AN OVERVIEW

Excerpts
From

How I Save
Covent Garden
And
The World

(To Be Published)

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2008

Myspace.com/ralfgey

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Acknowledgements

I owe my soul to the Peabody Trust Skills' Centre on Kemble Street in Covent Garden. I started out with my typewriter and typex in the nineteen seventies but gave up writing my book in frustration and despair. Revision, inserts and editing defeated me. Then in twenty-0-four I discovered the skills' centre.

My thanks to all the people who work there, and have worked there, who have helped me, and likewise, to some of my other friends, for all their help and support.

Preface

Man as an animal has distinguished himself by using not only his own energy but other sources of energy found in his natural environment, to further him self. At first he harnessed the energy of other animals, fire, wind power, water power, and geothermal energy, but his big breakthrough came when he learned to use coal, oil, gas and electricity to drive machinery, for light, and other purposes. It became apparent mid-twentieth century that the supplies of fossil fuels, (coal, oil, gas), was limited and as they ran out there would be major consequences. In my view it would behove economists to spend more time understanding the roll of sources of energy as economic drivers instead of concentrating only on the flow of money. Money represents a counter-flow to the flow of energy and without that flow of energy is rendered pretty well useless. At present gains in efficiency of energy use are to some degree being off-set by the greater amounts of energy necessary just to maintain the status quo: i.e., man's supply of food and raw materials and other support systems. In the next few pages I have tried to give an energy supply over-view and a perspective for the next two or three decades.

Should anyone be prepared to pay good money for the following dissertation, one pound of it will be contributed to Sea Shepherds, Captain Paul Watson, the good ship Steve Irwin and their fight to stop whaling and other violations of our planets ecosystem.

Conservation

Why should You, I and everyone be
On a conservation kick
If you don't already know
I'll tell you why
Not just to save money and make life less trying
By consuming less and cutting down on buying
Not only because our resources we should share
With countries when their cupboard's bare
A further reason you should see
In terms of future misery
Cause when the fossil fuel's all gone
All that coal and gas and oil
That's used to make your water boil
To heat your house and run your car
And that's powered industry so far
When that's been burned away
That may be a sorry day
If we haven't found by then
Replacements sufficient for all men
And safe as well
To prevent atomic hell

How far away is that time
For some countries a decade or two
For England quite a few
Of course if fusion energy is there
Mankind could still be sailing fair
And if the breeder reactor turns out right
It can help us win this fight
Although it is a common illusion
That it can supply energy in unlimited profusion
The fact is
That it is only about twenty times more efficient
Than the reactors of tradition
So back we must go to the wind when it is not idle

To geothermal and tidal
To convection from the sea
And to the waves now rolling free
To wood and other vegetation
And to solar radiation

Now some may not give a damn
About the future state of man
But for most of us,
Even though our lives must end
We are sure to leave a family or a friend
Who will live after us
And friends of theirs the same will do
I'm sure we wish them no hardship
While they're on this earth-bound trip
So, my friends, make sure
Your fellow man does not destroy
Just to gratify his joy
Or as an economic ploy
Because if we squander now
And the technology's not there
People of the future may curse you and me
For not tightening our belt to some degree
Remember in pharaoh's time
Seven fat years were followed by seven lean
Do you want the future to repeat that scene?

NOW - 2008

I sent this poem (written by me) to Tony Benn when he was the Minister for Energy for the Labour government in the nineteen seventies, but when I talked to him a couple of years ago (2000+), he didn't remember receiving it (not too surprising). Since then the breeder reactor development program seems to have died a death and the fusion reactor program is still limping along even though it was started a few decades ago. Times have changed in other ways as well since my writing of most of this book in the late seventies and early eighties. Today global warming, the ozone holes over the north and south poles, the increased globalization of commerce and culture spurred by the development of the internet and the mobile phone, cheap labour, and other factors, are driving human considerations and endeavours in some new directions. In 1971 at the Covent Garden Inquiry, which concerned itself with the redevelopment of the Covent Garden, an internationally known area in central London, where I lived at the time and where I still live, I based my case for conservation of the area partly on what I, along with some others, saw as a coming global energy crisis by the end of the century. As a kid I was made aware of the importance of fossil fuels to economic development. At school in oil, and, gas-rich Alberta, one of Canada's Prairie Provinces, we were taught about the importance of oil and gas. Later as an engineering student I worked for Shell Oil.

