for the development of certain tools and would have fed constructively into the social structure.

Our group of 100 humans would have had a variety of simple tools fashioned from stones and animal parts like bone and antler. They would have used fire for cooking, keeping warm and keeping away other animals. Art played a part in human life as many cave paintings around the world indicate.

They would have had a social structure. This structure is likely to have incorporated a tribal hierarchy with some male and female members having a higher status than others in the group. Part of this hierarchy would have involved a pecking order with group members ranked according to their status in the group. Co-operation would have been an integral aspect of life. It would have been vital for hunting and division of labour to enable the group to function more efficiently. Mutual grooming would have been important for social bonding. There would also have been simple language and communication.

Imagine a dark night. The group has had a successful hunt that day. They've eaten well and are now sat lazing around several small fires. The fires crackle and are the only light around on a moonless night. The group swap stories. Wolves can be heard howling in the distance. A bear mooches around the edge of the camp, but dare not get any closer for fear of the fire and the torment of hurled rocks. Unknown creatures emit strange calls. The odd owl hoots. Or, if you're still in Africa, replace wolves and bears with lions and elephants.

So how does this all relate to Evolutionary Psychology? What is the state of human psychology at this point and how has it evolved? Briefly back to basics...

- **Fear**

Fear has an obvious useful function. There are dangerous things in the world; wolves, bears, snakes, long drops off cliff edges and so on. If

any animal, human or not, had no fear, they'd be less inclined to escape from things that might kill or injure them. Fear would have evolved long before humans. In the early days of the evolution of fear, this feeling would have been very slight. But, any animals that had it would be more motivated to run away from something big, scary and dangerous. Possibly, fear might be felt in an unfavourable environment. If you're a primitive walking fish making tentative moves across open land to get to another lake, you might dry out if you don't get there quickly enough and so this might induce simple fear. So, evolution selects for fear. There is evolutionary pressure for fear to evolve. Those animals that have it are more likely to survive. Too much fear though and you might not take necessary chances that would enhance your survival. So evolution selects against too much fear. Fear, as well as being a state of mind, also involves physiological and chemical responses, so at this emotional level, the mind and body are closely tied.

- **Happiness**

If you are feeling happy then all is well and good in your world. It's likely that things are going your way. You are probably popular and or successful in the tribe. Maybe it was you that successfully concluded the hunt today or lit the fire or made some new stone tools. Maybe you found a new patch of blackberries and harvested them all for the group. It could be that you're doing well in reproduction. You have growing children around you and they are all fit and healthy. You generally feel at home in the tribe, so you sit back and roast another chunk of gnu on a stick. You turn the chunk of meat slowly on your stick and smile to yourself as it steams away and slowly browns.

As well as a state of mind, happiness is also a kind of physiological reward for doing well. It's your body, via chemical changes, hormones, feeding into your mind that all is well with your world. Happiness is, as they say, its own reward. If happiness has a physical, chemical aspect

in our bodies, it's likely that it's been around for millions of years before humans evolved. Maybe if any animal is doing well in life it releases and experiences the same hormones making it, in effect, feel happy. Happiness feels good! If it's an expression of success, of an organism doing well, doing what it's supposed to do in order to survive, then it could be that evolution would select *for* happiness. If an organism strives to be successful and hence happy, then evolution can select for happiness.

- **Anger**

We can all relate to the feeling of anger. Some people speak of getting the 'red mist' before getting themselves into a fight. Like other emotions, anger has a physiological basis, rooted in the adrenal glands and must have been around long before we evolved. As a mode of behaviour, being angry obviously has an evolutionary advantage and will be selected for by evolution. If something in your environment is compromising your ability to be successful, whether it's involving competition over a mate, food, or a good place to sleep, then being angry works. It will cause you to be aggressive and assertive and to stick up for what will work for you and make you more successful. So whether it's humans fighting over a patch of land or wolves squabbling over a deer carcass, being angry, and hence aggressive and assertive, is more likely to result in the organism's success. With such an obvious advantage, evolution would have selected for anger a long time ago. It's hard to imagine fish being angry. Is it? But we can relate to anger more easily in our fellow mammals. Too much anger may be deleterious, particularly with social animals. If too much anger is displayed, it may lead to personal damage and injury during fights and make social cohesion difficult. So depending on your species, you evolve 'just the right amount' of anger.

- **Sadness**

Things aren't going so well. Maybe you've had a small personal tragedy within the tribe. Someone you know has died or maybe you've fallen out with a friend. Your life has been impaired and it shows on your face. Other members of the group, in response to this, might be drawn to you to comfort you in your time of need. They provide a reassurance that all will be ok and that things will get back to normal in the group for you. And, with the support of your friends, this might well be true. Your face, pulling an expression of sadness, advertises how you are feeling and that you need support. This creates a selective advantage for looking like how you feel. You feel sad and look sad and so your friends and family support you. This increases your survival prospects. Therefore, expressing sadness is likely to be selected for by evolution. Sadness could also convey disapproval with the state of affairs in the tribe, possibly resulting in a change in the behaviour of other tribe members towards something you're more comfortable with or approving of.

- **Sex**

Or rather the feelings we have in relation to sex. If organisms have sex then, well, obviously it's going to be of enormous help in the species being evolutionarily successful! If sex felt bad we, or anything else, wouldn't do it and we'd die out. Sex has a physiologically emotional reward. You have sex, it feels good at the time and you feel good afterwards. Again, having these hormone induced feelings aids in the success of an organism. Evolution selects for these feelings.

Fear, happiness, sadness, anger and feelings that are related to sex all have a strong physical, hormonal, emotional basis. They are deeply rooted in the ecology of behaviour right across the animal kingdom. They have been around for tens of millions of years. We and other animals have these in common, to some degree.

It is also recognised that there are several Universal 'facial expressions' in humans. How many there are is open to debate, but most people would recognise facial expressions of fear, disgust, surprise and anger. You might also want to include sadness and happiness. If such facial expressions are indeed universally recognised by people, then it is likely that they have a strong aspect of evolutionary psychology. They evolved with us. How long have they been around? As humans lost hair from their faces, it's likely that we could evolve a greater range of facial expressions as less hair makes it easier to recognise, and clearer to express, facial expressions. Our Universal facial expressions have probably been with us for a few million years. These facial expressions relate, of course, to emotional states. They are a very visual representation, to other members of our group or tribe, of how we are feeling internally. Disgust is something that I've chosen not to include with the other emotions above. It doesn't feel like it has the same strength of emotion as fear, happiness, anger, sadness or sexual feelings. The facial expression of disgust in humans is rather exaggerated and doesn't seem too obvious in other animals. Pulling the disgust face has an important role within the group. It displays to other group members that a particular piece of food tastes bad and may therefore be inedible or poisonous. This obvious advantage for the group is likely to be selected for in evolution and passed on within the genes of individuals. The disgust face is also used in conversation when a concept is imagined by the individual to be disgusting. This is a more modern and sophisticated use of this facial expression but is still true to its evolutionary origins.

The expression of surprise also has a social advantage. When you express surprise, you are conveying to another individual or to the group, that something novel, useful or dangerous has suddenly appeared. This facial expression alerts those around you and allows them to take appropriate action.

Feelings of love, hatred or jealousy are not quite so obvious as those mentioned above. Do animals feel these or are they uniquely human? Are they corruptions of the feelings of sex, anger, sadness, happiness and fear? My suspicion is that they are. However, that's not too important here. The first five emotions: fear, happiness, sadness, anger and sexual feelings are sufficient to illustrate the point that some aspects of our minds do indeed have a physical counterpart. This fits well with the genetic determinists and the reductionists of the evolutionary psychology community. It also demonstrates that these feelings and probably the emotions as well, are not unique to humans. It is of course difficult to *prove* that other animals experience these feelings in terms of actually being conscious of them, but exactly how consciously aware they are of these feelings is not too important. If they have the hormones and experience the related behaviours, which they do, then they are sufficiently similar to us to say that, to some extent, they do share these feelings with us. I like that. It makes me feel that we are all family on Planet Earth.

In terms of evolution, fear, sex, anger, sadness and happiness have been around for millions of years. They have been shaped by evolution and are closely tied to our physical biology. They are most definitely aspects of an evolved psychology, of evolutionary psychology.

There are other aspects of the human mind that also fit in with evolutionary psychology that don't have an obvious physical aspect, like hormones, but that nevertheless evolved along with us and as part of us. We also share these with much of the animal kingdom, but they've not been around as long as basic emotions have and are more usually associated with mammals. They represent a more sophisticated psychology with a greater level of complexity:

- **Hierarchy**

This tends to be a mainly mammalian feature although it does stretch across the animal kingdom.

Ants, bees, wasps and termites have the most complex invertebrate hierarchies. However, they are more similar in the way that they operate to base level emotions already described. These hierarchies have strong physical features in which much activity within the community is mediated via hormones. In some of these communities, there are obvious physical differences between individuals in different levels of the hierarchy. Queen bees are much larger than the others in the hive. Termites have a king and queen, soldiers and workers, and many ant species are similar in this respect.

Many bird species also have hierarchies. Observations of these are the origin of the term 'pecking order.' Hierarchies seem to be strongest in mammal species. We're all familiar with the term 'alpha male' as applied to gorillas, elephant seals, deer, wolves and so on. Often, there is also a ranking of other males within the social structure with a 'pecking order.' In some mammal communities, there is also an alpha female and a ranking of other females.

Hierarchies were obviously around long before we evolved into humans. Many of the basic emotions fit in quite well with hierarchies. If you've been angry and assertive, you might have made it to alpha male status or at least be further up the pecking order, in which case you might feel rather happy with your success. As the concept of hierarchy is older than humanity, then we must have evolved with it and to some extent because of it. Hierarchy must fit in with and be part of evolutionary psychology, our evolved psychology. It's a deeply embedded behaviour and may well have some physical aspect in our bodies. This could, in part, be genetic, with the related genes

expressing themselves in our brain structure and possibly through our hormonal, endocrine structure.

So there we are, sat around the cave, all fully aware of who's who and where we fit in to the overall structure of our community.

- **Status**

This is part of hierarchy. You have a status within the hierarchy. As an individual you might be valued for your various contributions to the tribe and respected, or not, accordingly. You might not be the alpha male but you might be the best toolmaker. You might be a wise and respected tribal elder.

Status seems to be more unique to humans. It's more of a social construct within the complexities of society, even if it is a cave society. As our civilisations and cultures have developed and become more elaborate over time, particularly in recent decades with internet, global connection and social media, so status seems to have become more extreme and elaborate.

- **Conformity**

This is very important for group cohesion. Your tribe of a hundred or so individuals all have to know that they share the same goals and values if they are to work together as a cohesive unit. There can be differences among the group, so long as they are not too extreme. Some differences are attributable to having different functional roles or status roles within caveman society. These differences are of course accepted by the group as being part of group social structure. However, there would probably have been little room for variation within these social norms. The group would have been expected to comply and conform to these norms. Again, some things in the group are allowed to be variable such as diversity of roles in hunting or

gathering, who makes the best tools or fires, or who the alpha male and female are and also variation in personality. However, the group still feels the need to be working towards the same objectives. The group feels that there needs to be a high degree of 'sameness' amongst its members, a feeling that they are all on the same side, a feeling that they can all co-operate successfully and that they will all benefit from it. Feelings that you all share the same values foster further feelings of security and trust. You feel that you can relax with your fellow cave person. There will be some degree of selfishness, but overall, if an individual is too self interested, not pulling their weight or is perceived to be doing something that damages the group, they risk being cast out. Chances of survival alone are much lower than as part of a group. This is why the urge to conform is so strong. We want to be liked by other people. This is something that most people can relate to. We care what other people think about us. Sometimes we care too much. In the modern age, conformity, while still important, can cause problems as we shall see later.

- **Co-operation**

Along with conformity goes co-operation. If all the members of the tribe have conformed to the group's values, they trust each other and feel they can work with each other, i.e. they can co-operate. To be a successful tribe or group unit, group members have to work together to some extent. There will be division of labour with some individuals performing some tasks for the group while other individuals perform other vital tasks. There is a certain synergy with co-operation, the whole group being more than the sum of its parts. Overall, individual group members are, on average, better off working and co-operating within the group than they would be trying to make it on their own. Co-operation is vital for hunting with individual group members closing in on prey animals from several directions or performing different tasks in the hunt. One ape-man with a pointed stick isn't really going to be able to take on a mammoth. Several ape-men with pointed

sticks will be quite intimidating for a mammoth and the tribe may well be successful. The group eats, the loner doesn't. Once a group starts sharing tasks, as with early humans, they realise that some members of the group are better at some tasks than others and so specialisation for certain tasks can occur in the group. Of course, it could be that low ranking members get the 'low status' jobs, but still they are better off than trying to go it alone.

- **Stereotyping**

Now here's an interesting thing. Stereotyping feels like such a modern concept. It's usually thought of negatively, that it's bad to stereotype people. Certainly today, there are a lot of negative stereotypes around. But does it have a function? People vary enormously. Everyone is different. Human beings are certainly very complex. How long would it take to make an accurate assessment and get an accurate picture of everyone you meet? It'd be exhausting as there's just so much information. The brain uses stereotyping to make a shortcut, a quick assessment, and puts people into categories. It pigeonholes them. A lot of modern stereotyping is negative and worse still, can be driven, exacerbated and reinforced by 'the media'. It's just too easy to swallow what you see in the papers or on TV or the internet.

Conformity has a part to play in this. We assume that 'the media' comes from and is created by 'people in authority', or in other words, the alpha tribe members. If it's in the papers, it must be true, if that's what we're being told by our betters.

