

Can Space Save the Planet?"

A wrong and dangerous question?

Presented to the BIS Symposium, Mar 25, 2009,

by Dr Michael Martin-Smith, BSc, MRCP, FBIS

Abstract

This Paper proposes that this is a false Question. "The Planet" is not in danger. Anti-Human measures proposed to "Save the Planet" , and postulated natural disasters alike, endanger Human(e) Civilisation.

The former risk using "Saving the Planet" as an excuse or cover for promoting homicidal anti-human philosophies. Solutions to problems which are compatible with human(e) civilisation are not welcomed in some quarters. Human(e) Civilisation receives an operational definition in the light of history.

Fragile Civilisations are newer and rarer than robust planets. Man, according to evidence so far, is unique or extremely rare as a Mindful species in our Galaxy.

Our supreme duty is to ensure survival and onward development of Human(e) civilisation. "The Planet" can and will take care of itself as on previous occasions

A rephrased Question - "Can Space save human(e) civilisation?" pre-empts anti-human goals by putting Human(e) Civilisation rather than "The Planet" as the primary Good to be saved from perceived disasters.

It invites the Answer; "Yes it can, and so it should!"

Keywords: "Saving the Planet" "Human(e) Civilisation" "Mass Extinction" "Enlightenment" "Tyranny" "O'Neill" "Genesis" "Cosmic Diaspora" "Provisional Truth"

1 Introduction

The question is here posed - "Can Space save the Planet?"

In this paper, it is argued that this question is not only wrong, but carries considerable dangers. These are outlined in the light of current crises, past historical precedents, and future threats. If an initial question or premise is wrong, then much which follows is likely to be wrong, or worse. In Medicine - which this author practiced for some 33 years before retirement - the importance of achieving a correct formulation is widely accepted, as is the old Hippocratic maxim , "At Least, do no Harm!"

These well-tried principles can and should be applied to the much larger questions posed today both here and in the wider world. This paper suggests that the question be rephrased to " Can Space Save human(e) civilisation?" An answer is given!

2 "Saving the Planet"

It is suggested by many advocates, notably in the Green environmental movement, that Planet Earth is in mortal danger either from human activities or even, in more extreme quarters, from our very existence as a Mindful species.[1]

Against this dire position must be set the evidence of 4.57 billion years of history and evolution.

We know of several events in the planet's history which might well have been considered extreme enough to threaten the Planet, either geologically or at any rate in its life-carrying ability. An in exhaustive list follows:-

1/ The planetesimal impact, c 4.52 billion years ago, from which the Moon is believed to have originated.[2]

2/ The late Hadean planetary bombardments (c3.9 billion years ago), which also created the Mare Imbrium formation on the Moon and Caloris Basin on Mercury.[3] Some authorities believe that during this phase Life originated, perished and re-originated up to four times before matters settled down.[4].

3/ Earth's worst pollution event- the advent of an oxygen rich atmosphere, some 2.3 billion years ago - spelt death and disaster for the previously dominant anaerobes.[5]

4/ The so-called "Snowball Earth", of 600 million years ago, is believed to have brought Life close to extinction in a global cooling period which endured for perhaps 10 million years.[6]

5/ The Ordovician mass extinction, 440 million years ago, ascribed by Liebermann to a short pulse Gamma Ray Burst, wiped out 70 % of Earth's species, including most of the Brachiopods, Corals and Bryozoans and many Trilobites.[7]

6/ The Permian mass extinction event of 250 million years ago is ascribed variously to the Siberian volcanic traps formation with or without the addition of a major cosmic impact event in what is now North Western Australia. 95% of all species perished then.[8]

7/ The Cretaceous-Tertiary boundary event, most famously, has been tied to an incoming 10 kilometres sized asteroid or comet. The loss of 85 % of our fauna, including the dinosaurs, occurred at this period.[9].