The Industrial Revolution of course was based mainly on iron ore, coal and steam and invention. Then, later, additionally: on oil and gas, hydro and nuclear. Although some people, even in the nineteen fifties, believed that there was an inexhaustible supply of fossil fuel available, experience started suggesting to others that there was only a limited supply. In the late nineteen sixties I involved myself in trying to figure out the global state of play of energy supplies and how fast they were being depleted. In the process, I came to realize that money was the counter flow to energy, and that ultimately, it was energy that mattered and, that in today's World, that energy comes mainly from five primary sources: gas, coal, oil, (or oil derivatives, such as petrol (gasoline)), water power and nuclear. A small

percentage of the energy we use comes from other sources such as humans, other animals, organic material, solar-power, wind-power, wave-power, and hydro-thermal.

As an example of the flow of energy as the counter-flow of money: when you buy something made of iron, for instance, an iron cooking pot; in the course of its materialization, first of course, comes the energy used by the equipment and machinery to find and extract the iron ore, but then in addition, we must add in some or all of the energy used to make the equipment and machinery used in the process of finding the iron ore. For instance, part or all of the energy used to make a truck or a bull-dozer may be attributable to the process depending on how much the truck or bull-dozer are used for other purposes. However, to complete the overall picture, the wages, rent, and profit of the people involved in the preceding manufacturing and other processes as well as truck drivers and bull-dozer operators and others, must be taken into account. When these incomes are spent by them, on whatever, items such as heat, light, rent, manufactured goods, food, and so forth, they represent in a further consumption of energy which must be added in to give the total energy used in the production of the cooking pot. Even if the money is spent on a service, it eventually results in the consumption of energy. If it is banked, the bank lends it onto some entrepreneur who then turns it into energy. All the steps; the discovery of the iron ore, its mining, its reduction into iron, and finally its transformation into a cooking pot, are all steps that may require both direct inputs of energy, and indirect inputs of energy in terms of wages, rent and profit.

Again, as another example, someone buying a painting is paying not only for the energy consumed in making the materials and doing the painting but also, to some degree, supporting the life styles of the people that made the materials as well as the life style of the artist, etc., etc.. One of the points of all that I've said, is that when it comes to computing the total carbon foot-print of expenditure on an article or a service, to arrive at the true amount, not only should the amount of energy used in producing the object or service be considered, but

also, the associated amount of energy represented by the proportion of wages and profits attributable to producing the object or service. In the end, the price of an article or service in some stable currency, such as the dollar, is a rough measure of its carbon foot-print. In other words, if an artist sells a picture for twice as much, he'll have twice as much to spend and his carbon foot print will be about twice as large. As third world wages are much lower than first world wages, this may have a considerable effect on the total energy cost of an article coming from a third world country when the energy costs of its labour as opposed to first world labour, is added in. Also, the idea of economizing and putting the consequent savings in the bank doesn't necessarily decrease your carbon foot-print as the entrepreneur who borrows it may invest it in building a coal fired power station in China and not on producing environmentally friendly non-fossil fuel energy as many of us might hope.

One of the consequences of all this is that the total value of money spent in an economy equates by and large with the total amount of energy used. For example, in 2005, on average a USA citizen afforded goods and services that consumed an amount of energy obtainable from oil, gas, coal, hydro, and nuclear, equivalent to the energy produced by eight tonnes of oil. Of this, three tonnes (metric tons) actually came from oil and the other five tonnes of oil equivalent (TOE) came from gas, coal, nuclear, or hydro. -- Data sources: BP Statistical Review of World Energy, June 2006 and previous editions and other statistical sources. -- (Elucidating further the equivalences used: a tonne (a metric ton, or 2,205 pounds) of oil on average is considered to be equivalent to 7.33 barrels of oil. In the case of gas: roughly 1,100 cubic metres of gas is taken to be equivalent to one tonne of oil. For coal: one tonne of oil is considered to be equivalent to 1.5 tonnes of hard coal or 2 tonnes of lignite). -- In comparison to a USA citizens average consumption of eight TOE, in 2005, a Chinese citizen on average consumed a little over one tonne of oil equivalent (TOE), a quarter tonne of which was oil and the rest mainly coal where as Western Europeans, on average in 2005, consumed about four tonnes of oil equivalent per person, of which about one and a half tonnes was actually oil. Total world energy

production was roughly ten thousand million tonnes of oil equivalent (TOE) or one-and-a-half TOE per person on the planet. Of the total world energy production of ten thousand million (i.e. ten billion) TOE, 3,900 million tonnes (MT) was oil or about two thirds of a tonne per person on the planet. Near the bottom of the pyramid we have countries such as India, which had a per capita consumption of a tenth of a TOE in 2005. Others had even less.

Luckily for me a book came out in the late sixties, Resources and Man, National Academy of Sciences, (1969) discussing energy and raw material issues and containing a chapter on oil, written by a USA geologist called M King Hubbert, much referred to now, which became a landmark. He estimated that oil production in the USA would peak (peak oil) for the lower 48 states (i.e. excluding Alaska) around 1970, and it did. However, he also predicted that global oil production would peak around the year two thousand. It didn't. Consequently, much controversy continues as to when it will peak. His prediction started to go wrong when the proved oil reserves of the world, that is, the estimate of known deposits of commercially extractible oil still in the ground, increased considerably in the late eighties.