But, our brains are so good at putting people into boxes, stereotyping them, that maybe it has a more ancient origin. Perhaps, back in the cave, humans often needed to make snap judgements about each other, particularly when coming into contact with other people from different tribes that they'd never met before. What are these strangers like? Are they likely to be friendly or hostile? You need to make a quick

decision. Your survival might depend on it. So naturally, you're cautious, trying to weigh up the unknown person. As you get to know them, you begin to trust them more.

Stereotyping and conformity both have a strong role to play when it comes to politics. People often attached themselves to and identify with either right wing or left wing politics. It seems too easy for one side to demonise the other. Maybe our tribal structure was mainly used to dealing with 'us and them' meaning that our internal concepts of groups or types of people has a default position of assigning people to one of two categories – us and them.

This tendency to stereotype may well have a small physical aspect in our bodies and brains, mediated in some small way by hormones and genes. You can certainly see how basic emotion fits into it as well. Dealing with strangers is dealing with the fear of the unknown. Stereotyping is a vital, 'hard-wired' and evolved feature.

The degree to which people in any one society stereotype will vary. In societies with higher degrees of danger, fear or conflict, stereotyping is more likely to be exaggerated. This also applies to societies with a higher incidence of disease. In both cases, it pays not to trust the stranger.

- **Attitude towards the environment**

When has the environment ever been a problem for any one species? Apart from the problems of being eaten, dying of a disease or being burnt to the ground in a forest fire if you happen to be a tree. Assuming that your species continues to exist, even if that might not necessarily include you, when has the environment ever been a problem? In terms of incoming nutrients, water, food and resources, when has the environment ever a problem? Generally, there's always more coming from somewhere. The ecosystems are, generally, in

balance. There might be patches of drought meaning less water and less food, but it usually gets better. Ecosystems do change over time otherwise new species wouldn't evolve or others go extinct. But it's usually a very slow process with little change between the generations.

Occasionally one species will indeed become very successful. If it does this as something of a sudden leap, then whatever it feeds on will dwindle sharply resulting in a population collapse of both prey and predator and even possible extinction of those species.

Species do come and go. In many cases, the extinct organisms, for which we find fossils, may well have just evolved into something else. So it's less a case of extinction and more a case of evolution. Any particular organism will have a long history where it has essentially been many other species to get where it is today.

Some species do just reach the end of the line. This is most often due to gradual changes where the whole ecosystem has gradually changed around them and they have remained relatively unchanged. They just end up being out competed by one or more other species. They are gradually edged out of the ecosystem.

On the whole, ecosystems tend to be in balance. Over long time periods, this is less true. There is always some flux, even in the most stable ecosystems. Otherwise there would be no opportunity for continual evolution.

There are also variables in output of the sun or wobbles in the Earth's orbit and axis and these will usually put mild stresses on ecosystems, causing them to shift their ranges and occasionally squeezing out the odd species altogether. Ecosystems shifting ranges tends to mean things like forests migrating north or south, or up or down mountains, or coral reefs shifting to new areas to keep pace with sea level changes. With climate change, the arctic is melting rapidly. Arctic

species have to progressively move north to adapt. It may well soon be the case that some arctic species will run out of 'north' to move into. In much the same way that a mountain species has to move higher to adapt and if it's habitable range moves higher than the top of the mountain, it's going to go extinct. If one arctic animal needs ice and there is none, it may well go extinct. Some of these climate and ecosystem changes occur in short time periods. One of the Sun's output variables has a cycle of about 11 years. If some climate changes can have this short period, then, to a certain extent, organisms evolve to deal with these small changes. So, birds might feel a change in the weather and decide to nest early. They cope with short term natural variability and have evolved to do so. The same would be true of early humans.

Also with early humans, the world would have seemed like an endless place. It seemed that there'd always be more of what you need coming from somewhere – the environment will provide. Early humans would have slowly evolved within their African ecosystem and would have fitted in with it. They would have been in balance with it.

Once the positive feedback of psychological growth, the beginning of the 'Next Level' starts to kick in with incrementally better tools, language and brain growth, we start to lose that balance. This is the point where we started to become that successful, all-consuming species. Due to our success, we began to migrate out of Africa and spread across the globe, consuming new animals in new ecosystems as we went. Our first encounter with lack of sustainability with regard to this expansion would have been eating our way through the world's megafauna. This idea is still very much a subject of debate, but it does seem that as humanity spread, the megafauna around the world disappeared. Did we eat our way through all the big animals? Mammoths are the first big animal people tend to think of in relation to this, but there were also giant armadillos, wombats, sloths etc. Big animals have a tendency to be more vulnerable to extinction. Once

we've eaten our way through them, it's much harder to then eat everything else, the more numerous smaller species... until today. With modern humans, we are reaching the limits of the planet's ecosystems. Our in-built expectation that there will always be more resources coming from somewhere won't get us very far in modern times. In terms of evolutionary psychology, the environment is something that has always provided for us. It feels like it'll last for ever, it'll never run out, because that has more or less been our experience for the last few million years and this is reflected in our psychology. This is obviously a dangerous position to be in and I'll come back to this in the next section.

- **Curiosity**

If there is something unknown or unexpected in the environment as the ape-man group go about their activities, it might well deserve inspection. With a certain amount of investigation, the new 'thing' might have a pay-off attached. It might be a new food source, a new material to make tools out of, or possibly something nasty to avoid in future. Many animals are naturally curious. Evolution selects for curiosity, even if this means that the occasional feline can be a little too curious – terminally. Curiosity is an evolved psychological feature. Curiosity opens up new opportunities.

Conclusion

So there you have it; the lucky old ape creatures. That's where we were just a few thousand years ago. The above is not an exhaustive description of early humanity, but it sets the scene. All these aspects of humanity described so far are those that can easily fit within evolutionary psychology and have a strong evolutionary psychological component. They are bits of our minds that have evolved over time and have evolved in conjunction with our bodies. This is as far as evolutionary psychology can go. It's as far as it works, up to the Next Level. Remember the

problems of reductionism? This is obviously not a full description of who we are. What about the sophistication of our language, industry and technology, the information age, and other more complex aspects of our psychology? Some evolutionary psychologists say that these things are nothing more than an aberration, a pointless evolutionary cul-de-sac with no use, no evolutionary significance, a series of behavioural mutations that have happened so fast that they are running away from our genes and are not associated with our genes. If it's something happening too fast for our genetics to keep up, reductionist science might conclude that it must be just a passing phase. Does this sound right to you? Is our psychological complexity, technology and industry something that's just going to end with either our extinction or our re-evolving back into a regular ape?

In terms of genetics, genetic determinism and reductionism, within those academic fields, they're right, modern humanity is more or less a mistake. But now something else beyond those disciplines seems to be happening. Clearly evolutionary psychology has a role, but only as far as setting out the scene and the landscape of our Palaeolithic caveman minds.

The Next Level of evolution in the Universe was just waiting for the inevitable; a species with a suitable configuration of characteristics that would allow the Next Level to burst forth. A whole new tier of structure in the Universe, spontaneously generated from the complexity of modern humans with a whole new level of meaning. Up to a few million years ago, a very large number of species would have been at the same level of complexity, pre-human apes included. It could have happened to other species but it's happening to us. Through humanity, the Next Level of complexity in the Universe is emerging. The Universe is going somewhere.

We need to catch that wave and ride it in order to navigate the enormous challenges of the 21st Century.

Part 3 - You are now leaving planet of the apes, please drive carefully

Ah, Freedom! The freedom and free-will to decide, for yourself, where you want to go, what you want to do and even who you want to be.

So far I've outlined complexity in the Universe and how this expresses itself through several layers of evolution of that complexity. Paraphrasing some modern scientific trends, I've also described the evolution of humanity up to the point where conventional science starts to lose it. As more aspects of human life become increasingly complex, science as it is becomes increasingly incapable of describing and explaining it. Although it's worth mentioning that some aspects of science are also following this trend of increase in complexity. Human life is just far, far too complicated for science; but in a good way.

As I've speculated, humanity is undergoing a radical transformation. Another new level of complexity in the Universe, the Next Level, is starting to unfold and is unfolding through us. This has been going on for thousands of years, but as discussed earlier it is experiencing an ever increasing rate of acceleration through positive feedback. With an ever increasing rate of change, the Next Level is likely to become increasingly distinct. It'll begin to take shape; a shape that humanity will be able to recognise and acknowledge. Every aspect of who we are as individuals, as societies and as a planet, is becoming more complex.

We're in a transitional phase and naturally, it's really confusing, but we are going somewhere. Let's take a look at some of the elements of humanity as described in Part 2, and see how they are changing as we move through this transition.

Caveman emotions

The range of emotional states outlined in the previous section are something that we can all identify with. They are something that all of humanity has evolved with. We all have them, to some degree or other. We don't express all of them necessarily and some of us have tendencies to express some more than others. Our shared ancient history, living in prehistoric communities similar to those I've described, has shaped the pattern of human emotion. Life for us would have been relatively unchanged for a couple of million years. This gives evolution plenty of time to make minor adjustments to our emotions in such a way that they are suitable for the type of animals that we are in the ecological niche that we occupy. Our genes have had the time to evolve holistically with our emotions. They have shaped each other. Our emotions, to some extent, are coded in our genes.

How are our emotions likely to change with the dawning of the Next Level?

You may have come across something called 'Maslow's Hierarchy of Need.' If not, Google it. This typically sets out human needs in the form of a pyramid diagram. At the base, the foundations of this pyramid are our most basic and primary needs. These include the need for food, water and shelter. Next up from these we have the need for safety, sex, good interpersonal relations and family relations. On top of this level of need comes more intellectual and artistic needs. At the top of the pyramid is something Maslow called 'Self-Actualisation.' An individual self-actualises once they have fulfilled all of their needs and have reached a sort of personal conclusion to their lives. They have gained a full understanding of themselves. They know who they are. This puts the individual in a very strong position to choose, to make active free-will choices; choices not based on emotional or psychological hang-ups.

It would seem that in many ways, human society is addressing human needs in terms of the priority and order of Maslow's pyramid. We want a society that provides for our needs, provides us with food, health care, shelter and safety. We also need society to provide for our more intellectual needs via education and entertainment. Much of how modern society works is ordered to address these basic needs, but other aspects of it, like education, I would argue are part of this Next Level trend. Human society back in the cave would also have met our food and safety needs. Access to information through education as it is today is a vastly different experience compared to the prehistoric cave society, although small amounts of knowledge would have been passed on via story telling or showing by example. Modern society can vastly expand the range and depth of knowledge available. Modern society has allowed us to fulfil some of our more basic needs and allows us to go beyond these to fulfil higher needs.

I do need to qualify this of course by saying that it mainly refers to modern Western society. Although developing nations are likely to catch up with these advancements, they can hopefully bypass some of the less-helpful bits of development that Western society has trudged through. And in the richest societies on Earth, we still have inequality and poverty. If the people running and ruling societies had met their basic emotional and psychological needs and had less of a neurotic bent, we'd probably have more equal societies. I've always thought that right-wing xenophobic politicians tend to be a tiny bit fucked-up.

As we, as a society, have passed further up Maslow's scale, it has opened up a breathing space that has given us the luxury of a little self-examination, exploration of our own emotional states and introspection. Generally, if you've got food, shelter and safety, you can afford to spend time on other things. Psychotherapy, counselling and personal development weekend courses are very common these days. Through the exploration of our emotions, we have come to a greater understanding of

ourselves. This process has a long way to go, but we've made a good start.

As we delve into and understand our emotional states, we are freed-up emotionally to make more choices about our lives. We are not as ruled by our emotions. We can increasingly choose our emotional states. This is something absolutely unique to the human animal and is very much part of the Next Level of Universe complexity.

We can now decide, intellectually, that we might not have fully experienced a particular emotion and even go in search of ways to experience it. We can bungy-jump to challenge our own fears. We can admit we've made mistakes and reconcile with a friend. If we have anger problems, we can take a course to control it and to learn to use it productively. We may decide that some of our emotions are unhealthy and actively choose to get rid of them and decide not to experience them; with a cautionary note about not unhealthily suppressing them, of course. This 'emotional wellness' could well be considered part of what Maslow meant by 'Self-Actualisation.'

By this, the Next Level frees us up from our biological heritage, for the first time since the beginning of life on this planet and allows us to make free-will, independent choices about ourselves, society and planet. Increasingly, we are no longer slaves to our emotions. Our emotions are becoming less deterministic.

Not that we want to become like Mr Spock in Star Trek. Rational science, more in the Sixties I guess, seemed to want to rid us of our emotions all together. A more holistic approach says that our emotions are very much part of who we are. But with the Next Level, we can make more choices about them and not simply respond in reaction to them. We increasingly govern them rather than our emotions governing us.

As the Next Level expands through humanity and expresses itself through humanity, it is obviously a time of great change. This is bound to lead to feelings of uncertainty and insecurity amongst people; possibly resulting in some emotional backward steps. Religious fundamentalism is one possible reaction to this situation. If people are afraid, they might want to cling-on to tradition, something safe, in a seemingly decaying and chaotic society. It gives them certainty and stability; or at least that's what they hope. Emotionally though, it's not healthy.

Consumerism is a huge planetary, non-sustainability problem and is very much a kind of celebration of some of the lower aspects of Maslow's Hierarchy of Need. This also fits in with clinging on to what we know, what's familiar and comfortable, in a rapidly changing world. Buying things is an expression of wealth and status; something that the folks back in the cave could have appreciated. Today, consumption, growing exponentially, has obviously been blown out of all proportion. Still we cling to that need to show our wealth and status and do so in modern times by buying more and more crap or upgrading on the crap we've already got. Many people though have moved on, have fulfilled some emotional and intellectual needs and have realised that they just don't need to buy all that stuff to prove their worth.

Our emotions will become more complex, more fluid and more flexible. We'll spend more time understanding them and thus understanding ourselves. They'll still be very much a part of who we are as a species, but we'll be able to make more choices about them. The progression into the Next Level is freeing us from these biological and evolved psychological constraints.