8/ A period of intense global warming, ascribed by some to the release of methane from Ocean floor methane clathrates, is believed to have triggered the Palaeocene/Eocene Thermal; Maximum Event of 55 million years ago.[10]

9/ More recently, and controversially, an asteroid impact 12,900 years ago is suspected of having triggered the puzzling Younger Dryas event in which the mega fauna of North America rapidly disappeared during a period of intense cooling at the end of the last Ice Age.[11]. Just when they thought it was all over!

The above list is certainly not exhaustive, nor can the alleged causes be taken as Gospel, but three points deserve mention.

Our planet has been subjected to many dramatic events , none of which has succeeded in permanently destroying its biosphere, let alone "the Planet".

However, any or all of these, if repeated today, would destroy human(e) civilisation to a far greater degree than the current crises with which we are threatened.

None of the measures conventionally proposed to achieve a "sustainable" human civilisation would be of the slightest help in ensuring our survival in any of these disasters. There is no politically correct "Green" answer to Comet Shoemaker-Levy 9, super-volcanism, or a Gamma Ray Burst (short or long).

3 Crises for this Century

These are, essentially, presently threefold.

First, and most immediately, is the current Credit Crunch and attendant global economic depression. The real risks from these, apart from the obvious current human costs, are that economic woes could impair our ability to think long, and prepare useful solutions to the two principal crises which face coming generations. At the worst , war and dictatorial regimes are highly possible outcomes , as the 1930s memorably attest. It is doubtful whether such wars would be immune from nuclear exchanges.

Secondly, we face a classical neo-Malthusian threat. Simply put, human populations are rising (7 billions now, 9-10 billions by 2050 on UN medium estimates[12]). Alongside this, supplies of fresh clean water, agriculture, and energy reserves face increasing pressure, potentially leading to exhaustion , and conflict. For instance, it has been suggested that the next major Middle East war will not be over oil, or the ongoing conflict between the disciples of Moses and Mohammed, but over water[13] . Within a few short years, the relevant combatants will all be armed either with nuclear and /or chemical weapons of mass destruction. It is doubtful whether those who await the coming of a Messiah or Imam will be susceptible to deterrence[14] . On the larger scale, Earth has been compared to Easter Island, where rising populations consumed their own resources and collapsed into famine and internecine conflict. Earth is bigger than Easter Island but only to a finite degree. Easter Islanders felt themselves alone on an island in a limitless and uncrossable ocean and moreover , having cut down their trees, could not build ships[15] . This stricture, as today's "Question" implies, need not apply to us.

Thirdly, there is the possibility of climate change. Earth is no stranger to changes in climate, but it is alleged that the prospective change we face is likely to be more severe, more rapid in onset than previous changes and, moreover , caused by our own activities. We stand accused by many authorities of a new version of "Original Sin", and are enjoined to make sacrifices to avert disaster. Al Gore, for example, proposes dramatic changes to our economies which are estimated to cost \$44 trillion over this coming century. Economist Dr William Nordhaus of Yale University, meanwhile, estimates the costs of coping with climate change if and when it happens at \$22 trillion over the same period.[16].

We need to bear two points in mind here, I believe.

"Climate Change", even on the scale predicted by its most ardent adherents, is self limiting and will not destroy the planet or even the biosphere. If it proceeds as postulated, our civilisation will collapse long before that point, and will therefore not be producing carbon dioxide in significant quantities. At the worst, levels would remain high for 1-2 centuries and the biosphere will recover - with perhaps some new species generated and some old ones extinguished-- business as usual.

If on the other hand "Climate Change " has been misdiagnosed, does not occur and is moreover not principally caused by Humanity, we risk a New Ice Age if our measures work and reduce carbon emissions , and global ruin if they achieve nothing.

While Earth as a planet is not, the author proposes, in real danger even from the above litany of woes, human(e) Civilisation most surely is. We know of over 330 planets orbiting other stars. Many others nearer to Earth in size and character are likely to be found by space missions such as Corot and Kepler[17] .

We can now say without controversy that planets are common in our Galaxy and , with less certainty but a degree of probability, that Life, of a simple nature at least, is widespread[18] .