The history of oil production in the USA is well documented, and the USA is now well beyond its peak output. Because it has such a large land area and covers latitudes that are globally oil rich, it seemed reasonable to me to use it to obtain an approximation of the global situation. The area of the global land mass is, excluding Antarctica and Greenland, roughly fourteen times that of the USA. Because the USA has used up most of its crude oil, with a bit of extrapolation we can come to the conclusion that the total amount of oil used, 24 billion tonnes (BT), plus oil still in the ground that is commercially producible, 6BT, is about thirty billion tonnes. Therefore, global oil past and present, as a first approximation, is fourteen times thirty or four hundred and twenty billion tonnes. This estimate ties in with the Stern report. Furthermore, we seem to be near world peak oil as oil discovery and oil consumption are in near equilibrium even though world output is only about eleven times peak US output. I assume that we are more or less in the right ball park. Using the US

experience as a guide, we find that although Hubbert fitted a normal distribution to the data available at the time, now, forty years on it turns out not to be all that normal. From around 1850 up to 1970, the year of maximum oil production or peak oil, the USA had produced about twelve billion tonnes of oil. That is, peak oil will have occurred at about forty percent (12MT times 100 divided by 30MT) of total oil. Using forty percent as the criterion and four hundred and twenty billion tonnes as the total amount of oil commercially recoverable in the world, the amount of oil used up to peak oil would be one hundred and sixty eight billion tonnes. Because the amount of oil used globally up to the end of 2005 was roughly one hundred and forty billion tonnes that means a further twenty eight billion tonnes remains to be used to reach peak oil which should consequently occur at around one hundred and sixty eight billion tonnes. At a use rate of four BT a year, peak oil would be seven years forward from 2005, or 2012. In the case of gas, the situation seems more problematic. Its production lags that of oil by perhaps ten, twenty or more years and its abundance at present is estimated to be about the same as that of oil. This puts peak gas at around 2025 to 2040. Again, going by the USA experience for the whole country, (including Alaska) the time to reach half peak oil on the downside or decreasing side of production would seem to be about forty years which suggests a global half peak oil should be reached around 2050, assuming, of course, that the global scenario will follow the USA trajectory as seen so far.

Of course, this as an approximation should, to some degree, be taken with a grain of salt. However, whether I am fairly right or not, oil, gas, and coal are exhaustible resources. Therefore, methinks oil exporters, mainly the Middle East, where sixty percent of proved reserves are said to exist will decide at sometime if they haven't already, to reduce exports to as low a level as possible commensurate with maintaining their standard of living and the rate of development of alternative energy sources. The Middle East has little coal and hydro and will consequently, I assume, adopt nuclear energy and renewable energy technology as quickly as possible. Consequently, I imagine half peak oil and gas may arrive much sooner than 2050 as exporters stretch out existing supplies. After all,

as said above, if you're experiencing a diminishing output of an exhaustible supply the likelihood is that strong measures of some sort or other will probably be applied to delay the day of reckoning. If I'm fairly right; carbon emissions due to gas and oil production will also automatically decline at perhaps two to three percent per year in step with the decline in gas and oil production after they reach their global peaks. This doesn't mean of course that for the present we should ignore the Kyoto agreement. But to those critics who pooh-pooh the role of carbon dioxide in global warming, it means we will be forced to alter our ways to accommodate diminishing gas and oil production regardless of whether carbon dioxide is the cause of global warming. To the Kyoto-minded the decline in carbon dioxide production due to the decline in gas and oil production should be a bonus. It should be noted that the my calculations envisage that in addition to 164 BT of proved reserves detailed in BP "Review of World Energy 2006", another hundred billion or so tonnes of commercially extractible oil remains to be found. Of course things may be even (worse, better) than outlined so far. For example, at the end of l998, Mexico's proven oil reserves were given in BP "Review Of World Energy" as 6.9 BT, at the end of 2001 that figure was downgraded to 1.8BT even though only half a billion tonnes had been produced in the interval. Likewise, Shell Oil had to reduce its proven oil reserves by one fifth in 2004. Some people regard the Middle East proven oil reserves as suspect. If the World proven oil reserve figure is an exaggeration, this might also bring the date of half peak oil closer to the present. The same may be said for gas production, and coal production which will presumably peak later in the century.