King of the castle

Our hierarchy relationships will certainly change. They are pretty much still in force wherever you look, even though we've had a few attempts to do away with it like, to some extent, communism, or cutting the heads off

of monarchs. Hierarchy is a powerful force and something that we've had, indeed many species have had, for millions of years. To a certain extent, we're not going to be able to help ourselves or resist, at first, as hierarchy comes very naturally to us. But the ideas and the all important free-will intellectual choice that is part of the Next Level of complexity in the Universe is there; ready to challenge hierarchy. Most notably perhaps would be various attempts at what has been called 'communism.' It's a great idea to live in an equal society. However these attempts have degenerated into hierarchy. There's always some alpha-male somewhere who thinks he knows best. Or possibly, if it's you that's been put in charge of running society, through no desire of your own, the human inclination towards hierarchy is just too irresistible and it starts to do strange things to your mind. You might not naturally be an alpha-male, but finding yourself in that position, your mind might start to try and compensate. This could be why so many dictators are really bizarre people.

A capitalist society is a perfect arena to let alpha-males and alpha-females shine. Men and women with certain abilities that fit within, and are appropriate to the context of the society that they are working in, can really climb the ladder and become king of the heap. They're just fulfilling their innate tendencies to do this, and with great exaggeration in modern western society. In the cave this would have meant better access to food, the best places to sleep and quality individuals to mate with. In many ways it still does mean this. Back in the cave this would have related very much to personal survival and longer term genetic survival in terms of Richard Dawkins' 'Selfish Gene' (See his book of the same name). Thus alpha male and female genes have enhanced survivability. Those at the bottom of the pile might have greatly restricted access to mating and food.

Modern society obviously doesn't have to be like this anymore. Our collective success as a species means that between us, we have ample resources and access to further resources. In terms of the struggle

throughout biological history between species – we’ve won! After all those millions of years – we’ve won! So once again in relation to Maslow’s Hierarchy of Need, collectively we are meeting our basic needs. However, due to the persistent compulsion to hierarchy, these resources are unevenly distributed on an almost comical scale. In the same country, some people live in ludicrous luxury whilst others live in the gutter. This can be extended across borders with rich capitalist economies ripping off poor countries left, right and centre. It seems fine to those who are directly involved in this process, I’m sure, as just a part of how humanity is. Whenever this is said however, and it frequently is, those hearing the statement and hopefully those who say it, get an awful hollow feeling. It seems such a shallow thing to say. This is because it is. Collectively across the whole planet, we have enough resources to meet everyone’s needs. We can do it and we know we can, we just don’t really know how to, we’ve no real experience of it or of what our psychology might be like in order to do it. As we collectively move up Maslow’s scale, we know that this inequality is wrong and hierarchy begins to look weak and inappropriate for the 21st Century. I’m sure many of the modern super-rich or high-up politicians feel perfectly comfortable with the current situation. As we collectively begin to mature, emotionally and psychologically, that will begin to change.

A weakness in hierarchy is most obvious and apparent when it comes to Monarchy; a bunch of people who are only where they are because some of their ancestors were ruthless enough to go around stealing common wealth from everyone else and insane enough to claim, and even believe themselves, that God had told them to do it! It follows then, that if hierarchy and hence monarchy were melting away, that this would be most apparent in those countries, i.e. first world nations, that were ahead of the game, ahead of the curve, in terms of moving into the Next Level. As an example, the English monarchy look increasingly irrelevant.

‘Social Darwinism’ is a revolting term often used to justify inequality and is always used by those who benefit from it. The idea of course involves

extending Darwinian natural selection to the more complex processes of human society. Natural selection does indeed work perfectly well in terms of biology and ecology. With human society encompassing several aspects of 'greater complexity in the Universe', it's just not relevant or applicable. Human society is too complex for its use. It's that scientific concept of reductionism again. Not useful for analysis of areas of life with greater complexity, or rather 'increasingly less useful' as the thing you study becomes increasingly more complex. As I said before about those trying to justify being at the top of an unfair hierarchy, Social Darwinism sticks in the throat, it just doesn't feel right. Those who try to defend it and use it are trying to simplify a complex situation to their own ends. The Next Level of complexity in the Universe is an accelerating and more or less unstoppable process. These attempts to employ Social Darwinism and similar, being too simplistic, will inevitably end in failure whether it takes a few years or many generations.

As hierarchy is such a strong and dominant character of humanity, it is very easy to analyse in terms of evolutionary psychology. It is not too complex that evolutionary psychology can't deal with it and explain it. As I've already said, evolutionary psychology explains humanity right up to the point of the caveman. It becomes less usable as the Next Level of Complexity in the Universe unfolds within humanity. We're outgrowing it. We'll be able to analyse and make free-will choices about hierarchy.

We don't need to ditch hierarchy altogether. We do need a certain amount of it. I think of it as 'functional hierarchy'. This might mean, for example, that a particular company or business is structured just like any in a conventional system resulting in the smooth flowing operation of the company. However, there is much more equality between the individual people within the company. As we have to organise our society and planetary society, a functional hierarchy might be a way, in part, of doing this.

Hierarchy is something that has been part of us long before we were even human. It's a strong evolved psychological aspect of who we are. But as the Next Level becomes increasingly apparent as it unfolds, hierarchy will begin to change and we will become less emotionally involved with it. Maybe that's what functional hierarchy is; hierarchy without emotional involvement. Either way, we'll be able to make more free-will choices about hierarchy and what types of hierarchy we want, if any.

A couple of new concepts worth keeping an eye on are Wirearchy and Holacracy. These in part come from our increasing liberation from conventional hierarchy due to advances in technology.

Conform to the norm

Conformity, as discussed earlier, is an important part of what keeps society together. Back with the caveman, it would have been vital. Way before we were human it would have been vital. Whilst it's still good to be part of a society and feel like you belong, conforming to what is normal or what is expected is increasingly becoming a problem, creating confusion and anxiety, in a society that is becoming increasingly complex.

From an evolutionary psychology perspective, conforming with, and in, caveman society would have made sense. As the cave man, or cave person matures, they go through a rebellious 'teenage' stage. This is something we are all well aware of and familiar with in modern society. Back with the cave tribe, this would have been an important time for a newly matured individual. A time to test your strength, work out allegiances and find your place in the cave hierarchy. You might even decide to challenge the alpha-male, once you became strong enough. After a few years of determining your rank, as it were, things start to settle down. You've spent a while disturbing the social equilibrium of your group and now it's time to work with how that equilibrium has settled out. The group still has to be stable and be able to work together. So, after a few years disturbing the balance of power, you now conform, on the

whole, to the new group structure and values. This makes good evolutionary psychological sense.

Before cave boy became cave man, he would, of course, already have internalised and conformed to the tribe values. It's likely that rebellion during the transition to maturity would involve taking these values forward but with the individual trying to assert themselves to gain as high a rank as possible within the tribal norms. So the main disturbance is not too much to do with values but rather who the key players are. Life back then was much less complicated. With death coming at around age forty, you didn't have to worry about life for too long.

Things have changed. As the Next Level of Complexity in the Universe unfolds, life is becoming increasingly complicated and confusing.

What exactly is it that we are supposed to conform to these days? Well, Authority of course! But which authority? There are so many of them these days. Conforming to a religion or the state is a natural extension of giving in to the alpha-male back in the cave. You don't want him to beat you up so you work with him and go along with what he says. Today, we don't want religion to burn us at the stake or the government to throw us in jail, so we tow the line. Mostly though, conformity is more subtle, and we adhere to social values for fear of rejection by one group or another.

But surely with the Next Level of complexity, society authority is melting away? Life is increasingly varied, so which standards, ideas or groups do you conform to? Authority is not only built on strength, as in 'might is right', it's also built on knowledge and information. Rival groups, as within politics in democracies, have different sets of ideas that largely come as a package, for example. Many people identify with being on either the left or right of politics. As the Next Level unfolds, the amount of information out there grows all the time to inform our species. It's helping us to evolve, not in terms of Darwinian Natural Selection but in terms of the evolution of this whole new, Next Level of Complexity in the Universe.

This Next Level will have its own laws distinct from those of the levels of complexity in biological and psychological evolution; hence evolution 'beyond' Natural Selection. The progress of science and 'The Enlightenment' these last three hundred years are all part of the accelerating pace of this great unfolding of the Next Level.

As we discover more and more about our world and ourselves, there is so much information that it starts to undermine authority, or rather, it's part of what undermines authority. Authorities that fail to keep up will diminish in significance. More information will also create new, competing authority. As already said, as our emotional states become more informed and evolved, hierarchy becomes less significant and so traditional hierarchical authority becomes less relevant.

With more complexity, more diversity of ideas and groups, there are a larger number of 'authorities' to choose from.

The development of knowledge through scientific endeavour has produced a lot of information that undermines religious authority. I take the position that religion was an earlier aspect of the unfolding complexity of the Next Level. It was an attempt to explain and describe society and the wider world with the knowledge and understanding that was available at the time. This is why a lot of old religious tales of how the world was created, for example, look so ridiculous in modern society. Religious concepts also relate back to caveman society structure. They tend to incorporate an alpha-male figure as ultimate authority. Although pre-Christian pagans included more female gods. It seems likely that very early religions had more gender equality and that this equality was closer to what we had in the good old caveman days. Only later did this distort into something more patriarchal, less equal and more hierarchical.

Religious laws are an early example of the creation of legislation. They were early, crude laws. This is demonstrated by looking at how they work and were or are put into practice. The so-called 'loving God' would deal

out punishments for crimes that are, or were, much harsher than punishments implemented by a more modern, psychologically sophisticated society. The more humanitarian among us see that the death sentence is inhumane, where a God would happily dish out death sentences left, right and centre. Can it be that modern humanity is more compassionate than God? No, it's just that as the Next Level unfolds, we become more complex and our concepts become more sophisticated. The old concept of God gets left behind. We also become more emotionally mature and complete as the Next Level unfolds. Human created religious laws become outdated and superseded, whether God exists or not.

It is a natural evolved psychological instinct to defer to authority if you are not at the top of the hierarchy. Modern human societies are vast compared to the 100 or so humans living together in the cave. Relative to then, hardly any of us are in positions of what we might call authority. The vast majority of us follow this instinct to conform and we follow it together, en masse. With millions of us all doing the same thing together, the concepts that we are supposed to conform to are greatly strengthened. It makes it much harder to break away if everybody that you meet tells you that you are wrong to do so.

Huge, well connected, information rich, technological modern society is part of the Next Level, with which this conformity instinct obviously has its problems. To some extent, conformity will stifle individual exploration of emotion or intellectual concepts, new political ideas, new freedoms and on the list goes. You might need to break with conformity to explore these news concepts. Because of evolutionary psychology, that will feel uncomfortable to do and is likely to be met with derision. It's difficult to disagree with the tribe and do something else as it feels that your future is at stake. A lot of the growing 'Next Level' edge, challenging conformity norms, comes from groups with individuals within those groups, pushing the boundaries of those groups. Changes in fashion and music are great examples. There's obviously a lot of conformity going on with people

following trends, but, new things come along; someone, somewhere is pushing the boundaries.

In an increasingly complex society, those in political authority are increasingly less likely to have the answers. They are more likely to be wrong. Of course, challenging this can be difficult. In a democracy, or so-called democracy, there are usually two dominant parties to choose from, both of whom claim that their philosophies and concepts are correct. Can we really believe that there are only two choices? There are also many small parties, but these get sidelined as eccentric, wrong or pointless. It's much more likely that through the conformity instinct, we'll choose one of the two big political parties. We'll choose between right and left. Both are big groups to belong to, big tribes with big strength. I wonder if, in terms of evolutionary psychology, we're predisposed to choose between 'one of two' sides or opponents. Typical fights for dominance between chickens, deer, elephant seals or anything else tend to be between two individuals and maybe we're inclined to recognise this and 'support' one or the other. Your upbringing will also help to determine your political allegiances. You tend to follow whichever was the most common of the 'two sides' as you grew up. This is not always true as it's not too difficult to switch camps to the other large grouping.

There are also other beliefs and structures in society that are neither political nor religious. You could argue that most beliefs have a political or religious element to them, I suppose. One of my pet hates in society is football. It's a wonderful piece of tribalism and something I want nothing to do with. It's a good old fashioned patriarchal hierarchical clash. Of course to make such a statement, a controversial statement apparently, immediately draws the wrath from those who think that you should conform; you should support football! I remember being at school, at a very young age, with children very keen to pigeon-hole each other according to which football team they supported. A very strong instinct – to create social groupings and bond groups together by all 'being on the same team.'

Then we have TV, the ultimate authority. Surely everything we see on TV must be true if it's in a factual programme, or reflect our values if we're watching a work of fiction. TV advertising is a horribly insidious process. Various celebrities telling us that we should be buying this or that product to make us happy, adverts about cleaning products that make us neurotic about dirt and bacteria, thin and attractive women scoffing chocolate bars implying that that's what you'd look like if you ate the product, endless tips on how to live a better lifestyle. Who could resist? This links very easily back to cave emotions and evolutionary psychology. Alpha-male/female celebrity X uses product Y and I want to be like alpha-celebrity X. I want other people to think that I am like them. I also will use product Y in order to be popular and accepted by people who I think have a higher status in our tribe... or golf club. What's important here, of course, is the emotional content. We all just want to be loved and accepted and just acknowledging that can bypass falling for all the celebrity-endorsed-product nonsense. It's so hard not to conform to what you see on TV. Even seemingly harmless things like comedy catchphrases can permeate your mind to the point where you find yourself using them in conversation.