The question of Mind and Civilisation is, however, much more problematic. Despite the 60 years of UFO studies and nearly half a century of scientific SETI, there is no unambiguous proof of ExtraTerrestrial civilisation . Like most people present at this Symposium I wish I could say otherwise, and proclaim that ETI exists beyond dispute.

Two simple guides to our future actions are therefore proposed.

1. Planets and biospheres are robust . Mind and Civilisations are fragile. Thus there are a good deal more planets than civilisations in this our Galaxy.

2. From the above, Human(e) civilisation is on present evidence unique, and should be regarded as such until proved otherwise[19] . We therefore have an absolute duty to preserve and develop it, to ensure that it reaches its full potential. We remember that Humanity is a young species and civilisation is even younger.

Before considering a major and perhaps most probable threat to human(e) civilisation , which is not often mentioned at all, we must look at this term human(e) civilisation, which has been used here.

4 What is Human(e) civilisation?

This paper has made many references to the idea of a Human(e) civilisation; it deserves some clarification.

Civilisation is generally defined as an ordered collection of human beings comprised of social animals derived by evolution from primate ancestors who lived in social groups. Such an ordered collection of people co-operate , by specialisation of skills and labour, to create wealth and institutions greater in quantity and quality from that which could be achieved by individuals. For example, an individual or a family can build a house , or farm an estate - but cannot build a ziggurat, establish an astronomical observatory and cosmology , or stock a library. As Professor Heinz Wolff once put it, in a lecture, eventually a society generates more wealth than can easily be consumed by its members , and the problems of affluence arise. Affluence is a relative term. The Pharaohs for instance could not deploy excess production into giving all their subjects Porsches nor employ them in building thermonuclear power plants - but they did build the Pyramids at Giza, and, concomitantly, a civilisation which was to endure for 3,000 years[20].

Civilisations reach a point where surplus allows them to develop philosophical ideological , or religious systems and to create non-productive classes to enforce or maintain such systems in the interests of order, or believing their happy state to be divinely ordained, to keep the heavenly powers on their side.

We know of 30 or more major civilisations in human history, beginning from the Mesopotamian, Egyptian, Zhang Chinese, Graeco-Roman, Indus Valley, and Olmec cultures, continuing via their successors to the recent past. While these cultures were all indisputably civilised, it is doubtful that we can call them human(e).

They were all either autocratic, tyrannical, built on slavery, or constrained by absolutist ideologies or religions, in which human individuals had little or no part beyond being the property of the State or prevalent Deities. The brief flowering of 5th century Greece pointed to higher possibilities, but was still disfigured by slavery and empire.

Even as late as the 14th century, human understanding of the natural world was decided by ancient texts and established authorities rather than by observation and experiment. The present embryonic world civilisation has arisen from a vast - but still not complete - opening up of knowledge and opportunity which began with the scientific revolution of Copernicus, Galileo, and Newton.

The chief benefit from this revolution has not been, as is rather shallowly proposed, DVDs and digital watches, but the democratisation of thought and philosophy. What was once the preserve of a literary and orthodox few - namely the ability to seek answers to the great questions of Nature and existence - came within the reach of millions. It is not surprising to this author that the Protestant Reformation, in opening up the Bible to lay study and debate, accompanied the use of the telescope to answer questions about the nature of the heavens. Science went on to give the world, not new absolute religious or ideological certainties, but the idea of "Provisional Truth". Of all the systems of thought and belief operated by Humankind, Science alone is self-correctible in the light of observation and experiment[21]. Error does not require the Spanish Inquisition, Fatwa, or Gestapo, for its correction. This is a concept which has still not fully found its way into the commonsense of Humankind, but perhaps constitutes the most radical breakthrough in the growth towards a true human(e) civilisation.

Today, a bright 9 year old with a department store telescope can, in a few weeks, disprove the absolute certainties of centuries of Mediaeval Christendom - without shedding a drop of blood.

Perhaps unsurprisingly, the advent of the scientific revolution was followed in time by the Enlightenment and the arrival of civilisation built around freedom of thought and expression.