This scenario of diminishing oil and gas supplies is exacerbated by a number of factors both regionally and globally. For instance, global population is increasing by over one percent a year, but much of it is concentrated in South Asia, Africa and Latin America. That means that as oil output decreases, the per capita availability of oil in the so-called Third World countries will probably decreases even faster. From an environmental point of view because wood is a source of fuel, forests and wild-life will probably pay an even greater price

because of an increased shortage of kerosene used for cooking. As many people now know an even greater threat looms: the destruction of vast tracts of forest, and their animal populations, sacrificed to palm tree plantations and other crops for bio-fuel not only for automotive purposes but for the production of electricity.

To expand our understanding of the primary energy outlook further, we must consider other activities that are already within our experience which will siphon off oil, coal and gas from existing supplies. For instance, soil erosion makes agricultural land less productive and consequentially drives up the need for greater energy input in the form of fertilizers and fuel for machinery per unit of food produced. Reduced fish stocks demand more energy per tonne of fish caught. Water purification and water supplies demand greater input of energy per person as populations increase. More and more energy is needed per tonne of fossil fuel in terms of exploration and production as the most commercial deposits of oil, coal and gas are exhausted: likewise with minerals. The highest grade and most accessible is mined first; and then the law of diminishing returns sets in, and more and more fuel is needed for each tonne of mineral produced unless you can compensate for it with technology. Global warming is causing greater storm damage and flooding in some parts of the world and greater desertification in others, which can only be controlled or rectified by making use of additional energy (Hurricane Katrina, New Orleans), making less energy available for other purposes. Of course, the overall result is higher cost of goods, i.e., inflation, higher taxes and lower real incomes.

Perhaps most important to the industrialized world is the population growth of the major oil exporters such as Saudi Arabia, Iran, Iraq, Nigeria, Venezuela, Canada, and Mexico. The combined population of all these countries is roughly 450 million people. They will undoubtedly try to maintain, if not improve, their population's standard of living, the consequence of this means even less oil for export from these countries as their populations are growing at between two to

four percent a year and are expected to continuing to growing at these rates for the next decade or two. Even at a growth rate of two percent these countries would soak up an additional one hundred million tonnes or so, of oil, per year in ten years time at present rates of per capita consumption. This increasing internal consumption of oil producers will have to come out of a presumably static, of decreasing World output. For example, in the past ten years (1995-2005) the oil consumption of Venezuela increased by roughly 25%: Middle East consumption increased by 70%, Canada, by 25% and Mexico by 20%. I leave out today's Russia because its population is in decline although its per capita consumption is increasing at present.

To add to our overview, globally almost 4000MT (million tonnes) or 4BT (billion tonnes) of crude oil was pumped out of the ground in 2005 and of this, about sixty percent or 2.4 BT was exported as crude oil or crude oil products. Of this exported amount, roughly sixty percent ended up in the USA (635MT), the EU (550MT), Japan (245MT), China(150MT). The USA, the biggest user, at present uses about 950 MT a year. Its own output in 2005 was 310 MT and its own output has been decreasing on average at about 6 MT a year since peak in 1971. Further reductions of even one or two percent a year in its oil production when coupled with a similar decrease in gas production, should have major social and economic impacts, especially in a world of falling oil and gas production. Of course some of this will be offset by increasing bio-fuel production, but by how much is problematic. All this will be exacerbated by a USA population growth of roughly one percent per year. Its existing bio-fuel program is already having its effect in terms of the price inflation of food and other goods. Nevertheless, though the USA imports about a third of its energy, its own resources are still sufficient to give its citizens five tonnes of oil equivalent per person per year compared to its present per person consumption of eight TOE per year. Even this five TOE/person/year is more than the four TOE/person /yr consumed at present by members of the EU. The EU imports two thirds of its energy, mainly gas and oil. It's own resources only supply it with a consumption level of one-and-a-third

TOE per person per year which, at present, is on par with Cuban or Chinese per capita consumption. So things don't look to good if the EU suffers a one or two percent yearly drop in gas and oil imports. The UK is a particular case because it had been self-sufficient and a net exporter of oil and gas for a couple of decades. Peak oil (137.4 MT) occurred in 1999 and in 2005 output stood at 84.7 MT and peak gas (97.6) occurred in 2000 and in 2005 output stood at 79.2 MTOE. However North Sea oil and gas are now in rapid decline at about ten percent a year and forecast to continue at this rate until about 2010 and then proceed more slowly. The impact of the decline should be felt in terms of the balance of payments. At some point, the pound is likely to collapse by thirty or forty percent or more relative to the dollar and if the price of oil, which is priced in dollars, simultaneously rises, petrol prices could easily rise by fifty to a hundred percent or more bring the cost of a litre of petrol to one pound fifty, or two pounds or more. The British will realize how lucky they were to have had North Sea gas and oil. I've left Japan out because it has been importing all its energy needs all along and is quickly learning to economize. I imagine that even with its high industrial efficiency it will eventually become a victim. A problem for many countries at present, even with global energy output still increasing, is that China, like Walmart's in the world market place, has the purchasing power to buy expensive dollar-denominated energy and so decrease the amount available for others.