We all know what happens when someone dares to speak their mind and say something that is not a common belief of the majority of the population. They get ridiculed, even if what they actually say makes sense. A great example of this is society's attempts to deal with climate change and global warming. We all know what needs to be done and what we need to do, namely – reducing carbon emissions, yet we carry on with life pretty much as before, charging head-long into catastrophe. We're heading for a mass extinction on Earth and no-one is doing anything about it, more or less. What is required is for global society to do a massive U-turn, a massive change of direction against many of the things and concepts that are taken for granted; concepts that we conform to. Some of these are concepts with massive capitalist clout such as the global economy being driven by fossil fuels. You just try speaking out

against that and see what happens. The old fossil-fuel alpha-male authority lies to itself about the problem. It lives in denial of the problem. It is rich and powerful and with its reach and resources, easily communicates the message to us, which we all happily absorb, that climate change isn't a problem. Conformity isn't the only problem in this regard, but it really isn't helping. There's a tendency for psychopaths to rise to powerful positions. And I'm sure that also doesn't help with our global problems.

An occasional by-product of modern-day conformity is apathy. The huge weight of all that information, all those people, all those TV comedy catchphrases, can eventually wear down your rebelliousness and your individuality. There was a time when you might have been idealistic, but you tell yourself that you've grown up since then. You used to have principles, but what's the point anymore, nothing you do seems to make any difference to society. You're not popular enough to be different, or so you feel. Once apathy has set in, it's a long slow decline into bitterness.

Recognising conformity when we're doing it is the first step to reducing its power and influence over us. It's a bit like admitting to being an alcoholic. "Hi, my name is Jeff and I'm a 'go-with-the-flow' conformist." Admitting the problem helps to reduce conformity's emotional power and helps us to make better, more independent decisions. Opportunities to conform happen to us every day and therefore opportunities to recognise it and deal with it also occur every day. For example, someone might ask "When are you getting married?" Such a question is loaded with assumptions and pressures. My usual answer goes along the lines of "I don't believe in marriage." With a little practice, we can spot conformity as it happens and feel a little more emotionally comfortable in dealing with it in a more objective and constructive way. This might also reduce apathy. We can even recognise that we're deliberately conforming to a situation in order to fit in and enjoy it. We do need to be watchful, as it might be the case that we gain more approval from others when we conform during these

experiments, and we need to spot our feelings of 'being approved of' and ask ourselves if we really need it and is it worth it.

So as the Next Level unfolds and as our minds become more complex, we become increasingly aware and increasingly free from our evolved psychology; emotions, hierarchy, and conformity. We can make more free-will decisions about emotions, hierarchy, and conformity. We still have those things but we can choose to do more with them. We become more autonomous, self-contained individuals. We are more aware, consciously aware, of who we are and of the planet that we live on.

Techno-joy

Eddie Izzard in his 'Glorious' performance described himself as having 'techno-joy'; a love of technology where he'd throw away the manual and just explore the technology for himself to see how it worked, with a possible detriment to the piece of technology just purchased.

How did we get to where we are today? Modern technology is so unbelievably fabulous. We've got so many gadgets and tools for all sorts of things, it's incredible. We can take a plane and fly across the globe, drive as far as we want in amazing cars, be entertained by TV, cure diseases, talk on mobile phones, build nuclear power stations, fly to the moon, build space telescopes, take in huge amounts of information and link up with the rest of the world via the internet.

So how did it happen? If you go back a million years, you could never have predicted the explosion of technology today. It's hard to imagine, but please do try, a world with no technology. Modern technology to our caveman would have seemed like magic; we would have seemed like gods. Looking back we can say, well the history of technology has progressed like this... but try it the other way around, what does the future of technology and humanity look like? We've no idea, or little idea. You can't predict it and neither could the cave man. This lack of

predictability is one of the defining features that draw a distinction between Levels of Complexity in the Universe. Just 100 years ago, the idea that you could have a small flat metal and glass object in your pocket that's a telephone, a camera, records film, works out maths problems, allows you to navigate, allows you to play games and connects to a world of seemingly limitless information... would have seemed like the most extreme science fiction. It's that lack of predictability; something weird, wonderful and totally surprising will almost certainly happen in the near future.

I had considered including technology as a separate Level of Complexity in the Universe outside of our own psychological evolution. It's a tough one because of the problems of reductionism mentioned earlier. Does it matter? Well probably yes, but for the purposes of this book, it's fine to be included as it is. Although to look at technology separately, it does have a lot of parallels with biological evolution. You get competing forms of the same technology, one of which wins out over time. You also get an increase in complexity over time. A technological 'species' might be dominant for quite some time but might be eventually out-competed by something new. So you could place the level of complexity of technology on top of the level of biological evolution, as something that has grown out of biology. I've found it hard to distinguish between the growth of technology and the growth of our psychology. To me, they are part of the same thing. One has enabled the growth of the other and vice versa. Technology is an exterior manifestation of our psychological concepts.

So I say again, where did it all come from?

Earlier, I discussed the process of positive feedback; the fortunate ape creature with the highly compatible hand and eye coordination, opposable thumbs, tool use, language and a big enough amount of brain power. In fact, you could describe this as a perfect synergy. Positive feedback means that as one of these aspects advances, it encourages the advancement of another aspect or aspects. The improvement of a tool

creates a new concept in the mind which might also require a new word. Each feeds back into the other to encourage the holistic growth of humanity with our brains, minds, language and technology feeding each other and growing together.

The Next Level of Complexity in the Universe started at the beginning of this positive feedback cycle, some two and a half million years ago. Such a positive feedback loop or cycle has exponential growth. It starts slowly and over time picks up pace until you get very rapid change over a short space of time. The growth of human technology and the Next Level, expressing itself through humanity, won't follow this pattern precisely as there will be certain limiting factors. The smooth exponential growth curve will run in to various blips as we hit these limiting factors. One big limiting factor is living on a planet of finite space, which I'll come to later. To a certain extent, technology will come in fits and starts but will, as a generalisation, fit an exponential growth curve. A short lull might come when society seems to be waiting for something new to be evolved; a new scientific breakthrough. This, of course, creates the impetus for our collective psychology to actively search for such a thing. Space travel, for example, is probably waiting for a breakthrough in subatomic physics. Our collective psychology will also incorporate limiting factors that impede its growth. For example, at any one time there will be certain dominant beliefs in society. Some of these beliefs might be erroneous or just plain wrong. Due to conformity and hierarchy, these errors might be hard to overcome at first, but again, a rival, 'more correct' belief, could be gathering momentum with its own positive feedback. This growth might be interrupted by the dominant beliefs actively suppressing the new ideas. Most likely, but not definitely, at some point a tipping point will be reached, a paradigm shift where society lurches forward and moves over to the new belief; a cascade of belief change and the bottleneck to growth is overcome. Then, there will be a rapid up-turn in the growth rate of psychological complexity and the Next Level, to catch up with the general trend of the exponential growth curve.

The origin point of the Next Level was some two and a half million years ago. For most of the time between then and now, there wouldn't have been much change. In fact, the Stone Age would have lasted all the way up to about 6000BC. For nearly all of this two and half million years, humanity progressed, ever so slowly, through the Stone Age. During this time, small improvements and advancements were made here and there in tool use and type. Our language, social structure and psychology would, ever so slowly, have become more sophisticated and complex. This time span is long enough for the slow changes in our habits and behaviours to be reflected, through natural selection, in our genes. Being better with tools, their corresponding mental concepts, language and hand-eye coordination would all have conferred an advantage to any individual that had those better abilities. Our tools, language, mind, emotions, body and genes would all have had the time to have holistically responded to each other in accordance to the Next Level positive feedback and incorporate the growth of this complexity. Our deep down genetic changes over these two and a half million years have predisposed us and primed us physically to incorporate the Next Level and its further expansion, up to a point. The Next Level is, in part, written in our genes. Right up to the end of the Stone Age, our then sophistication in language, tool use, intellect and social structure would have set us apart from the rest of the animal world. We would have left the other animals on our planet way behind with our early Next Level increase in complexity. This incorporation of the Next Level into humanity over these two and a half million years is what separates us from other animals. It's what makes us uniquely human.

As we move along the exponential feedback curve with not much happening for nearly two and a half million years, the curve starts to turn noticeably upwards and pick up pace as we reach the Bronze Age, about 8000 years ago. Just 5000 years later, we reach the Iron Age. 3000 years after that we're in the Space Age. The last three hundred years has seen, what is essentially, the birth of science. These mental, scientific concepts have facilitated a whole raft of scientific discoveries which in turn has

enabled the exponential growth in technology. Again, you have the synergy of tools and technology, mind and language. Is technology the outward, physical expression of our internal mental concepts, or does the exponential growth in technology almost have a life, a positive feedback, of its own, or both?

Where we are now, the technology growth curve is soaring skywards with the most notable growth in information technology. The change is so rapid with technology advancing so fast, that we might be finding it difficult to keep up. Can our psychology keep up? Is our caveman mind beginning to look a little out of date and too cumbersome for the job? Our caveman mind, or aspects of it, might now be the limiting factor for further growth. The pre Next Level, deterministic and 'less flexible' aspects of our minds, mostly the bits we share with most animals, might be slowing us down. However, the rapid evolutionary explosion of technological complexity, whether an expression of our psychology or something 'more separate', will of course still have this positive feedback into the other aspects of our being; it will stimulate a more rapid evolution of language and psychology. It will affect every aspect of our lives and who we are. Technology might be able to 'fill in the gaps' or 'bridge the gaps' of the parts of our brains that can't keep up the pace.

It's worth including a brief note here on tool use in other animals. It was once thought that tool use was a uniquely human trait. With much observation, it has been shown that in fact, a huge variety of animals also use tools. If evolution on planet Earth had taken a different path, who knows which individual species the Next Level of Complexity in the Universe might be expressing itself through. Something as unexpected as squid look quite promising! They have dextrous limbs and many of them have a certain complexity of language through visual signals and they are rather intelligent. Although, as I mentioned earlier, one limiting factor here is the lack of the development of fire underwater and no melting of metals out of rocks. If it hadn't happened to humanity, the Next Level would probably have happened to another of Earth's species. Had things

turned out differently, when this other species went through the explosion of the Next Level, with a resultant stressing of ecosystems globally, we'd be facing extinction as a bunch of primitive apes on the east coast of Africa, still throwing rocks at each other, in much the same way that the great apes are facing extinction at our hands.

Technology enables us to fulfil many of our needs. Therefore, it allows us to move further up Maslow's Hierarchy of Need. If it's allowing us to explore higher aspects of humanity, it must therefore have, to some extent, freed us from basic biological and psychological needs. We still have those needs, but they are much more easily met, allowing us to pursue higher needs. This new freedom from our biology and exploration of higher aspects of existence is all part of the Next Level exploration and expansion. We have become, and are becoming, more autonomous within the Universe.

The huge exponential explosion of technology is very much part of the surge of the Next Level; carrying us to something new and wonderful. If you could run a simulation of the Earth and speed it up to fit a millennium into a second and watch it from a distance, modern high technology would seem to just pop out of nowhere. The Earth at night would suddenly light up with glowing cities. A whole new thing spontaneously generated.

Language

I'll come clean – my language skills are not my strong point. Thank God for spellchecker. So, I don't feel very qualified to talk about the growth of human language. However, some things are reasonably obvious. Over the last few hundred years, we've had the increasing benefit of education. In developing nations at the moment, there is a rapid rise in the number of children attending school and learning to read and write. It's a nice thought for the future that one day, and one day relatively soon, the whole planet will be able to read and write. Even in developed nations, it's

only been a matter of hundred years or so, that there has been a sharp upturn in the level of literacy. It is reasonably safe to say that growth in literacy has followed the growth rate of technology.

What about the sophistication of language itself? A notable point about modern twenty first century humanity is the high extinction rate of languages. As we slowly integrate into becoming a global society, languages that are used by few people fall into disuse and become extinct. The initial speciation of language, the birth of languages, very much followed processes of evolution. As humanity spread across the planet over many tens of thousands of years and diverged into separate local populations and races, the language also diverged and split into many varieties. For a time, as the Next Level expanded and allowed the human race to expand its populations across the globe, diversity of language was also undergoing an explosion of complexity. The diversification of human cultures, races and languages was an early phase of expansion of the Next Level of Complexity in the Universe.

In the twenty first century, it seems as though the huge initial expansion of human culture, race and language is now imploding, possibly resulting ultimately in a single global culture and language. If this happens, hopefully, we'll learn to take the best of each of the cultures and languages with us. If many cultures and languages do integrate partially or wholly, we could end up with a much more complex culture or cultures, and more complex language than any one nation would have had or could have started out with.

Even within a language, we are seeing the extinction or regional dialects. I love regional English accents and it's such a shame to see them melt away. The benefit of the loss of dialects and the benefit of the loss of smaller languages across the world is a greater level of understanding between people. This represents a mental linking-up which is surely part of where we are headed as a species and part of the Next Level. Still, as part of our collective, global, cultural heritage, the diversity of languages

does need to be preserved. Its complexity needs to be preserved. It's part of who we are. Let's not throw it away.

English does seem to be becoming more complex and diverse. David Barnhart, American Lexicographer, has estimated that in the early part of the twentieth century, English seemed to grow at a rate of about 1000 new words per year. He also estimates that today, English is growing at a rate of more like 20,000 words per year.

This exponential growth trend is entirely to be expected as part of the overall 'Next Level' pattern. Part of the Next Level of Complexity in the Universe means more complex language, concepts... everything really. The Next Level is carrying us away from our evolved biology and our evolved psychology, or rather, it's building a whole new level of existence, the Next Level, on top of the foundations of the previous levels of biology and psychology. As we free-up from more deterministic biological and psychological processes, it's obvious that as we begin to think about things differently, we'll come up with new words for new technology, new words for new concepts and new words for new social situations and arrangements.

As our minds free-up and explore more, new words emerge and evolve. New words for the Next Level.

