

From Gaia, with Love ...

Climate change—accelerating; sea levels—rising; polar ice—disappearing; and a mass extinction well under way ... one might expect that most members of this threatened species of ours would be grimly preoccupied with plans for survival. But remarkably, one would be wrong. We just can't seem to take our eyes off each other long enough to get excited about such vast, intangible threats. And although United Nations data shows that we are already racing toward population collapse (Graph 1), this too, is generally unrecognised, disbelieved or ignored. Meanwhile, the fuel that underpins modern civilization, oil, will virtually run out within the same time frame (Graph 2), causing global power failures, industrial collapse, looting, aggression and widespread starvation.

Those few who are aware of the scale of these threats usually believe that they are largely due to human ignorance, incompetence or greed and can therefore be corrected. So these environmental whistle-blowers call urgently for drastic reforms; but the political response is invariably negative: "The economy can't afford such drastic changes, besides, market forces and human ingenuity will enable us to ameliorate such problems, or adapt to them, just as we have done many times in the past."

So the climate continues to deteriorate, sea levels continue to rise and mass extinction bites ever more savagely into the planet's biota. Meanwhile, our global population grows larger, more energy-hungry and more unsustainable with the passing of each day.

Judging by the fossil record evolution has a neat solution for such intractable situations. The population explosion of the offending species is invariably followed by a similarly abrupt population collapse, occasionally to the point of extinction.

Evolution's great strength lies in the fact that even the most efficient and fecund species are vulnerable to culling. This universal vulnerability hinges on what might be called the Peacock Effect. In peacock society the male's spectacular tail is a major reproductive asset, but only in the species' birthplace—a forest. Should the forest disappear, the peacock's cumbersome tail instantly doubles as a gaudy advertisement for fast food in the eyes of any passing predator. All species possesses adaptive specialisations that have enabled them to survive and reproduce within the habitat that nurtured their specialisation. But change the environment, and such specialisations become handicaps: the more extreme the specialisation, the more lethal the handicap.¹

In other words, each species has its own personal peacock tail, even that paragon of animals, *Homo sapiens*—although you wouldn't know it to look at us. Yet in an evolutionary sense our peacock tail is just as spectacular as the bird's. The difference is that it is entirely intangible and very well concealed, residing as it does in the three billion base pairs of our DNA. Our peacock tail is our inherently mystical nature. It is expressed in our peculiar capacity to believe implicitly in the patently unbelievable, and to attribute unnatural power or mystical significance to anything that either contributes to, or threatens, our genetic survival—thereby revealing its true origin. Mysticism's universality and its umbilical links to DNA's primal imperatives, 'survive and reproduce', clearly identify it as a genetic artefact.²

The mechanism itself is intriguing. Our multitude of mystical beliefs invariably bind us into groups that unequivocally distinguish Good from Evil and Right from Wrong, and prize group loyalty above all. With gratifying speed and dexterity such mystical nonsense not only identifies our friends, foes, heroes and villains, but also places us at the hub of our perceived universe. No gene could wish for more. Whether our mysticism incorporates a belief in supernatural forces such as gods, angels, witchcraft, astrology and intergalactic aliens, or merely believes in memes, fate, tea leaves or market forces, the precise nature of the belief is of little consequence to our genes. The only thing that matters is the quality of the tribal passion that those beliefs generate. The more pervasive and powerful the belief within the tribe, the more formidable the tribe, regardless of its size. "We few, we happy few, we band of brothers." This is our genes' ultimate weapon of mass destruction.

Mysticism of some kind or other colours most of our conscious existence, and by assuming a multitude of forms and appearing under a multitude of culturally approved banners it manages to conceal the fact that the behaviour it prescribes originates not in our rational brain, but in our genes. To put it another way, our genes evade rational censorship by hiding their ancient behavioural responses inside a team of Trojan horses that are variously categorised as 'culture', 'tradition', or 'morality'. We even have pet names for many of them—duty, justice, honour, good, evil, love, hate, etc. We might not recognise the genetic origin of those gaudy horses but we can always tell when our genetic cavalry is charging to our rescue: we succumb to a heady tide of powerful, mystically generated emotion.