Another one of the problems for the industrial economies is that traditional trade loops that were based upon the EU, the USA, Japan and the rest of the world are being rapidly replaced by a more complex network based on Asia, South America, the Middle East and Africa. This bodes ill for the EU and USA. For example if someone lives in the UK and owns a car and the UK buys oil from Saudi Arabia, as the price of oil goes up, more of his money goes to Saudi Arabia meaning that unless some sort of compensation is found, the British must purchase less, in the long run, and the Saudis can purchase more, in the global market place. You were going to buy a new car, someone there buys it instead. At least at one time British

pounds would probably come back to the UK and keep some factory workers employed, now, more and more British pounds go to some oil producing countries which in turn spend more and more of this money on more and more Asian cars or other manufacturer goods. As this money is spent, it floats around Asia or elsewhere because manufacturing is world wide now, and pretty well represents a complete loss of purchasing power to the UK. Currently, the oil exporters are bulging with dollars and their purchasing power is shifting away from the USA and the EU to Asia and other parts of the World from which they can acquire cheaper goods and services. The situation may be looked on largely as a zero sum game in which the major losers will be are the EU and the USA and the winners will be the mineral and energy exporters and the low cost industrial players.

Deviating slightly, in the past, such as the 1930's, the situation was not zero-sum. Money pumped into the economy, although it might have caused inflation, opened up the taps and so led to more oil and gas being pumped out of the ground. At peak oil, or peak gas, pumping more money into the system may open up the taps but it won't increase the flow of gas or oil being pumped out of the ground. Unless it is directed into similarly efficient replacement energy sources and more efficient use of energy and technical advances, the outcome will be increased inflation. Another problem with zero-sum is that if you shift your manufacturing, your call centres, or what ever, to another country, although the process itself still takes the same amount of energy some part of your wage bill is transferred and this represents an energy gain to that country and an energy loss to yours. Furthermore, and apparently not well understood, is that an energy-importing country must continue to trade to maintain its standard of living, and in trade, market forces rule. Somehow the energy importing country has to obtain the necessary foreign currency or otherwise it means a fall in the standard of living. If I am right, this situation will soon to be exacerbated by a global decline in gas and oil output coupled with a variety of increasing demands that have been discussed above, that have to be met just to stand still. In addition, in the past few decades, the growth of the world automotive fleet has been increasing at a couple of percent a year, outpacing oil

production. Finally fuel demand has caught up. The consequence, which we are witnessing, is a painful rebalancing in the World financial system. Obviously declining gas and oil output will have an impact on various nations in different ways, the coal, oil, gas, hydro and nuclear haves being in one boat, and the have-nots in another. So that the reader can gain a better insight into the geopolitical potential of the World's oil, gas, and coal reserves, I give the distribution for the main players as of 2005 according to the BP "Statistical Review of World Energy, June 2006". Oil wise 87.8% of the worlds proved reserves are found in just twelve countries, Saudi Arabia (22.0%), Iran (11.5%), Iraq (9.6), Kuwait (8.5%), United Arab Emirates (8.1%), Venezuela (6.6%), Russia (6.2%), Libya (3.3), Kazakhstan (3.3%), Norway (3.3%), Nigeria (3.0%), and USA (2.4%). All, except the USA, are net exporters. Gas-wise the top six significant players with sixty-six percent of the world's proved reserves are Russia (26.6%), Iran (14.9%), Saudi Arabia (14.3%), Syria (3.8%), UAE (3.4%), ands USA (3.0%). Coal will be a major fall back fuel for those that have lots of it, which is already the case for China, the number-one producer, which produced 1108 TOE in 2005 followed by the USA with 576 TOE, but not very good news for most countries as 80 percent of proved reserves are found in just six countries, they being first, the USA (27%), then Russia (17%), China (13%), India (10%), Australia (9%), and lastly South Africa with 5%. If Chinese oil, gas and coal consumption at the 2005 rate was replaced by coal consumption alone, its coal supply would last for about forty years and likewise, USA's would last sixty to seventy years.