Brain the size of a planet

This is what it all hinges on – our massive, massive brains. Homosapiens, as a species, have a huge amount of brain power. What a lovely big head! The Next Level of Complexity in the Universe is unfolding through our individual and collective brain power.

How we managed to get such a big brain is not entirely understood. One idea states that it was a shift in our diet, with the inclusion of oily fish, which provided the appropriate nutrition to feed our brains. This might be

true in part, but probably wasn't the driver but a/the facilitator. Animals don't grow big brains just because they can, it's because they are using them.

The brain is a very energetically hungry organ. It's expensive to run. Many animals have evolved to fit into a particular niche that does not necessarily need much brain power. This will result in their brains shrinking during further evolution. If an animal doesn't need to be smart, it won't be. The availability of a new food source alone, won't drive brain expansion. It might well be the other way around. An expanding brain needs feeding and might necessitate searching for new food sources.

As I've said before, in my opinion, human brain growth was down to the positive feedback loop of having a large enough amount of brain power to start with, a basic use of tools, opposable thumbs and good hand-eye coordination which allows further, easier tool evolution, and reasonably sophisticated and evolved language. The complex nature of our social, tribal society would also have added positively to the mix. All of these elements feed off of each other and synergistically allow each others growth and development.

There was not a smooth relationship or correlation between these aspects. Our brains had already expanded in size to a more or less modern volume long before the explosion of technological variety. I would argue though, that the necessary concepts about technology that allowed technological expansion were already in place. Early human life was complex enough to slowly expand our brains to their current size. At some point more recently, a tipping point was reached and technology flooded forward to fill our minds. Today it's the other way around. Technology has surged forward. The intellectual aspects of our brains are fast catching up but the more primitive caveman part of us, our emotions and our social structure, are trailing. Emotionally, it can be difficult to keep up with modern life. If the primitive parts of our minds are the limiting factors, this will create an impetus for them to start to evolve

faster and begin to catch up. This is what we are seeing now as we are becoming more emotionally sophisticated and many of our society conventions, like marriage or religion, are becoming confused as we grow out of them.

The big brain and its as yet unknowable complexity is the facilitator for the ushering in of the Next Level. It's all mediated through that massive organic computer-like structure. Every aspect about us, technology, language, social structure, beliefs etc, all have a psychological counterpart, a mental concept in the structure of our minds. As all of these concepts evolve together, holistically and synergistically, the Next Level will increasingly crystallise out, become more distinct and will start to take shape. That seems like a huge challenge that could take its toll on many minds. How do we 'go with it?' Meditation? Yoga? Our increasing emotional self-awareness should help to ease the process.

The Next Level is something beyond the individual mind. It'll be about how our brains and minds all link up together to form some collective 'new thing'. At first, it is likely to involve the waking up of individual minds to the arrival of the Next Level. Individuals will wake up to the new consciousness. All this is very confusing because we are in a transition stage. The Next Level is emerging, taking shape, but it's not fully here as yet. People, and increasing numbers of people, will start to feel more connected to their planet and all life on it, more connected to humanity and more involved with society. I know a large number of people who I'd say fall into this category. But hey, I'm an environmental campaigner and activist and environmental activists are the most wonderful, diverse and colourful people. This new connection with the Earth is a novel feeling, a new relationship. It's unique to humanity, or certainly seems to be. The relationship with our planet is something that is relatively new in human experience and is a great example of the spontaneous generation of an aspect of the Next Level.

Free will is mediated through our Next Level brain state. The Next Level increases the amount of free will we have. Think about the caveman and his biological and psychological evolved state; the evolutionary psychology state of our cave person selves. From a deterministic science perspective, our evolved biology and psychology are relatively fixed. They have taken a very long time to evolve and conventional science seems happy to leave it at that; they are as good as fixed and stable. This doesn't feel right as many of the things that I've already mentioned like our emotional states, hierarchy, social structure, are all now changing. We are now in a position to make choices about many things that were previously fixed in evolution. That lovely big brain is increasingly in a position to re-evaluate every aspect of our being. We can choose. That increasing freedom, mediated through our thoughts, is very much part of the transition to the Next Level. Our future is in our hands and we have to think our way through it and to it. This will feed into our emotions and as they become more 'Next Level', we'll increasingly feel our way through as well as think our way through. A psychological paradigm shift is on the way. We're becoming something else.

The biggest part of our minds is outside of our conscious thought. There is a huge amount of information swirling around in our skulls that we don't have immediate access to, if we've got access to it at all. We don't need everything we know to be immediately consciously available. We just need to be a 'functional biological unit' on a day-to-day basis. This is how we've evolved. That's the reductionist scientist in me talking. The non-conscious mind does most of our thinking. We absorb a lot of information on a daily basis and this is all mulled over, interpreted and categorised by our less conscious aspects. Dreaming performs an important function in this regard. It allows us to take stock during the night and sort information. Information is sieved, sorted and categorised before being put away for future use. Dreaming also allows us to integrate information into the holistic whole of who we are. Any significant information might need our minds to re-organise themselves around it. The balance of our mind, its shape, might shift ever so slightly to accommodate something

new that we see as significant. Our minds will reorganise to become more complex; a more complex holistic whole unit. Dreaming helps with this function. Part of the Next Level transition will take place in our unconscious minds.

Using the example of my Earth simulation again and speeding up the simulation to fit a millennium into a second, you'd witness a huge explosion of complexity of human thought forms, a sudden generation of wealth of ideas and concepts. Humanity awakens! It reminds me of those speeded up images seen on TV of unfolding flowers.

Information age

Technology has now evolved to the point where we can easily share information with each other. We can do this more or less instantly, globally, and with millions of people simultaneously. Currently, computers, mobile phones and information technology are the most rapidly evolving form of technology. This is of vital importance for, and is integral to, the manifesting of the Next Level of Complexity in the Universe. Suddenly we have access to so much information as well as to each other.

This is even becoming a problem for governments, some more than others. The Chinese government, for example, are terrified about what its people might begin to know. They don't want them to know and to find out that their government might actually be far from perfect. I'm sure they know it's not perfect, but lack the details. This to me is a stark example of a limiting factor for Next Level expansion; trying to control and impose barriers to the natural explosion and evolution of information. And obviously there will be a lot of pressure for this limiting factor to come to an end, partly through conscious choice, but also because you just can't stop or try to control something as unknown, massive, wonderful, and in a lot of ways inevitable, as the unfolding of the Next Level. Dictatorships have imposed limits by design which will slow the

growth of the Next Level. But even with slower Next Level growth, can they ultimately contain the Next Level? I'd say not and that they are destined to break down. Capitalism's limiting factors will also crumble, but more of that later. Democratic governments suffer the same, if greatly reduced, problems. They are happy for their citizens to know a certain amount, but not too much. They don't really want too much independent thinking, but just enough to allow people to *think* they're independent. These days, corporations are often much more powerful than governments and these too want people to think in certain easy to control ways. If their product is bad for you, the last thing they want is for you to stop using it.

The information age will begin to break this down.

Just think about that though – trying to control and worrying about what people, the population, might 'know'. Governments thinking – 'god help us, what if the public start thinking!'

This relates to some of the problems of conformity, hierarchy, emotions etc. If people are empowered by knowledge of their government's shortcomings, hierarchy and conformity weaken, and they might want to change the government. Knowledge can undermine conformity. A good example of this is religious authority and conformity. The growth of science, and therefore its informational content, has shown us many wonderful things about our complex Universe. These new ideas – facts! – have demonstrated that much of what religion is about is simply wrong. Some religious authorities will wantonly bury their heads in the sand and deny these facts. This belies their lack of growth in terms of keeping up with the Next Level. They are clinging to earlier stages of the expansion of the Next Level; clinging to earlier, simpler versions of reality. These earlier, simpler stages and the concepts that went with them had been incorporated into human society at the time using all those psychologically evolved structures of the caveman mind, e.g. the alpha male is wise, old, immortal and lives in the sky. At the time this was fair

enough in terms of the limited knowledge available. The Next Level has now moved on in terms of complexity in every way; knowledge, technology, hierarchy, emotions, leaving the forms of these concepts as embedded in religion, behind. Religious authorities that do keep up and incorporate newly discovered scientific facts into their world view also seem to be those who are more emotionally evolved, more emotionally stable. In other words, they haven't let dogma become a limiting factor for their emotional, intellectual and above all Next Level complexity expansion.

More knowledge will inform us about all aspects of ourselves. We'll know more about our bodies, brains, planet, relationships with each other, other cultures, ecosystems, the location of exoplanets and possible locations of life outside of our Earth. The expansion of knowledge and information is part of, and facilitates, the growth of free-will and allows us to make choices about all of the things I've mentioned already such as emotions, hierarchy, conformity, language, technology and intellectual concepts. It allows us to shake off redundant society structures. Having an increasingly massive amount of information out there means that as people absorb it, they'll absorb different bits of it. This could result in a greater diversity of people which also helps to undermine conformity. Although some elements of mass media seem to be having the opposite effect, giving people 'media content' that appeals to the lowest common denominator; the more base elements of evolved psychology; I guess the sort of thing that the cave people could've related to. TV talent shows are a great example.

Two interesting information-age social experiments are currently underway in the form of Twitter and Facebook. It'll be fascinating to see how these play out. They both vastly increase human connectivity. Concepts can spread rapidly, disease like, 'going viral.' Misinformation also abounds. They allow your social connections to expand greatly beyond what your mind has evolved to expect. It feels like you're part of a much more massive tribe, even if in actual fact, your 'real' interactions

with people might be similar in extent to the way they were pre-internet. Although, I suspect that these more numerous and more tenuous social connections will have a place as part of the Next Level, or will at least be a facilitating element. Being part of a much larger 'social media' tribe creates greater social pressures. It may well strengthen aspects of conformity, particularly with regard to the way people look and which fashions they follow. Such massive social exposure also seems to be exaggerating some forms of anxiety and mental illness. Eating disorders amongst people who are overly body-conscious are on the rise.

I suspect we'll eventually develop a proportional and rational relationship with social media.

Social media also allows people to be incredibly nasty, posting anonymous threats of violence aimed at celebrities or politicians. Were people always so awful with the likes of Twitter now giving expression to it or is it some new and bizarre kind of mental illness? It amazes me that some people think that it's ok to behave like that. Hopefully, such behaviour will increasingly become a discussion point in society and to some extent 'hold up a mirror' to such behaviour, allowing people to come to terms with their psychological and emotional issues that are the cause of such behaviour.

I once had the opportunity to ask the eminent (if controversial) biologist Rupert Sheldrake if he thought that the internet age and the greater social connectivity that goes with it were helping to generate a new form of human consciousness (or words to that effect). 'No' was his reply! He thought that social media was a distraction from our greater connectivity. Time, I suppose, will tell.

The information age seems to be one of the main growing, leading edges of the expansion of the Next Level of Complexity in the Universe at the moment. It enables the linking up of our individual consciousnesses across the whole planet. We can chat to and exchange thoughts with

people all over the world. That is something very new and special, another Next Level emergent property, spontaneously generated. That global information access really does make us increasingly globally conscious. We can think our way into all sorts of new places, cultures and environments and they can come to us too. Everything about life is becoming increasingly accessible. The global village is taking shape.

Family ties

The structure of the family will also change with the Next Level.

Our cave ancestors would have had a large, loose-knit extended family. A person would have been related to many of the other individuals in the group. In terms of biology, this would have made a lot of sense. If the group all look out for each other and, to a large extent cooperate as a unit, then they are benefiting their common genetic heritage. In terms of the selfish gene, if you look after those with similar genes to you then you benefit those genes regardless of which actual individual they are in. This is part of what is known as 'Kin Selection.'

Kin Selection is still, of course, a very strong instinct. We still look out for members of our own families, on the whole.

The extended family model would have continued up until relatively recently and still thrives in many parts of the planet. Modern, industrialised society resulted in greater mobility, breaking families down into the familiar unit of the nuclear family; mum, dad and kids. In the last few decades this too seems to be in decline. Many politicians bemoan the decline of traditional family structures and attempt to introduce laws to get people to conform to the model.

In the early part of the twenty first century, family units come in all shapes and sizes, for example, homosexual couples, occasional extended

families, nuclear families, single people who live as groups of friends, unmarried and child-free couples and even new eco-communities.

Once again, free-will and the ability and opportunity to actively choose a lifestyle, maybe against conformity and society tradition, is all part of the transition to the Next Level of Complexity in the Universe.

This transition is not necessarily a smooth one for family structure or also, therefore, for individual psychological health. Family breakdowns can have traumatic effects on children. The strain on families is coming, in part, from the Next Level transition. As many facets of human life are undergoing accelerating change, stable family life can become disturbed. The technological explosion, information age, consumerism and the runaway capitalism that goes with it are putting huge psychological strain on us all.

Nevertheless, with the passage of time, I think we'll become increasingly confident in making new and healthy choices about family structure. The concept of the extended family is something deeply woven into our evolved psychology. We might find ways to recreate a sort of pseudo-extended family by effectively incorporating friends into a family structure. It could be we'll reinvent a structure that we're comfortable with, the Pleistocene tribe, and set it in a modern context with new properties.

Maybe with a fully extended Next Level, we'll feel very much part of the global human family, living in the global village, welcomed wherever we go with a loss of divisions between the people of Earth. There will always be family, but expect it to be much more fluid, flexible and created by decision. We can choose.

Natural selection?

Since life began on this planet, it has been subject to the laws of 'Natural Selection.' This has given planet Earth a beautiful and complex set of interrelated, interconnected ecosystems. It has helped to give rise to an amazing and beautiful amount of biodiversity.