The abolition of slavery and the establishment of democratic regimes with ideological pluralism followed; again unsurprisingly such civilisations spread relative prosperity to millions who in earlier times could never have expected it. For all its faults, present day global civilisation has enabled more people (perhaps 1.5 billions) to enjoy greater health education and lifespans than any in the past. The city dwellers of the modern West have for generations enjoyed lives beyond the dreams of even the Caesars of Rome, and, most importantly with freedom of thought and expression.

The surge in the Arts and Sciences of the past 2-3 centuries has been unparalleled, and are the conspicuous fruits of what from the above, is defined as "human(e) civilisation" - the opening up of aspiration and opportunity to the bulk of the population. Athens without slaves ?

Truly, the Telescope is more revolutionary than the Kalashnikov [22] .

In this Paper it is submitted that such is a reasonable definition of human(e) civilisation, that it is as yet an unfinished work, and that it deserves to be defended. The Enlightenment has always had enemies - principally those who yearn for old simplicities or certainties, or even those who simply yearn for absolute power. Such people have always existed and always will - but they come disguised.

5 Dangers to Human(e) Civilisation

The Russian writer Fyodor Dostoyevsky, in the 19th century, in his great novel, "The Brothers Karamazov" put , into the mouth of Ivan, the Speech of the "Grand Inquisitor", which sets out the basis of opponents of the Enlightenment - or what this paper calls human(e) civilisation - from that day forth. It proposes a Faustian Pact in which ordinary people give up their freedoms, and the vexatious need for decisions and responsibilities which freedom brings , to a benign governing elite which will relieve their anxieties and provide for them security and bread. Such was the prospectus offered by Lenin to workers at the Finland Station in 1917, and by Hitler to the Reichstag in 1933, when he declared:-

" From now on , there will be no more tedious elections !"

Such a promise has appeal to people in times of hardship and uncertainty - Russia and Germany both suffered untold miseries in World War 1 and its catastrophic economic aftermath. A simplistic ideology and a convenient scapegoat offered as a solution to a bemused people will allow the "Grand Inquisitor" to take over. "To Save the Race" or "to Save the Proletariat" became the rallying cries of a generation bitten by post war misery and economic woes.

We now face, as a nascent global civilisation, siren voices calling for simpler ways of life, and, in effect , claiming that we are paying the price of original Sin, whether theological or environmental.

Two main sources of a new absolutism can be seen; religious fundamentalism, which has always had difficulty with the idea of "Provisional Truth" , and the new environmentalism which has had difficulty with the central idea of humanism, asserting that Mind and Civilisation as expressed in human(e) civilisation are the unnatural cause of the crisis facing "The Planet".

This Paper was inspired in part by an interview printed in "London Transport Today" in December 16, 2007[23] . A respected environmentalist campaigner and philosopher, Mayer Hillman, proposed that "the Planet" could only be saved by universal carbon rationing , which would also fulfil another long standing if understated goal of social engineers - namely equality of misery for all. He refuted any idea of technological advances which could avert disaster, and went on to declare that Freedom and Democracy were major obstacles in any such plan to enforce reductions in living standards , since electorates would not stand for this! When asked, whether he would support the creation of a Police State "to Save the Planet", he hedged and refused to reject such a development. Such a Police State would have to be global in extent if it were to be effective .

In effect , what is being proposed is a massive human sacrifice to prevent climate change, or, in earlier terms , to maintain the cosmic order and keep the climate gods sweet. The Mayan Prince of Tikal, Yikin Can Gaw'ill, and the Emperor of the Aztecs, Ahuitzotl, would have understood perfectly.

We should remember that their efforts involved considerable blood-letting, and failed miserably.

If the goal is to "Save the Planet", it is implied that the sacrifice of human freedom and civilisation is a price worth paying, and we create the danger that anti-human philosophies will gain respectability. These can of course be pro Earth or pro God - but would put humans and human(e) civilisation second.

Much can be justified under such a philosophy - including the creation of Police States. For their creation guilt, and panic are required, since people will not willingly vote for a Police State.