However extreme and inappropriate some of our emotional behaviour might seem in the cool light of rational hindsight we should also remember that those same responses must have worked very well indeed for at least a million years or so, or they would not still exist within the genome of our species. In fact, the most primordial of those responses, those involving sex and its genetic by-product, children, originate in the mammal-reptile-amphibian core of the human brain and are hundreds of millions of years old.³

The catalytic factor that transformed such valuable personal assets into a powerful evolutionary weapon was our ancestors' extraordinary ability to communicate their mystical concepts via complex language. The intimate partnership that sprang up between mysticism and language bound our ancestors into cohesive social groups that displayed an extraordinary degree of altruistic cooperation whenever they were subjected to external stress. Should an individual come under external threat the whole group would close ranks and respond to that threat with disproportionate savagery accompanied by a 'heroic' disregard for personal safety. It was a strategy that regularly out-gunned the fangs and claws of even the most formidable of their ice-age predators. Honed by two million years of inexorable Darwinian selection this genetically based cultural innovation eventually catapulted our physically ill-equipped genus from the brink of extinction to total domination of the planet's surface. And it achieved all that in the blink of an evolutionary eye.

Unfortunately for us however, the hunter-gatherer environment that gave birth to our spectacular peacock tail has all but disappeared, and with almost 6.5 billion individuals now crowded together in deteriorating habitats all around the world we are beginning to see the dark underside of our species' peacock tail. And amid the fearful hazards of a bruised and destabilised environment the mysticism that once served as our shining Excalibur has now become the fanatic's flick-knife that threatens to disembowel us.

Life builds its organic mansions primarily of carbon. This common and very stable element offers a heavy-lift trucking service for more reactive elements, such as hydrogen and oxygen, and carbon also provides the stout molecular scaffolding that supports each cell's complex internal structures. Consequently, when life thrives and proliferates it acquires the large quantities of carbon that it needs to build and service those structures by extracting carbon from the environment, and especially from the atmosphere. But carbon molecules also act as atmospheric heat sinks; so when life proliferates, the planet's carbon blanket thins, allowing its radiant heat to escape more readily and the global temperature to fall. Should the global temperature fall too far, however, the extinction rate rises, releasing carbon and raising the global temperature once more. Via this highly sensitive feedback mechanism, life not only regulates the pattern of energy exchange throughout the biosphere, it thereby regulates itself. This global thermostatic process is commonly referred to as Gaia.⁴

Earth's Gaian machinery is thus geared to ensure that those species which extract either too little or too much energy from the biosphere, do not survive. By continuously harvesting a grossly disproportionate quantity of energy for our body-size, and having discharged most of our disproportionate carbon waste directly into the atmosphere, we must now expect the standard Gaian consequence: an increasing shortage of usable energy (food and fuel) and a growing surfeit of unusable energy in a dangerously unstable atmosphere. This thermodynamic pincer movement of dearth and surfeit is Gaia's standard response to animal plagues everywhere, and it inevitably entails a massive culling of the offending population. With our fecundity decline now in its fortieth year (see Graph 1), and with mystically based aggression already on the rise around the world, our Gaian retribution now seems to be very close and unavoidable.

As regional shortages of food, water and cultural fuel (notably oil) worsen, mystical extremism, our standard stress response, will widen all social and cultural rifts to breaking point—between Christian and Muslim, between Wahhabi, Shiite and Sunni, between Arab and Jew, between political creeds of all colours, and most lethal of all, between the rich and poor of all nations. This social disintegration will be enhanced by a broad spectrum of genetic and hormonal dysfunctions that fall within the spectrum of an evolutionary mechanism known as the General Adaptation Syndrome (GAS).

First identified in rodents in the 1930's by the Austro-Canadian endocrinologist, Hans Selye, this syndrome appears to be evolution's standard response to overpopulation. It is a very useful auto-collapse mechanism that cuts in to limit mammal plagues before they degrade their habitat to the point of biota collapse. The early warning sign that this GAS solution has been triggered is when the growth rate of a 'plague species' becomes exponential and achieves an annual rate of 2% or more. Our species reached an annual growth rate of 2% in 1963. It peaked just above 2.1% in 1966, and then began a fecundity decline that is now accelerating. In an evolutionary sense then, it seems that our population collapse has already begun and our evolutionary fate is sealed.

That conclusion might sound unduly alarmist, but a quick glance at just four or five crucial graphs will show that Earth's energy gradient has been so severely deformed that a human collapse is now essential if the planet's entropic gradient is to restabilise and biodiversity is to recover its former richness.