Natural Selection put us in the position to start out on the road of the Next Level in the first place. As we follow the up-turning exponential curve of Next Level growth, Natural Selection for humanity becomes less relevant in shaping humanity and goes into a corresponding decline. Humanity has become relatively free from biological constraints and we are becoming increasingly free from evolutionary psychological constraints. Natural Selection is an unconscious process in the face of humanity becoming more conscious.

As societies in developed nations have moved up Maslow's Hierarchy of Need, we have largely fulfilled the basic needs of food, shelter and safety. The vast majority of people in developed nations have easy access to food. They don't have to worry where the next meal is coming from. Similarly in developed nations, most people have some kind of home, a safe place to live. In terms of safety, we don't have to worry about predation from other animals. The only animal we feel unsafe from is other humans. In Western societies, and in other nations as they develop, we can overcome some of the inequalities so that no-one will be without food or shelter. I think we can feel confident that, the near-ish future, every person on the planet will be catered for in these basic terms. This is not certain though, as I'll discuss later.

Modern technology facilitates many physical tasks for us. We've got all sorts of machines to process food, or even to cook food, and we have other machines to allow easy travel to access food. We've been cooking food for thousands of years. Cooking expands the range of food that we can eat so this was an early improvement and also a slight move up

Maslow's scale. The ingenuity to use cooking meant more energy available and therefore more energetic space available in which to further develop our brains, language, tools and social structure within the positive feedback loop.

We've also overcome many human diseases so these now play a lesser role in Natural Selection for us. In developed nations, people aren't being killed off by as many diseases.

Natural Selection would have been working for us right back at the start when the Next Level began to take hold within humanity. That compatible configuration of brain power, tool use, language, dextrous hands, opposable thumbs, made us more successful as a species, relative to other species and would have been selected for in Natural Selection, allowing us to out-compete other species. Within humanity, between other humans, if you were ahead of the game and were more intelligent or a good tool maker, this would have improved your chances and you would have out-competed your fellow humans giving your genes a better chance. So the initiation of the Next Level and the positive feedback loop that pushed it forward would have been selected for under Natural Selection.

Our evolved psychology would also therefore have been subject to Natural Selection. This would also be true for other animals. They too have their psychological structures honed by Natural Selection. All those psychological features that make us who we are would have conferred either an individual advantage, collective advantage or both. In fact, for the greater part of our history, nearly three million years, the gradual expansion of the Next Level on its positive feedback growth curve would have been part of, and would have fed in to, how we evolved in accordance to Natural Selection. Three million years is plenty of time for the Next Level to express itself in our genes, making us a very unique animal. It's the Next Level and its evolution as part of us that makes us very different to other animals.

As we have already seen, we are freeing up from our evolved psychology in terms of emotions and social structures. As we are increasingly free from biological and psychological constraints, Natural Selection plays a lesser role. In accordance with how the Next Level is beginning look, it is now down to our free-will and choice as to how we continue to evolve, if we evolve at all. Physically not evolving, probably isn't an option. This situation is entirely new on planet Earth, the spontaneous generation of a 'new thing', the ability to choose how to evolve, outside of the unconscious process of Natural Selection.

Within Natural Selection, Sexual Selection still plays a big part. In other words, we can choose who we want to have children with. We've always been able to make this choice of course, but in modern times the reasons for our choices have become much more diverse and have done so as human society has become more complex. Our active choice through Sexual Selection, in its increasingly modern and diverse form, will be what drives our evolution. Some of the things that we choose are pretty obvious. We'd rather have offspring with attractive people! This is supposedly because having 'good genes' is reflected in your physical appearance and attractiveness. This is more or less true, but certain aspects of attractiveness are cultural or fashionable and are not necessarily related to genetic fitness. But, that's fine, it's all part of Next Level complexity and the increasing diversity of reasons for choosing reproductive partners even if it's an evolved psychological trait that we are able to make these choices about 'attractiveness' and related genetic fitness. That hard-wiring in the brain is not as hard and inflexible as it used to be.

As we increasingly rely on technology, we might face physical degeneration, as a choice. I make no apologies for this next example, but... Daleks. The Daleks in Doctor Who were a race of beings that had increasingly relied on technology up to the point where their physical forms had degenerated and they lived entirely encapsulated within a body

of technology. This is an extreme example but it is a possible choice for humanity in the future. As it is, we are already on the way to becoming cyborgs – half man, half machine. We wear wrist watches, walk around with hands-free mobile phones or ipods attached to the side of our heads, some people wear a pace-maker or have artificial limbs. When we drive or cycle, our bodies combine with the machine to form a new functional unit in which our brains are the software. The car or bike becomes an extension of our physical selves. Much of how our bodies will evolve from now, by choice, outside of Natural Selection, will depend on how our relationship with technology develops. We might opt for implants to improve upon our physical being. We are quite likely, in the very near future, to be wearing our computers. This will mean that wherever we go, we can be linked into the global community and all its information through the internet.

Genetic modification will also have a part to play. We can screen-out or repair genetic diseases. At some point we'll be able to grow spare parts for our bodies. We might want to choose certain physical characteristics for our offspring. We might want to try to improve on the design of our bodies by adding 'extras'.

Our future evolution, physical, psychological and everything else, is increasingly less a matter of Natural Selection and is increasingly more a matter of choice. It's less Natural Selection and more 'Next Level Selection.'

Economic growth models

Our current capitalist free-market economic system requires endless growth. A few percent expansion each year seems quite adequate. Can we go on having endless growth? Economic growth as it is, is using up limited resources and obviously can't go on forever. As human processes fill up the available space, we will come up against various limiting factors. There's only so much oil, gas, coal, fish, trees, fresh water, soil

etc. Biological elements such as trees and fish are easily renewable, if managed well. Finite resources like fossil fuels will obviously run out, at some point. Also, you can't expect to have endlessly expanding numbers of people and expect to be able to feed them all.

Economic models that need continual growth are obviously analogous to biological growth models and it's likely that the economic concepts are born out of their biological equivalent. Our caveman minds can relate to biological growth; the tribe doing better each year, the growth of your family, the growth of a tree etc, so it translates easily into economic growth concepts.

However, economics needs to learn a little more from biology and ecology. Once an ecosystem has expanded to its full range, the growth stops and reaches a state of equilibrium and maintenance. This is where new concepts in economy need to be looking; how to achieve zero growth and have a successful economy. As this idea is more of a Next Level feature, it'll require breaking away from hard-wired, deeply engrained biological growth concepts and require us to consciously calculate new 'zero growth' ones. Or maybe, as ecological equilibrium must also exist as a concept as part of our evolved psychology in the Pleistocene caveman mind, we might just need to be consciously aware of the problems of endless economic growth and 'switch' to a different, innate internal state of equilibrium. It could be that we need to choose between two evolved psychological concepts; choose the concept of ecological stasis over that of growth and expansion. It is probably the case that as we've followed the exponential growth curve and positive feedback of the Next Level that we've just habituated to the biological growth concept as we've not experienced the biological equilibrium concept for hundreds or thousands of years.

The evolution of our Next Level emotional stability, as we move to explore our emotions and become more comfortable with them, fits in here too. There's a lot of emotional attachment to the concept of endless economic

growth. Moving away from it steps outside the comfort zone of many people, economists, politicians and business people in particular. But move away from it we must. Hopefully, that concept of ecological stasis and zero growth is within us, ready and waiting to be awakened with us becoming consciously aware of it.

The luxury of ethics

I don't know about you, but I often get involved in pub conversations about various ethical issues. A common one is with regard to vegetarianism; should we eat meat or not.

I am a vegetarian. The people that I argue with over this issue almost always take the line that it's natural for us and part of our biological heritage to include meat in our diets. They then often go on to justify their position further by saying that if we didn't eat animals then all those millions of cows, pigs, sheep and chickens wouldn't exist at all and so surely it's better that they live their lives, even if those lives are not great, and that we eat them.

It is an unavoidable fact that humans are or were omnivorous, i.e. we ate both plants and animals. Some suggestions for our evolutionary direction say that a shift, a few million years ago, to eating more meat or seafood was a shift in our behaviour that helped to propel us to where we are now as a modern, sophisticated, technological ape. This may well be true. Some vegetarians will attempt to justify their ethical position by arguing that humans are not natural meat eaters and have always been vegetarian. This I find rather unlikely.

In terms of where we are now and the Next Level of Complexity in the Universe, it doesn't matter whether or not, in our origin, we used to eat meat or not, or if we survived exclusively on stuffed baby seal hearts or ate only grass. It doesn't matter. The lifestyle that we used to have over most of human evolution, whatever it was, has got us to where we are

now. And where we are now is somewhere utterly unique on planet Earth. Once again – it's about choice. Whatever we *were*, we're increasingly *not* and we can be whatever we want. We're increasingly not a natural animal, so whatever our natural diet *was*, is less relevant.

As we have become relatively free from our biological and psychological constraints and as we have collectively moved up Maslow's Hierarchy of Need we have room to choose. We can, to a certain extent, do whatever we want to do and be whoever we want to be.

If we can make choices about our own emotions, go in search of new ideas, invent new technologies and decide to change the shape of the structure of human society and relationships, we also therefore have room for ethical choices. We have an energetic space in which to sit back and contemplate. Put crudely, once we've been to the shops and bought a weeks worth of food and returned to our homes, we can sit back and think. We have time for things that are above our basic biological and basic psychological needs.

We are now in a position to take advantage of the luxury of ethics.

Vegetarianism, for me, is a good ethical choice. The increased complexity and sophistication of society with more technology and opportunity means that I can have a vegetarian diet and take in all the nutrition that I need without it being a problem – at all. Vegetarianism is not hard to do. By making this choice, for me, animals no longer have to suffer for me. As I said, some people argue that it's better that the animals are alive and exist at all and we eat them, rather than they not exist. I don't think it's a problem for these food animals that they never existed in the first place. I don't bemoan the non-existence of all sorts of non-existent things, animals or people! The farming of animals has huge environmental consequences. Roughly speaking, you can produce something like ten times as much food from the same area of land if you grow only plants as compared to growing only animals. If the whole human population of

Earth was vegetarian, a huge amount of the Earth's surface would be free from the need for us to use it and could provide additional range to our rapidly shrinking ecosystems. Or to put it another way, on a veggie diet, you could have a larger global human population, assuming humanity operated sustainably. Animal farming is also currently responsible for about 20% of global greenhouse gas emissions, adding to global warming and climate change. Vegetarianism is arguably better for your health.

Quite simply, vegetarianism is better for me, it's better for animals and it's better for the planet. And all I have to do is to decide, to choose, to commit to this ethical choice and change my lifestyle accordingly.

Similarly, we can follow all sorts of other obviously, or not so obviously, ethical choices. Do we really need to fight each other? Should I use fewer resources and recycle more? What can I do to reverse the decline of ecosystems? Which political party has the better ethical policies? Which political party fits best with the Next Level? If I'm trying to live more ethically, am I taking on more responsibility? There's been a very positive move towards rights; human rights and animal rights over the last few decades as we yield to the ethical need, but responsibility is lagging behind. For humans at least, with rights come responsibilities. I think responsibility will catch up as the Next Level and our consciousness expands, but the sooner we can be conscious about it, the sooner we'll get rights AND responsibility.

These kinds of ethical choices are consistent with free-will choices that we can make with our increasing freedom as we move into the Next Level of Complexity in the Universe. We have become more autonomous in the Universe and relatively free, and increasingly free, from the laws that apply to the previous levels of complexity that are the foundations of where we are today.

Inevitable insecurity

Humanity is undergoing a radical change. Our collective lives are getting increasingly complex. Many of the different aspects of our lives that we have been used to or even aspects that we evolved with, are changing and undergoing a transformation. Many aspects of our evolved caveman psychology are getting left behind, or are increasingly inappropriate or irrelevant. This is likely to be a psychologically traumatic process. We will experience more uncertainty in our lives; what does the future hold for me and my family in a rapidly changing world and is it all going to go wrong? It is well established in psychology that anything traumatic to the individual is going to cause a few psychological problems, minor or major, and result in a certain amount of neuroticism.

We are going to need some therapy. Sounds dramatic, but I really mean that we just need to be aware of this increasing complexity in society and humanity, think about how things are changing and, where appropriate, engage in the process to relieve any building tensions. This might be as easy and simple as having those discussions in the pub over the likes of ethical choices already mentioned. Co-counselling and group therapy, as far as the psychological problems associated with the Next Level are concerned, might just mean chatting with your mates in the pub and resolving society issues in these small groups. In the information age, talking about modern problems with millions of people on-line seems a great way of addressing some of these tension issues.

One side effect of this Next Level insecurity is the tendency to cling to things that you take for granted or think that you know or that you see as traditional or permanent. This could account for the global rise in religious fundamentalism. The most obvious of these are Islamic and Christian fundamentalism. Part of the problem is going to be that as we are freer to move around the globe and have easier access to each other and have more opportunity for contact, conflict is more easily facilitated between peoples with different cultures and societies. Within any particular culture,

an ever changing world will create this Next Level neurosis and make many people feel that the world is falling apart and that we need to return to the old ways of religious and social tradition. Some of this comes from the fact that we are starting to wake up from the inaccuracies and errors of the structure of religion as an integral part of how society works or worked. This could be interpreted by the 'Next Level insecure' that we have abandoned God and that this is the appalling result. It's a reasonably straight forward correlation; the decline of religion set against the rise of science, new facts and the Next Level. You can see how religious people might erroneously interpret this and conclude that a decline in religion is causing global problems associated with the Next Level expansion. Nevertheless, religion will continue to be increasingly undermined. Desperately clinging to it will require more and more the sticking of fingers in ears and the placing of hands over eyes (although probably not at the same time). How will religious fundamentalists cope when we, through science, discover life on other planets, either in this solar system or beyond?

Trying to engage in the process of change and working out which bits are best or which bits don't work and need to be abandoned, is probably the best way to go. Talk about your Next Level insecurity, it'll do you good. Life is changing, so engage with the change and go with the flow.