We do not know the costs of Anthropogenic Global Warming, nor even our culpability beyond doubt. But we do know from centuries of History the consequences of ideologically driven Police States - usually called Tyranny. They have demonstrated, beyond doubt, certain characteristics:-

Fraud and Mendacity to create fear-- " The Jews/ Bourgeoisie/ Foreigners/Huguenots etc are to blame"

Suppression of Thought and Aspiration-- eg Lysenkoism or persecution of dissidents (universal)

Unaccountable elites - nomenklatura, the Khmer Rouge, the NSDAP Membership.
Graft and Corruption - the "three Soviet economies" of Andrei Amalryk[24].
Limitless Rapacity - legalised theft on a epic scale.

Mass Murder, with or without war; methods range from gas and bullet, to machete and artificial famine. This last was pioneered by Mao Zedong, and is the wave of the future. It can even be disguised as incompetence[25] .

As the Nobel Prize-winning economist , Dr Amartya Sen, has observed, mass famine has never visited a country in which democracy and a free press prevails. No wonder would-be tyrants want these goods abrogated.

On a reasonable estimate Police States/totalitarian regimes have killed 150-200 millions in the past 200 years.

The machinery for far more embracing totalitarian rule is being assembled rapidly in the name of the War on Terror, as Dame Stella Rimington of MI5 has pointed out. We are monitored and watched in ways even Orwell would scarcely have expected.

As for control "to Save the Planet", Douglas Adams foresaw , in the lovely planet, Bethselamin, that the vast army of visiting tourists would be tightly monitored even to the extent of being weighed before and after toileting. (HitchHikers' Guide to the Galaxy).

This was, of course humour, but many a true word is spoken in jest.

Did he foresee "Bin Wars"?

Present rulers are, we accept, quite possibly merely well-meaning people of doubtful ability without malice, but we are creating a tool chest a future tyrant would envy. Would we leave a matchbox unattended in a house full of young children - even if they are not named "Caligula"?

All that is needed for a true outbreak of lethal tyranny is the ascent to power of a group of ideologues riding a wave of fear and uncertainty. Induced guilt would help, too.

In 1900 in Russia, and in 1919 in Germany, such groups of fanatics, who arose to put into practice the dreams of absolutist philosophers, existed but were beneath the radar screen. Yet within a few short years, the seven founders of the German National Socialist Workers' Party had created the ruthless Government of a hoped-for German Empire, while 20,000 zealots in Russia put aside their squabbles to take over and enslave 160 million subjects of another Great Empire. Yet these groups only aspired to promote the aims of a single Race or Class, by making war on other races and classes. What might be the "achievements" of a Group which strove to "Save the Planet" at the expense of its erring human inhabitants?

To sum up, so far, we have arrived at a position where we risk "Saving the Planet" , which is robust, not in danger, nor even , probably, unique, at the expense of losing human(e) civilisation which is fragile, and, in terms of its contributions to Arts and Sciences, unique or at any rate very rare indeed, as far as is presently known.

6 Space, and a revised question

In 1969, Gerard O'Neill [26] posed the following question " Is one planet the best home for an expanding technological civilisation?", and, in the year of the first Apollo Moon landings, boldly answered "No!" He went on to formulate and then conduct fundamental research into requirements for building a Space-based civilisation . This was based on the utilisation of extraterrestrial materials - initially from the Moon, but , later, the asteroids, and solar energy, to establish dispersed self supporting city states in our solar system (at first) modelled on large space stations with enclosed ecosystems powered by sunlight. An economic case was constructed , wherein such a development would be justified by its ability to build solar power satellites which would supply clean inexhaustible energy to a planet facing increasing pressures of population, resource shortages, and environmental damage.

Anyone who knew O'Neill, or who has read his book "The High Frontier" would agree that , by "Technological civilisation" he had in mind something very like this author's description of "human(e) civilisation". Indeed he frequently referred to "the Humanisation of Space" , and in our newspaper headlines he would recognise the problems he foresaw.