The paradox—from our anthropocentric point of view—is that the Gaian machinery that maintains Earth's biosphere requires humans to continue all the most disastrous, energy-hungry aspects of their present technoculture. This will ensure that our species' collapse is successfully concluded as fast as possible and conforms to the standard population 'spike' the typifies all mammal plagues (see Graph 1).

From that perspective it is essential that grossly wasteful, energy-guzzling mythologies, like those underpinning economic growth, globalisation, free trade, economic rationalism and unlimited consumer choice, remain sacrosanct and unchallenged in Western democracies. These consumptive dogmas will ensure, for example, that some 80%-90% of the energy that humans consume each day is dedicated to the manufacture, marketing and distribution of products that are wholly unnecessary to the maintenance of a viable, peaceful and humane society. It will similarly ensure that Western nations remain dominated by business-oriented governments run by corporate lawyers and economists; this will ensure that the problem of Greenhouse gas emissions remains unsolved, and it will ensure that the gulf between rich and poor grows wider by the day in the name of economic growth and progress. It will also ensure that these governments retain their grip on power by pitching their seductive propaganda to an increasingly religious audience of increasingly fearful voters. The evidence for this is now overwhelming in the USA and clearly apparent in Australia.

Commercial competition and technological 'progress' will also ensure that most human communication, especially educational communication, will soon be conducted via the Internet. This will ensure that when the world's major power grids go down for the last time during the next couple of oil-starved decades, the bulk of the world's vast store of acquired wisdom and knowledge will be confined to books once more, and few will have the means, the time, or wit, to retrieve it.

Fortunately also—from a purely Gaian point of view—fundamentalist faiths like Islam and evangelical Christianity are already gaining strength around the globe. As shortages of food, water, petroleum and electricity become more pressing, these aggressive forms of genetically nurtured delusion will contribute, with ever growing efficiency, to our species' disintegration and collapse.

The pivot upon which such lethal delusions invariably turn may be summed up in a word: anthropocentrism—the mystical belief that *Homo sapiens* is fundamentally different from all other species, the belief that we are 'special' and therefore not accountable to the thermodynamic laws of existence on a small and finite planet.

The rigid linkage between unbridled cultural success and terminal cultural decline is well documented and has echoed throughout history since the collapse of the Maltese culture some 4,000 years ago. It was most recently exemplified in the eastern Pacific by the collapse of the vigorous Easter Island culture during the seventeenth and eighteenth centuries. The same spectrum of cultural and environmental

symptoms that heralded the collapse of these cultures is now discernible on a global scale and promises to shape our population graph into the standard 'population spike' that typifies all so-called plague species (Graphs 4 & 5). This spectrum of symptoms can be termed the Easter Island Syndrome.

Earth is home to some 20–100 million species of organism, all of them shaped and driven by exactly the same four-letter molecular code. As one of its multitudinous by-products we should assume that the evolutionary rules applying to all other species, must equally apply to us. To believe, perversely, that we alone behave rationally rather than genetically, and that we can therefore flout the thermodynamic rules of biological existence, is to bet against odds of at least 20 million to one. One might expect that only a deranged gambler would consider such a bet, yet the following words appear in one of the most influential science books of the twentieth century.

"We are built as gene machines and cultured as meme machines, but we have the power to turn against our creators. We, alone on earth, can rebel against the tyranny of the selfish replicators."

(Richard Dawkins, *The Selfish Gene*.)

And therein lies our species' *hamartia*,⁵ the brilliant evolutionary 'flaw' that is now about to undo us. If good scientists like Richard Dawkins are prey to such naïve delusions, our species' prospects for survival are grim indeed! So with the classically Greek concept of *hamartia* in mind, it seems fitting to give the final word to the goddess Gaia herself:

My dear *Homo sapiens*,

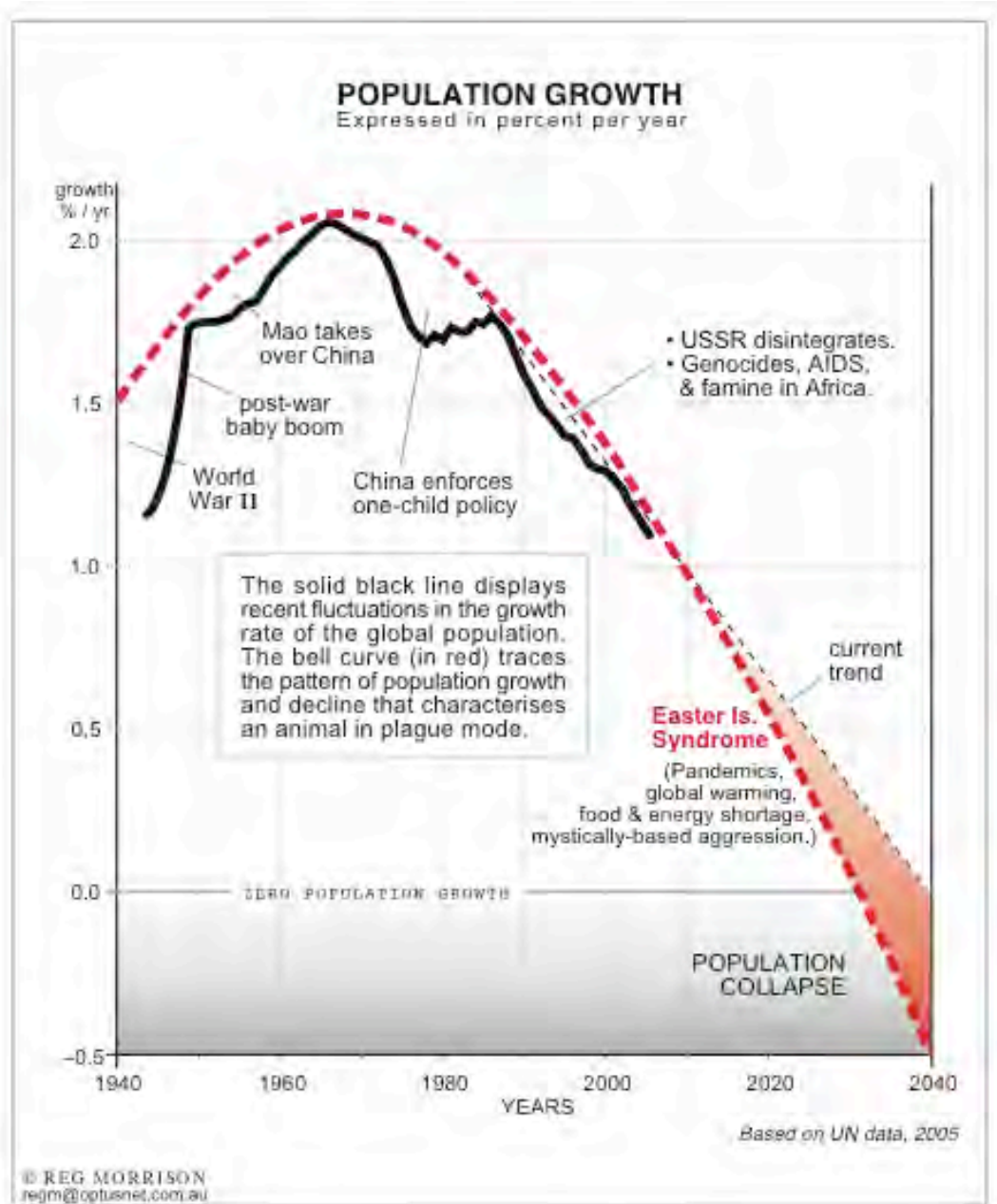
To quote your finest writer, what a paragon of animals you turned out to be! "How noble in reason! how infinite in faculty! in form, in moving how express and admirable! in action how like an angel! in apprehension how like a god!" And to think that such glittering evolutionary success could spring from such dismal origins! Consider your birth, stranded as you were on East Africa's dangerous plains, with an ice age looming and neither fighting teeth nor claws, nor even four fast legs to carry you to safety when the sabre-toothed cats closed in! Indeed, the only thing left in your battered evolutionary tool-bag was a glistening tangle of new and untried neurons crammed into your bulging chimpanzee cranium. Yet thanks to some selective Darwinian tap-dancing, that overgrown, lop-sided brain of yours finally came up with evolution's most brilliant innovation: extreme mystical belief—personal, tribal, cultural and economic. It didn't meddle too much in technical matters, and yet in all matters of evolutionary consequence it was able to switch out the rational cortex at a moment's notice and respond with emotion-fuelled genetic behaviour. Here was the sharpest and brightest evolutionary blade ever to be unsheathed on this green and fertile planet! Here was the most formidable animal ever to walk the Earth.