Sustainability, sustainability, sustainability

Earlier on I discussed humanity's attitude towards to environment. It's now time to return to that.

As already set out, the environment has never really been too much of a problem for us. True, life has been hard here and there with a possible drying of the climate, forcing us down from the trees in the first place, or the difficulty of the coming and going of ice-ages forcing our migration. It could have been that such environmental changes are what forced us into

a situation where the Next Level could initiate in the first place and start us out on our path of uniqueness.

Ecosystems are about balance with all the component species fitting together and working together to keep the system flowing and turning over. Before we set off down the route of the Next Level, humans would also have been in balance with the African ecosystem. As we started to become more sophisticated with the initiation of the Next Level with better tools, intellect and better survivability, we started to lose that balance.

Humanity began to spread around the globe. About 1% of all introduced species, those that are introduced into an ecosystem where they don't belong, become a problem. Clever humans, as they introduced themselves to continent after continent, tipped the balance of the local ecosystems. Wherever we went, the large animals, the megafauna, died out. Some people speculate that this was due to environmental factors and that these factors were helping us but killing off megafauna across the planet. True enough, megafauna tend to be more vulnerable to extinction and this is a distinct possibility. My feeling is that we may have eaten most of them. The exception to this is Africa where we still have elephants, hippopotamus, giraffe and rhinoceros. One theory as to why African megafauna survived our onslaught suggests that as we evolved in Africa, we were in balance with the African ecosystem, i.e. we were originally part of it. However, in most other places, once the biggest of the animals disappeared, ecosystems with us in them seemed to settle down into a new stable state - for a while.

What about evolutionary psychology, our evolved mind? Well, for a start, the environment has always been there for us to use. It's always been a resource. There are seasonal factors which would have limited some of the things that we would have needed and environmental variation would have caused a few hard times. Mostly though, there would always have been 'more environment.' We might have had to migrate to find this

'more environment' and more resources, but they were usually out there somewhere. We just had to go looking for them. From generation to generation, for the vast majority of humanity's existence, life would have carried on pretty much unchanged. It is my opinion, in terms of evolutionary psychology, that we have an inbuilt expectation that there will always be new resources coming from 'somewhere,' but that it might occasionally be difficult for us to find them. So the deeply ingrained evolutionary psychology concept, hard-wired into our brains, is 'there are more resources out there, but there might also be challenges in acquiring them.' Just chew over how you feel about that idea for a second – 'there are always more resources out there.' If we eat all of the berries in one area of forest, we move and find another patch of forest with more berries. If we employed simple fishing techniques, catching them one at a time, we are never going to catch all the fish. There will always be more fish. Surely we couldn't catch all the fish in all the oceans? And neither did we... for hundreds of thousands of years. Our in-built, pre-programmed evolved psychology tells us that the environment is essentially infinite. The use of resources isn't a problem. Sure, it might be hard this year, but next year will be better. We 'feel' that we will never run out of resources. This could be a fatal flaw for our species and subsequently, all species.

Another aspect of our evolved psychology seems to view 'nature' as, in some ways, the enemy. Nature has been described as 'red in tooth and claw.' This says more to me about human attitudes than about the rest of the natural world. Think of a parrot – is it red in tooth and claw, snarling and dripping with blood? Many Victorian gardeners hammered nature into shape, controlling it, bending the species contained to human will. Unruly trees and shrubs were clipped into neat patterns. Lawns were given precise edges and flowers grown in uniform ranks. Nature would behave and we'd see to it that it did. We would control nature and force it to work for us. We'd make sure that it's no longer our enemy, but our slave. It's almost like after an eternity of 'survival of the fittest,' one animal had eventually and conclusively won for all time – us. We won. If only this would happen in football. We could declare one team the all-time winners

and then forget about it and just relax. Seeing nature as 'foreign' allows all sorts of disrespect; hunting, eating rare species just because they are rare, shark fin soup, fur coats, dumping nuclear waste in the oceans, cutting down all the forests and much more.

Our evolved psychology, our caveman minds or at least their caveman aspects, quite naturally have an expectation that the world's resources will go on forever. We view nature as something alien and potentially dangerous so it is okay to exploit it as ruthlessly as we like. Neither of these things are actually true, but they are part of our hard-wired, subconscious, evolved beliefs. Nature is not alien to us and we share a common genetic connection with all life on Earth. All species are related. Life on Earth is one big family.

As we move through this transition phase into the Next Level, we have of course become increasingly complicated and sophisticated as a species. As we've become increasingly successful, we've gone further and further out of ecological balance. Due to our success, our global population has expanded enormously and continues to expand. With accelerating technological evolution, we are finding it easier and easier to exploit existing resources and to go after previously hard to get resources. As we expand and the Next Level expands, the ecosystems of planet Earth recede.

One of the Next Level's growing edges is our changing relationship with our planet. We are beginning to develop a sophisticated, mature and responsible relationship with it. We, as a unique species, are slowly edging into actively looking after our parent planet. We are the first species to consciously consider this. In terms of the unfolding of New Levels of Complexity in the Universe, this new relationship ticks all the boxes; it's a novel thing on planet Earth in itself, it has a new and distinct meaning, it's being spontaneously generated and is one aspect of our rapidly evolving psychology.

Can you spot the problem? The elephant in the room?

We come up against one environmental limiting factor after another. We have to learn from each of these environmental crises, get over them and fix the problem.

One of the problems so far encountered has been the use of certain chemicals punching big holes in the ozone layer. This was, and in some ways still is, potentially devastating. However, we found out what the problem was, banned the appropriate chemicals and at the last estimate the ozone hole is projected to heal in about 70 years. We have to be vigilant and make sure that all offending chemicals really are phased out to permanently sort out this problem.

Nuclear technology has its obvious problems. Who would have thought that it would create a waste product that we'd have to look after for 10,000 years? That's how long it's dangerous for. Simple burial of it might never be enough. Nuclear war is something that we have managed to avoid so far, but is still a distinct possibility. Its drawbacks are obvious. We are slowly learning that nuclear is a no-no.

Then there's over consumption and habitat loss. A great catchphrase for humanity might be – "Discover the world, and eat it!" There are a lot of things we don't 'eat' directly but that we do consume, like tropical rainforests. It amounts to much the same thing. We are consuming our way through our planet. This is one lesson that we just keep on coming back to. Fingers crossed that we pass the exam eventually. It would be fair to say that currently, this situation is getting continually worse. Ecosystems continue to recede and extinction levels continue to rise.

The ultimate challenge for us will probably be climate change. More accurately, it'll be a combination of climate change and habitat loss. Either of these things happening on their own would result in a certain amount of extinction, but together the extinction effect will be massively

magnified. Imagine planet Earth a few million years ago just before an Ice-Age. All of the planet's ecosystems would have been fully intact and occupying the full extent of their ranges with no humanity to go around using it all up. As the climate shifted, by entirely natural means, large sections of probably every ecosystem on the planet would have suffered and died off. Let's say, for example, you lose 50% of each ecosystem. Sounds bad, but you've still got 50% left and when the new climate stabilises out, that 50% will spread into new territory and re-grow into a full and complete ecosystem. Of course, some species would get lost on the way but it would most likely result in a small percentage of extinction.

Let's take the other situation – habitat loss. Let's assume a stable climate where something happens like an asteroid hitting the Pacific Ocean, causing a massive tsunami that reverberates around the World. It destroys huge sections of ecosystems. Let's say again we lose 50% of many ecosystems. The very next day the Earth is as stable as it was before but you've just had this huge destruction. The climate is the same and the sea-level is the same. The ecosystems quickly recover, re-growing into their natural ranges and, after a few thousand years, the Earth would look just the same as before, more or less. Again, a few unlucky species would be lost, but you'd probably have a low extinction rate.

So what happens if we get climate change and habitat loss together? The habitat loss that planet Earth is currently experiencing means that most ecosystems have lost some of the extent of their ranges. Tropical forests are down by over 50%. Coral reef has receded largely due to pollution and direct damage. So let's take that 50% figure again and apply it to the whole planet and call that the average current loss. That's pretty realistic as an average. Now let's add the other big one – climate change. This will also cause a significant additional percentage loss of ecosystems. Climate change and habitat loss together will magnify how bad the extinction is going to be, coming together in an unhealthy synergy. At what point will ecosystems be allowed to recover and from what point, what percentage

of degradation are they expected to recover from? Just 10% left, less than that?

As an example, imagine a forest ecosystem where we have cut down 50%. Let's say that we have cut down the whole of the north of its range. Then along comes climate change, let's say a climate warming, which will change the extent of the forest's natural range. With a warmer climate, the forest would naturally die-off in the south of its range and new territory would open up in the north as, say, tundra melted. But wait a minute, haven't we just cut down all the forest in the north and now the only area where the forest remains, in the south, it's no longer capable of doing so. Our example forest faces total annihilation. Many of Earth's ecosystems are facing this very problem; their habitats partially destroyed and a changing climate trying to move them on. Millions of species will find themselves with nowhere to go.

Climate change and habitat loss together create a double-whammy for the Earth's ecosystems.

Climate change or habitat loss alone would create a small amount of extinction. Put them together and the effect is magnified in hideous synergy and you've got mass extinction. Have I laboured this point enough yet?

And have you spotted the elephant in the room, the ultimate problem?

It's this – the continued expansion of the Next Level is by no means guaranteed. It might all come to nothing. If we get it wrong and destroy the Earth's ecosystems *before* we get the hang of being active caretakers and guardians of our planet, that whole built up structure and complexity could collapse.

The ecosystems are the foundations as well as part of the previous levels of complexity, upon which all of humanity's complexity is based. We are pulling the rug out from under our own feet.

We are at a crucial stage for the development of the Next Level. We're getting there; we're starting to have ideas about looking after the Earth and we've implemented a certain amount of protection. But will we get there in time, or will it be too little, too late?

I've called this chapter 'sustainability, sustainability, sustainability.' You could almost sum up the main lesson that humanity has to learn in the twenty first century with that one word; sustainability.

The word is much used, even over-used, these days, mainly by politicians and policy makers, who know that it's important but without fully grasping what it really means.

Sustainability means that everything we do and all other aspects of the planet's functioning can continue indefinitely. This means that we need to get our electricity from renewable technology – wind, wave, solar, tidal and a little biomass. The things we currently use for energy production – oil, coal, gas, nuclear – will all run out. Some 'new nuclear' has potential, but we'll have to see how and even if, it develops. Wind, wave and solar power will last for ever. At some point, we will have to stabilise the Earth's human population. It's hard to say what number of humans counts as sustainable. It depends on what sort of lifestyle we want. If we all want to eat meat, maybe 3 billion humans, if we're all vegetarian, maybe 4 billion. Agriculture has to be sustainable. We can't go on trashing rainforest to grow cattle for fast food burgers or to grow soya to feed cattle for fast food burgers or to grow palm oil for biofuels. At the current rate of fish extraction (modern fishing is more like fish strip-mining) the whole planet will be over-fished by 2050. One current and popular idea is to put about one third of the entire planet's seas and oceans off-limits to any kind of industrial activity, fishing included, and

create marine reserves (see various Greenpeace websites for more information on this subject). This might well allow a complete re-growing and re-expansion of ocean ecosystems in such areas. We only fish the remaining two-thirds. It's not quite as simple as that. Some species are nearly impossible to harvest sustainably such as many sharks, whales and turtles, wherever they live. Personally, I'm vegetarian and I'd favour leaving the oceans alone altogether. This luxurious ethical choice has a certain amount of in-built sustainability.

We also need to recognise what the Earth's ecosystems provide for us, often referred to as 'ecosystem services.' Ecosystems provide food, water, oxygen, materials and can deal with waste disposal. Again, this all needs to be managed sustainably. A recognition and awareness of ecosystem services will help us with making what we do, as a species, sustainable.

The principles of permaculture will need to be increasingly applied to industrial processes as a way of making industry more ecologically sensitive. This means looking at the inputs and outputs of any process. Can inputs be reduced or made more sustainable? Can outputs, such as waste, be minimised or re-used? Can businesses be partnered, where the output waste of one business is used as the input feedstock for another?

As the Next Level has expanded and unfolded, we saw the birth of the science of ecology. This was an acknowledgment of the complexity of our planet's ecosystems. Knowledge gained from exploring the nature of ecological complexity will be extremely important in getting the hang of sustainability and our relationship with the Earth.

Personally, I get a deep down sense of connection to my planet. It's a beautiful place of which we, humanity, are an integral part. We are embedded in it, inextricably linked to it. I look out the window and feel personally connected to whatever species I'm looking at. I feel that all species on Earth are part of the same family. That's what I feel when I

look around at the world. I'd say that that feeling of oneness and connectivity is part of the Next Level.

Part of the Next Level expansion and unfolding is the development of a mature and responsible relationship to and with our planet. This is a whole new feature of our psychology and a psychological first for our planet; the birth of a concept that no other animal has or has ever had. It's something we don't currently have because of our hard-wired, 'cave man' evolutionary psychology, but it's a new aspect of our psychology that needs to evolve. If not, it'll all come to nothing. The Earth will have its sixth mass extinction, and in a few million years, it will go back to being a paradise filled with amazing newly evolved species and with rich and complex ecosystems. But there might be no humanity, no technology, no space travel and no connection to the rest of the Universe. In short, no Next Level or subsequent Next Levels.

Part 4 - Conclusion

So there you have it. The Universe evolves through a series of levels. Each level is built on the foundations of the previous levels. Each new level has new properties, a higher degree of complexity and means something different, something new.