What has changed? The resources of our solar system are vast. Only one part in two billion of solar energy output ever reaches Earth . There are over 160 moons, thousands of asteroids (some within easy reach), and Kuiper Belt objects, and billions of Oort Cloud Comets remain intact to tantalise a world which threatens itself with conflicts and ruin due to shortages. Solar Power Satellite energy is, once again, being studied as a possible way out of our emerging energy crisis.

We have since learned more of the threats of cosmic impacts to our civilisation , and have even been treated to a decisive existence proof of such a event, at Jupiter, in 1994.

The construction of the International Space Station , and , recently the near closure of the water and oxygen recycling loops for six people, is demonstrating the difficulties and possibilities of creating habitats in Space, while the need for its supply is finally calling into being one prerequisite for a space based civilisation - the involvement of private ingenuity with the prospect of lower costs.

The prospect of a viable suborbital space tourist industry , and the success of Bigelow Aerospace's Genesis habitat development, are early steps towards such developments.

What O'Neill envisaged for one generation is likely to require several; the practicalities have proved less tractable than one had hoped, principally due to the constraints of the rocket equation. However, the growing success of work towards SSTOs, notably Skylon[27] , and at last the existence of carbon nanotubes , from which the postulated Space Elevator could actually become feasible[28] , allow us to offer "Space" as a longterm future for Humankind.

A logical sequence of development can be discerned; suborbital Space tourism, orbital/hotel based space tourism, tourist cruise liners/resorts supplied by ET energy and resources accompanied by SPS construction, leading on to full-blown O'Neill style city states. The time intervals between these steps are clearly uncertain - but do lead logically to an interplanetary civilisation, offering diversity in social and cultural development in a multitude of dispersed "Islands".

As Members of what has always been a far sighted Institution- the BIS - we should not shirk from setting a longterm hopeful future for Humankind. Whether we start from the Moon, or NEOs, or settle Mars before building O'Neill's Islands, are smaller questions. Our goal - or manifesto if you prefer - should be clear and unambiguous. Space development can help us deal with the nearterm global issues by supplying clean energy and new opportunity generating constructive industries, while , in the longer term , it will enable humanity to evolve socially and biologically by adaptive radiation into a larger ecosphere[29] . We can create a "Cosmic Diaspora" and ensure our future, or stay at home, and fall to Malthusian decline and eventual extinction as a human(e) civilisation, probably through loss of liberty as well as sustenance. Any living would envy the dead.

Such a prospectus, uniquely, offers a future of hope and opportunity to a civilisation badly in need of both although accompanied, it is true , by risks and difficulties .

However, the most significant benefit of proposing Space development is that access to Space resources could serve to cut off arguments for a regimented global Police State "to Save the Planet" at the knees.

For once, we can pre-empt the "Grand Inquisitor".

The "Friends of the Earth" assert that we need 2-3 new planets to sustain present lifestyles[30. Like the Conquistadors of old, we should go for them, but, unlike Pedro de Valdivia, the Conquistador - Founder of Santiago de Chile, we will find and kill no Mapuches en route!

Many would jib at the idea of a Police State to "Save the Planet " even if the planet were clearly at risk.

If we rephrase the question to "Can Space save Human(e) civilisation?" a Police State has much less chance of acceptance - for History shows us that Police States are incompatible with human(e) civilisation[31 , a fact which is accepted by almost all literate citizens.

We should, without hesitation or guilt, propose that human(e) civilisation has an intrinsic value in cosmic evolution, and assert that only a committed misanthrope would oppose it and the logically necessary development of Space.

7 Conclusion

There is a danger that an abstract call to "Save the Planet" could be misused to fasten an anti-human totalitarian yoke around the necks of billions of actual human beings. Present economic and ecological concerns risk fuelling such a tendency. We should not throw out the baby with the bathwater.

The initial Question should be rephrased to read:-

" Can Space save Human(e) Civilisation?"

With the Answer, "Yes it can, and so it should!"

Can Space Save the Planet?"

A wrong and dangerous question?

Presented to the BIS Symposium, Mar 25, 2009,

by Dr Michael Martin-Smith, BSc, MRCP, FBIS