How sad then, that you should come at last to the end of your comet-like trajectory through time ... to global warming, melting icecaps and rising seas; to global overpopulation, unsustainability and catastrophic population collapse. But harbour no regrets, it's nobody's fault. You are, after all, stardust enlivened by hydrogen, and such is the nature of existence in this hydrogen-regulated cosmos of ours.⁶

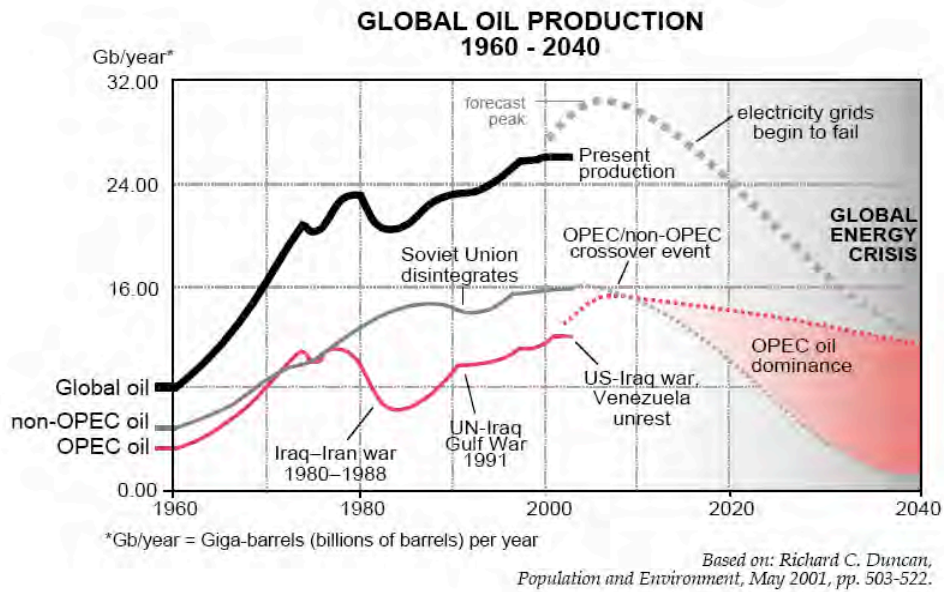
Meanwhile, what inner satisfaction your gleaming Excalibur still gives as it leads you, bedazzled by fairytales, towards extinction's gloomy precipice! You'll not go gentle into that long goodnight, but thanks to mysticism the going should at least be spectacular and swift.