There are two other sources of primary energy, Nuclear and Hydro, each of which produce six percent of world energy output, (oil-36%, gas-24%, coal-28%) in the form of electricity, both Nuclear and Hydro are expensive and problematic, politically and environmentally. The construction of dams and nuclear power stations require large inputs of energy. Also we run into a situation, analogous to oil, gas, and coal in that the distribution of uranium ore sites and possible dam sites is largely limited. In the case of uranium ore needed for the production of nuclear energy, five countries, Australia(24%), Kazakstan (17%), Canada (9%), USA (7.0%), and South Africa (7%)

have two-thirds of global uranium reserves, leaving other countries dangerously dependent on them . Another possibility is thorium which is more abundant than uranium, does not have uranium's waste disposal problems, but has not yet been developed into a practical alternative. Although nuclear energy may not be everyone's favourite, in France it was the number one source of energy in 2005 putting oil into second place. In general, oil contributes close to forty percent of world primary source energy. Even so, in 2005, in twenty countries gas consumption exceeded oil consumption. Hydro electric, because it depends on rainfall, unlike gas, oil, coal, and uranium, it is a renewable source of energy. However, like nuclear reactors, the dams that are needed to facilitate its production have a limited life. Unlike in past decades, cheap gas and oil will not be available to build dams, nuclear power stations, wind farms, and to mine materials necessary for devices such as solar cells. With no cheap energy, pulling ourselves up by our boot straps won't be easy. There is a limit to the amount of wind power or wave power that can be trapped, as well as land area dedicated to fuel crops. For instance, the UK has only a fairly fixed amount of wind energy to tap into. If you double the population you halve the amount per person. On the other hand you halve the population you double the amount per person. The fact that the replacement of oil, gas and nuclear will be a slow and limited business makes another good argument for limiting and, if possible, decreasing UK and Global population.

All that I have set out in the last few pages of course rubbishes much of current economic thinking. The real GNP (gross national product) of the big players like the USA and the EU will fall instead of increase. The number of cars and road miles travelled will decrease and prosperity will move from the Western World to the East but in the framework of overall global decline. In many cases such improvements as new roads and airport extensions and so forth will become white elephants. Clearly we will need to do a lot of rethinking of our economic future and almost certainly, a lot of social unrest is on the cards.

Exit Energy, Enter the Philosophical

At this point I thought it might be smart to change subject and add a little light relief. So here are my thoughts, circa 1980, regarding fate.

Fate

I will here elaborate
Upon what, Sweetheart, we mean by fate
But first I ask:
Did fate dictate
This poem be written on this date

Now to some, fate is a consequence
They believe our every move and thought
Is predetermined
At the microscopic level
They see it as an inter-play of force
That keeps us on a charted course
Victims of our circumstance
Puppets in a cosmic dance
And retrospectively
They think they see
What was meant to be

Or looked at on another plane
We travel on a road
Set by genetic code
Chained by psychic need
Constrained by social creed

By others, fate is seen
Actively to intervene
So that what was meant to be will be
We cannot change our destiny
If you are meant to die today
It will happen in some way
Or a variation on this theme
If you are meant to die one way
That's the way you'll die some day

To go on
Sometimes man is not prepared to fight
He accepts his destiny
Feeling that the challenge is too great
He sinks into passivity
And says his defeated state
Is due to fate
His religion may act
As a palliative to his will
Reconciling him to dreams he can't fulfil
And that is his fate

As for the conquering hero
Who believes that being bold
He has the freedom to unfold
The universe as to his whim

About him some will say
Destiny has marked his way
That it is in his horoscope
That there is no freedom in the rope
However even if there was some slack to stray
Some little freedom on the way
He can only stop to gaze
Till the rope tightens
To tug him on

Personally I take the cynic's view
Of what happens to the likes of you
It is as though we sit upon a raft
Drifting in a river wide
Pushed by wind and tide
And sometimes as we watch the land
With the tiller in our hand
We move in the direction that we point
We think that we have free will
An illusion that we cannot still
But it is just a joke, my friend
For the tiller has no rudder at its end

More of the Philosophical

Although I was baptized as a Lutheran my mother and father were pretty non-religious. My father died when I was four. It was 1931 and the beginning of the great depression. My mother found work in a tomato cannery. A couple of years later she married a violent monster of a man who was mistreating his children and then proceeded to mistreat her as well. After leaving him, my mother eventually found work as a house-keeper. In those early years church was not part of my life and I rejected any attempt to inveigle me into going to Sunday school. When I was ten we moved from Western Canada to Montreal in Eastern Canada. In Montreal, in order to get work as a house-keeper my mother had to put me in a boys' home. There we had a church service every Sunday, with a light touch and non-sectarian in nature. For schooling we went to neighbouring schools. At thirteen I had started High School and luckily on the way to school there was a news stand where I could stop and pick up on the front page news. As a consequence I became much more aware of the larger outside world and the rush of events which were leading to World War Two. I read about the discovery of uranium fission and the huge amounts of energy that might be released. All this helped open up my mind and had an impact on my belief system. In the process, one of the casualties to my belief system was my belief in the power of prayer at either the personal or the national level or any other level. Also, the notion of a personal God went out the window along with Christianity itself. The ideas of chance, randomness, good or bad luck, cause and effect and determinism took hold. My reasoning, in the light of evolutionary theory, led me to abandon the concept of soul. The concept of eternity, of going on forever, led to the questioning of an absolute beginning, in other words, the existence of a universe of energy and matter springing out of non-existence of energy and matter. If the