A new level, what I've referred to as the Next Level, is unfolding right now and is bursting forth through humanity. That's pretty amazing. If it completes its unfolding, we'll become very special indeed, unique and almost alien on our own planet. We will be something new and exciting in the Universe, the Next Level, expressed through humanity. It is very likely that what is for us the Next Level, has probably already happened on other inhabited, technological planets. But for Earth, it'll be something totally new; a whole new order of existence. We're catching up with the complexity of other intelligent beings in the Universe, in this galaxy and beyond.

As the Next Level unfolds we will become increasingly independent of our deterministic, pre-programmed biology and hard-wired evolved psychology. The choice element of our psychology, conscious awareness, the soft-wired flexible Next Level aspects of our minds, will become increasingly large and complex and will come to dominate.

And that's the key word – choice. We can choose. Our evolution from here on will increasingly be a matter of free-will conscious choice.

Evolutionary Psychology will eventually describe our 'cave man', Pleistocene minds, the bits of our minds and brains honed by evolution, but no more than that. It won't be able to describe who we are increasingly becoming. It won't be able to describe the Next Level structures.

Our cave man minds and the minds we had before we were 'human' when we were apes, monkeys and so on, back through time, have evolved along deterministic lines for millions of years. That progression of our psychological evolution has been as long and slow as our physical evolution. Next Level aspects of our psychology are growing in complexity and diversity and are evolving very rapidly. As this continues they will become increasingly important. They will feed back into our evolved psychology and shape it, re-shape it and mould it to fit and work with whatever we choose to become. We will choose the direction of the physical evolution of our brains and bodies. No other animal on the planet has ever had this feature; an internal force, internal to each individual animal, to cause a rapid increase in the rate of psychological evolution, of our evolved psychology, moving off on a whole new tangent. Evolution by choice. Our clunky-old-ape evolved psychology will evolve along new lines, in a novel direction not based on the old determinism and Natural Selection. Those hard-wired Evolutionary Psychology features that have taken so long to be gently shaped over the multi-millennia will take on new form and direction and break with, what up till now, has been an almost mappable, plot-on-a-graph-able progression. This will take a long time as it will involve actual genetic changes, in part, but the new Next Level selective pressure will create the effect of a huge upswing in the evolutionary rate.

We'll increasingly make choices over many things that have been fixed for thousands or millions of years. We'll be able to make choices about what sort of bodies and what sort of minds we want. We don't *need* to keep eating animals; do we want to carry on or go vegetarian? We don't *need* to keep fighting over resources whether interpersonally or internationally. We can make sensible choices about them. We don't *have* to follow deterministic biological population growth patterns and eat everything on the planet until the human population collapses due to lack of food resources. We can *choose* a new and vital concept – sustainability. Sustainability by choice and design rather than unconscious long term natural ecological sustainability; something which currently we are

obviously way beyond and outside of. Sustainability will return to this planet, one way or another. But will it return under our conscious control, keeping a high level of biodiversity, or will it all fall apart in the short term with humans destroying the planetary ecology followed by a gradual stabilising out of the biosphere, with far fewer species, after our extinction? If this is all about choice, which would you choose?

We won't have to ditch the 'cave man' psychology in its entirety. Most of what we see as being 'good' about humanity, things that have been around for millions of years and are part of our evolved psychology, are worth keeping. The basic good things in life; family, friends, normal human relationships, enjoying the beauty of the world, all/most of our emotions, all of that good stuff is worth hanging on to. It'll increasingly be a matter of a choice from now on to do so, but it'll be an easy and natural choice. These basic elements will change to a certain extent, because we'll become increasingly consciously aware of them, so their context will be different and they'll be expressed differently. The 'good bits' we keep will grow in complexity and diversity and the bits we don't want will shrink and become more harmless or will be shaped to fulfil an altered or reduced function. This translates into, for example, instead of fighting each other in the street in order to receive some sort of emotional, hormonal fulfilment, we might go rock climbing or pursue 'extreme ironing.'

Relaxing with what are human basic needs, I think, takes some of the heat out of any tensions between humans; once we realise what those needs are. The things we really want in life; food, security, a place to live, love, interpersonal relationships with friends and family are in some ways, on an emotional level, all there is. These are all we really want, subconsciously. As long as we've got these, we don't need to compensate for their lacking with consumerism, accumulating money, buying bigger houses or cars or struggling to maintain some kind of illusory social status of being 'better' than other people. Addressing those needs means that we can relax with ourselves, who we are, and with each other. Fulfilling

those needs is all we really want. Once we've got that stable emotional base and grounding, we can then progress up Maslow's 'Hierarchy of Need' scale and fulfil intellectual and artistic needs, other sophisticated psychological needs, culminating in self-actualisation – becoming all you can be. With self-actualisation and self-knowledge comes a more simplistic personal stability, the stability of being 'well rounded' and relaxed, where we've left behind internal chaos, in which we can stand back from the chaos of modern life. We're still actively involved in society, but with more awareness and with more positive involvement instead of having apathetic feelings of being a victim of an uncontrollable and out-of-control society.

Over recent centuries and the twentieth and twenty-first centuries in particular, we've seen the massive explosion in number and variety of intellectual forms, concepts and a corresponding explosion of diversity of technological forms. If you were to take intellect and/or technology as separate 'levels of complexity' in themselves, their recent evolution could be likened to the Cambrian Explosion of the diversity of biological forms some 550 million years ago when a huge upturn in biological complexity and diversity occurred. All these new types of animal with various body forms seemed to pop out of nowhere. The huge upturn and exponential growth in variety of form of technology and intellect is integral to the development of, and is part of, the Next Level. This huge diversity of form has corresponding Next-Level-psychology components and concepts within our minds which will interact with, and change, our 'cave man' evolved concepts. Our minds have a lot more in them than they used to. We are becoming more than we used to be.

Our evolved psychology has been the entirety of our psychology for our entire existence, over millions of years... up until now. The new components of Next Level psychology will grow in number and diversity. These novel, Next Level aspects of mind will interact with the elements of mind we've had for millions of years. The old and new aspects of mind, together, describe who we are. The old and the new will have an effect on

each other, they will interact and shape each other, but still the Next Level elements will continue to increase in diversity and effect and shape this interaction. The long evolved aspects of our minds will change in form and shape. Increasingly, Evolutionary Psychology will not be able to describe who we are. We will have begun to evolve into something new.

One possible loss from our Next Level expansion, from our cave man days, is that feeling of wilderness; what real wilderness feels like. It's an amazing thing to be in an area with a complete and untouched ecosystem with large predators and potential danger. I find it gives me a feeling of respect for nature. It is humbling and you do feel a connection with it; it's a special feeling. It's also something that humanity is becoming increasingly distanced from. It's something valuable that we're losing. I hope it is something that we can re-gain; or in the developing world, hang on to. 'The environment' seems to most people to be something distant without them realising that they are immersed in it and are an integral part of it. Your body is matter, flowing through the Universe. Try this on for size – many of the atoms in your body would once have formed the bodies of living, breathing dinosaurs.

We are in a transition stage, on the way to a complete Next Level. One thing I've deliberately not mentioned so far is what the Next Level might look like once it's finally established.

That's a good question. This is where we hand over to science fiction and wild futurology. Part of the definition of each of the previous new levels is that their properties were unpredictable, with new properties not seen in previous levels that had new meanings. The complete Next Level is likely to be, to a certain extent, unknown and unknowable. I've described what I see as directional trends in the unfolding of the Next Level in terms of where our psychology is going, but how it'll look at the end of the transition phase, once the rate of change in our psychology has slowed to a near stop, once we've got there, is harder to know. If we can survive what we're putting the planet through, which at the moment looks like a

double-whammy of climate change and habitat loss, we'll be very different to what we are now.

Things do seem to be brewing though, in our subconscious, with vague talk of things like 'the Dawning of the Age of Aquarius,' the Gaia Hypothesis and 'New Age Movements.' We also have the negative side of these feelings with dark, apocalyptic interpretations of the future with films like Terminator, Blade Runner and The Matrix. Maybe a machine dominated future *is* the Next Level? What we now refer to as artificial intelligence (AI) might evolve into something superior to human intelligence with humanity remaining very ape-like while AI takes up the reins of Next Level evolution and takes it forward into the future, leaving us behind. Or maybe we'll combine with AI and/or download our consciousnesses into artificial android bodies and leave our biological bodies behind?

Perhaps the Earth will awaken as an individual and conscious entity of which we are its foundation, its individual components, like the individual cells in our bodies. Maybe this is where the Information Age and complex human psychology is headed. We'll all link up with all that information via all that technology to form the new conscious global entity. The global internet could become the neurons of a global brain. It might be the case that in the near future, we'll be wearing our computers, once suitably miniaturised, and we'll be permanently connected to the internet and each other. With current mobile phone technology, we're essentially already there. Wearable tech is certainly taking off. We might get to the stage where we're interacting globally and *subconsciously* via our permanent internet connection. The global hubbub quietly carrying on in the back of our minds. A subconscious connection to all that information and all those people and with us subconsciously responding to it... what would that be like? A global brain? I seem to remember Isaac Asimov, in his Foundation series, describing a process where individual planets become conscious entities, followed by individual galaxies becoming

conscious entities and eventually the Universe itself becoming a conscious individual.

Maybe the Next Level will be humanity developing a collective consciousness. We could all become telepathically interconnected, consciously or otherwise, again, possibly mediated through technology. The emergent unit consciousness of planet Earth as an individual entity could be where we're headed. The Information Age is certainly linking us up, globally, allowing the free flowing of ideas and communication; changing global perceptions. As individuals, we are increasingly connected to the global 'whole.'

Just as we've come to understand biodiversity, at some point in the not-too-distant future, we might chart our analogous psychodiversity.

It could be that we discover, and can *prove*, that we do have a spiritual existence after all and that this is what unifies us as part of a collective 'one.' No old gods required. Some physicists are looking for a grand unified theory of everything and maybe spirituality is the missing component, soon to be proven by science. Fingers crossed for the Large Hadron Collider. Once we're consciously aware and accepting of the spiritual dimension, if it's there, maybe it will open up for us, allowing us to connect globally, linking us together without computer connection, or maybe in addition to a computer and internet connection.

I think it very likely that we will at least move on to terraform other planets, again, assuming that we get over the hurdle of 21st century sustainability issues. We'll start with Mars, Venus and the moon and move on to inhabit large parts of our solar system. This will be incredible, to bring life to dead planets, assuming that they are dead. Mars, for example, is very likely to have a basic bacterial ecology and we'll have to make an ethical choice about how to preserve it while still terraforming the planet. Long before we start terraforming, we'll almost certainly discover these primitive ecological systems on various planets and moons

in our solar system. The impact of these discoveries on our psychology, globally, will be immense and the Next Level will take a surge forwards when the discoveries are made. Once technology has advanced sufficiently, we'll move out into the galaxy. Humanity moving on and taking all the complexity of life with it, I think is a beautiful idea.

It's likely, I think, that we'll be welcomed into the existing galactic community, assuming that there is one, a community consisting of dozens, hundreds or thousands of planets inhabited by intelligent beings. Now *that* ticks the box of 'new meaning' of a new level. This would have a revolutionary effect on everything about humanity; what and who we are. It would give us a sense of location in our galaxy, rather than the assumption that we're at the centre of the Universe. Just try to imagine the effect on the individual human mind or the effect on our societies if we knew that there were many inhabited planets out there. Now imagine that we could visit them or even just to be able to know what they were like. How would humanity change with this knowledge? It would take a while for us to calm down emotionally, and this would result in us *changing* emotionally although most of the change, I think, would be an intellectual change, adding to our intellectual, Next Level, expansion. Imagine these new intellectual features and how they'd interact with our evolved 'cave man' psychology and how much impact they'd have on re-shaping it. Once again, Evolutionary Psychology is left behind in its ability to describe the future 'us'. The concept of being part of a galactic community would be literally alien to us. It'd blow our minds. It'd be a concept and feeling, never before experienced by anyone or anything on Earth.

Once our global brain, collective consciousness joins the galactic community, we might join these other global brains of other worlds across the galaxy, with all the global brains of our galaxy linking together, to allow our galaxy to attain a galactic consciousness, as Asimov described.

In the more immediate future, my fond hope is that we do learn to live with, protect and look after the beautiful complex ecosystems of our planet. What a shame it would be to lose all that beauty; all those amazing plants, animals and ecosystems. Plus, it might be the case that we need all the other species, or as many of them as possible, to link in to our global collective consciousness. All the species of the Earth might link up to form part of the same global mind. Maybe all the Earth's species will become spiritually connected, with the connection initiated by humanity. It could be that we do have a mass extinction but still progress into the Next Level. How dismal to have that entire new complex Next Level consciousness with which we'll be able to look back on all that destruction and be fully able to appreciate the depth of its horror. The yawning chasm of sadness and loss.

Part of looking after our planet involves a complete overhaul of the dominant economic model. It is plainly obvious that you can't have endless, expanding growth in a finite space. A key lesson for humanity in the 21st Century will be to get the hang of sustainability. Sustainable ecology *and* sustainable economy.

Finally, the Next Level needs you! It is expanding and unfolding due to and in response to our active involvement with it. Don't take a back seat. Get involved with life in whatever way you see fit. I myself have been a Greenpeace activist for many years; I've been on a lot of Greenpeace actions and I've been arrested several times. I can't tell you just how much fun it's been! That's the big secret about getting involved in activism – it's fun! It's a really rewarding experience to be actively involved in shaping the world you live in, however you choose to do it. It makes you engaged with your society, engaged with other people and engaged with the process of its transformation. Find whatever activism suits you and just do it! At this point, it might be worth having another look at my comments on conformity. Nothing stops people getting involved, and being different, more than conformity.

So when you're wondering who you are and what life might be about; remember this book. Bear in mind the entirety of space and time and your place in it.

You'll get there. We'll all get there. Success seems the best option.

The Next Level; unfolding like an opening flower...

Cave man has left the building.

END