With love, and deep regret,
Your Mother,

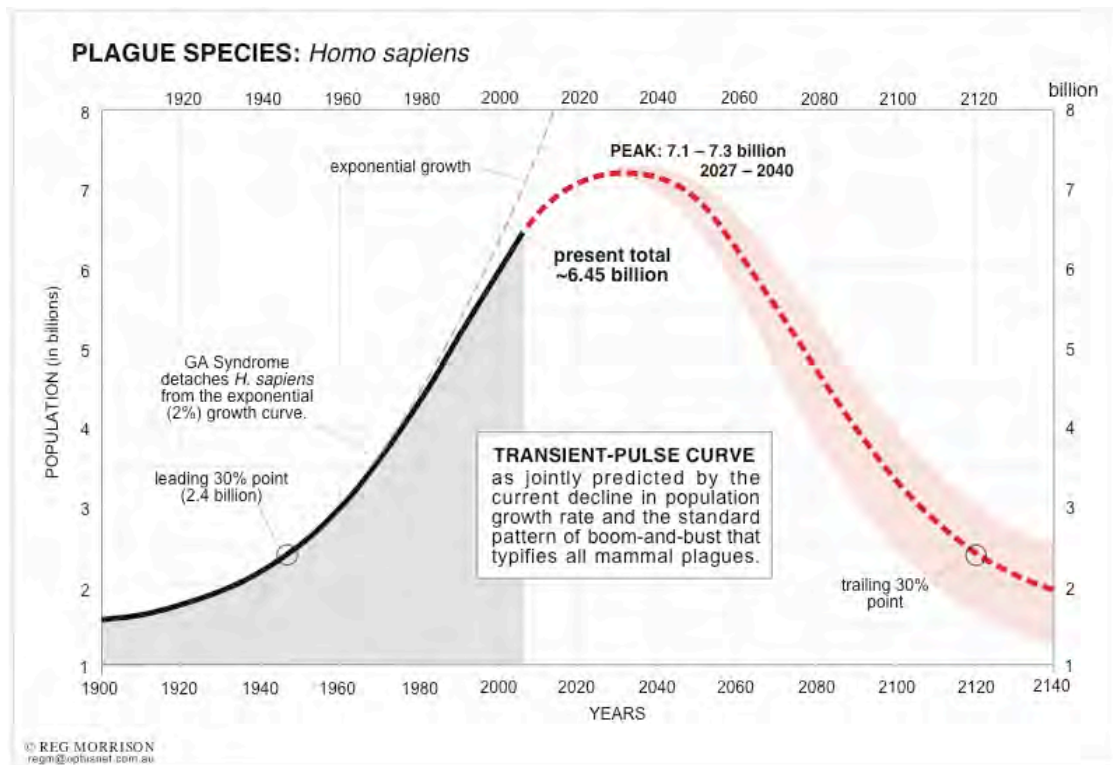
Gaia



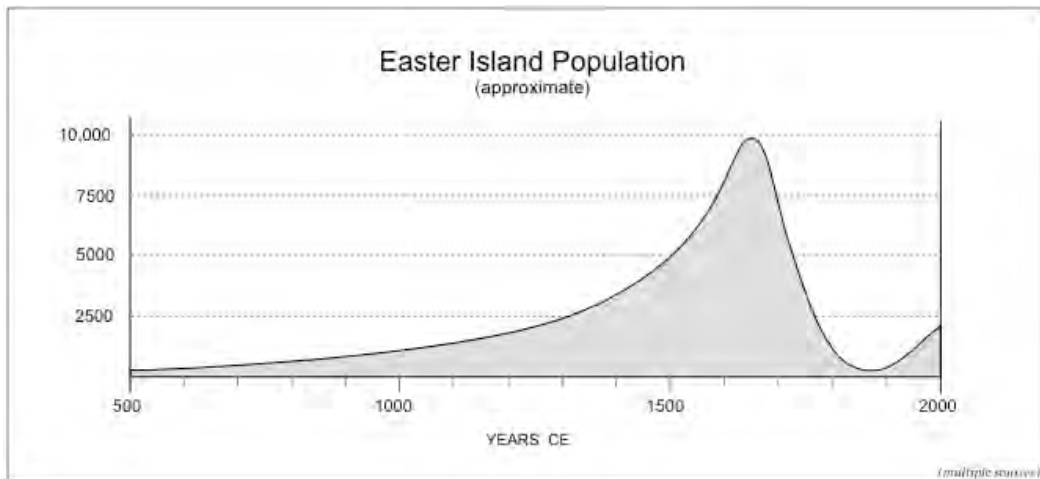
GRAPH 1: *H.sapiens*, Population Growth Rate



GRAPH 2: Global Oil Extraction



GRAPH 3: *H. sapiens*, Population Pulse



GRAPH. 4: Easter Island Population,

The similarity between this graph and that of any large mammal in plague mode is ominously plain.



GRAPH 5: Reindeer on St. Paul's Island

Reindeer were introduced to St. Paul Island in 1911. The island's 106 square kilometres (41 square miles) was an undisturbed environment and supported no major predators. The initial herd of 4 males and 21 females grew almost continuously to about 2,000 animals in 1938. After severely overgrazing their habitat the population collapsed—to just 8 animals in 1950.

NOTES

¹ The dramatists of classical Greece had word for such a mechanism—*hamartia*. It was used to denote a heroic character trait that in certain circumstances became a fatal flaw.

² The word 'mysticism' is used here in its largest sense, meaning faith-based behaviour that has no factual foundation and generates non-rational, altruistic reactions and commitments.

³ Emotional conflict indicates that two discrete gangs of genes have been aroused and they are prescribing responses that conflict with each other in some crucial respect. In most cases one response is primordial—to do with personal security or reproduction—and the other is highly evolved and concerned with tribal status ('duty', 'self respect', etc.).

⁴ In classical Greek mythology, the deity responsible for the earth and its fertility was a goddess named Gaia, a child of Chaos. The British atmospheric scientist, James Lovelock, therefore chose this label for his hypothesis that Earth's biosphere was a self-regulating organic mechanism. Lovelock's proposition gradually become known in the 1990s as the Gaia Theory, although this 'child' of cosmic chaos was not finally legitimised in an academic sense until the Intergovernmental Panel on Climate Change confirmed its underlying principles in the Amsterdam Declaration of 2001.

⁵ 'Hamartia': see Note 1.

⁶ See www.regmorrison.id.au (Articles) "Hydrogen: Life's Maker and Breaker".