universe isn't expected to have an end, why should it have a beginning, except in the transitory sense in going from one phase or state into another? The law of conservation of matter and energy which is a cardinal principle of physics must be violated to produce something out of nothing. The alternative is to have been forever and to continue forever, in a sense, to be going around in a circle. To add to the enigma, we are boxed in by natural limitations: at the microscopic level by the uncertainty principle and at the macroscopic, by the attenuation of the light with distance or by matter blocking it. Also, when we say a galaxy is twelve billion light years away, the assumption is that the light left the galaxy twelve billion of today's Earth years ago. We've got no idea of what's been going on out there ever since. My musings on all these matters, on the unknowable, the unexplainable, the unimaginable, led me to the view that "nothing is known of the existence of God or of anything beyond material phenomena", which happens to be my dictionary's definition of agnosticism. Even should the "Big Bang" theory explain the evolution of the universe we live in, the riddle of existence still remains and I think the human race is trapped in a reality that it is obsessed by, haunted by, and driven to understand, but that it will basically never understand. Expressed as a paradox, one of the features of life on Earth is that matter in the form of man has reached a point where it is obsessed with trying to understand itself both in the physical and psychological sense. I must think that this is an extension of natural animal curiosity engendered by an animals need to explore its environment for food, for safe havens, for danger, for better and more pleasant conditions for survival. It may be the extension of the development of the brain as a predictor mechanism, but is it part of a grand plan?

Along with grappling with the theological side of religion my other problem was to sort out morality, the Earth bound side of religion, for myself. A look at other species of social animals akin to our own, from meerkats to baboons to dolphins and others shows that a degree of co-operation and social harmony are requirements for survival. For instance a group of baboons can see off a leopard, a group of dolphins a great white shark, or a group of lemurs, another

group of lemurs. Within the group, of course, there is competition for dominance which at the same time fulfils the need for leaders, and as long as it's not to destructive, strengthens the fibre of the group. Consequently, a dynamic pecking order of some sort exists as is manifest in political organizations and in companies with their different levels of authority: CEOs, managers, seniors, juniors, office politics and so forth. Certain types of behaviour are regarded as desirable by members of a group. As an example, when I was in the boys' home mentioned before, some of the kids used to ask me to mind their money for them from time to time because they weren't sure of the others but they felt their money was safe with me. So: how is this group harmony engendered: through trust, care compassion, loyalty (unfortunately, some times blind), honesty, objectivity, (telling it as it is, except, for story tellers license), integrity, honour, concern, thoughtfulness, consideration, tolerance (up to a point), and so forth.

When I was twenty two or so, I decided to adopt a set of what I called my "operational principles or assumptions" such as: Man's behaviour is explained by the need to maintain and enhance his phenomenal self, where his phenomenal self is his collective beliefs and ideas of himself and the world; that I would be pragmatic in my outlook on life and that I should keep my assumptions and understanding under review, and I still do.

Curtain Call (Then Assassination)

So where does this leave me. I'm eighty one now and I don't have to make the human race's problems of the future my problem. But I do, because I have a lot of friends across the age ranges and especially among the teens, twenties, and thirties and naturally I care about them and their offspring. I'm basically pretty close to a non-consumer. Living in Central London means that I have been able to get away with not owning a car since I came to England almost fifty years ago. In Montreal, Canada, I owned cars (one at a time) but as I lived in the red hot centre and I made a point of living close to work, I rarely used my cars. In fact sometimes I didn't use them for weeks at a time, and in the winter the snow would sometimes lie on them a few inches thick. In London, I make a point of walking just about everywhere within a forty-or-so minute range even though I have a "Freedom Pass" which gives me free public transport and for which I'm grateful. Generally walking is faster, as fast, or almost as fast as taking a bus or the Underground. I wear my clothes to near destruction and eat vegetarian very inexpensively. I go to restaurants generally only for a cup of tea. I admit my lifestyle is a bit extreme, but it's out of choice rather than the fact that I don't get any social security. Because I'm a slow reader, I spend a good part of the day in reading the paper; my Sunday paper is my Bible (taken with a large pinch of salt). There's so much to do in London and London is such a treasure trove; a cornucopia of the unexpected that I never have enough time. Of course, if too many others joined me too quickly as non consumers the economy would crash. I don't have central heating and use little gas and electricity. I've become 99.97% vegetarian, plus or minus 0.03 %, (no meat, no fish: the 0.03 % is to take care of any caterpillars, bugs or any other creepy-crawlies that might have found their way into my salads) to help save the rain forests and if possible enlarge them in area and also, simultaneously, help reduce the world population of cows, pigs and chickens, etc., so reducing the amount of green house gas emitted into the atmosphere. For those that don't know or haven't registered it, not

eating meat means less Soya production for animal feed and also less cattle ranching, and consequently, (hopefully) less destruction of tropical forests and in the process, (hopefully again) help's do away with factory farming which many people detest. I think factory farming is a degrading pursuit not ennobling of the masters of the universe. Also I'm against hunting done for the pleasure of the human animal. In the past and still, there are many, in my view, arrogant and ignorant people who could benefit by watching more wild life programs. I refer especially to some scientists. As I see it, animal brains, including ours do the best they can with the bodies they're trapped in. I understand that sometimes some species of animals have to have their numbers controlled to protect other animal species and likewise with plants, because in our wisdom or otherwise we have upset the balance of nature. Of course, if we weren't here, the balance of nature would (in any case) still be changing; so sometimes: it's a tough call.

After all is said and done I recognize that the money I save as the consequences of my very frugal life style, may end up building a coal fired power station or other fossil fuel burners in China or else where. I hope not. I hope it leads to environmentally friendly alternative energy power sources. Again, as I said before, a major problem is to reduce the human population on the globe to perhaps a half or quarter or less, of what it is today, and give the rest of life a little more breathing space and ourselves a better quality of life. When I was born the human population of the earth was about a billion and a half, which to me seems about right and is about a quarter of what it is today. Another argument for population reduction is that, if under-nourished children are properly nourished they get larger and so more resources are required for the same population size. My wife and I did our part by deciding not to have any children. As things stand, and as said before, one of the constraints that will condition the next few decades is the energy available of for human consumption from the five primary sources: oil, gas, coal, nuclear, and hydro. The size of this energy envelope is about ten billion (ten thousand million) tonnes of oil equivalent (TOE). In my thinking it is unlikely to exceed this amount by more than perhaps twenty percent

over the next few years and then probably, gradually decrease over the next three or four decades. To continue the population argument, as stated before, the average consumption per person in the USA is about eight TOE. As a first approximation, if this were to become the average for the global population, the global population would have to be reduced to about one and a quarter billion which again, is in line with what I consider to be the most desirable World population size. The Europeans and Japanese get by on four TOE which gives us a world population ceiling of two and a half billion. Of course, I realize a reduction of the word population to this level in the next few decades without cataclysm is a pipe dream. To put population size into another context, if the population density of the habitable parts of New Zealand, a civilized outpost of humanity is extrapolated to the habitable parts of the world, the human population of the world would be about one and a quarter billion. More to the point, the necessary but injudicious replacement of fossil fuels by alternative energy sources will further degrade the existing world ecosystem and so becomes another compelling argument for population reduction in some parts of the world.

Certainly the human race seems to be on the threshold of something big with the Arctic ice cap disappearing and most glaciers shrinking and so forth. In 1994, Time Magazine (USA) put out an issue that was concerned with the next ice age. What intrigued me most about it was the graph of the temperature variation over the past one hundred and sixty thousand years, produced by the results of Greenland ice core analysis. The diagram showed temperature, using bars about five hundred years wide. In the last glacial and inter-glacial period, such as the one we are in now, a band could some times shoot up by as much as ten or more degrees above the previous band to be followed by a drop of ten or so degrees, suggesting that the global temperature could spike over a five hundred or so, year period and then be back to its previous level. Of course large variations have occurred over the past ten thousand years of the inter-glacial period that we are in now. This picture is reinforced and made even more stunning in my estimation by an

Antarctica Vostok ice core analysis on Wikipedia which covers just over the last four hundred thousand years. The most recent one hundred and sixty thousand years reflect the Greenland data which suggests that this is a global phenomenon. Over the four hundred thousand years we have four peaks which are about one hundred thousand years apart, which correspond to warm, interglacial periods which last about twenty thousand years. The latest peak, about ten thousand years ago marks the beginning of the present period. These peaks coincide with astronomical predictions made by one Milutin Milankovitch, a Serbian astronomer, and tell us that the Earth's climate is probably driven largely by the Earth's orbital position relative to the sun. There is apparently another quasi-cycle involving sunspot activity, of which there have been eighteen or so in the last eight thousand years. The ordinary sunspot cycle is one of eleven years duration during which time the number of sun spots increase from a minimum to a maximum back to a minimum. These eleven year cycles are apparently set in a framework of cycles of variable length (quasi-cycles) lasting hundreds of years, which have important climate consequences such as the colonizing of Greenland by the Vikings, and the freezing over of the Thames. Other factors such as cosmic radiation intensity, volcanic activity and meteorite strikes seem to be of a random nature. The release of methane from methane deposits in ocean floors and the Artic tundra is problematic. In the Milankovitch cycle, temperature and carbon dioxide are highly correlated, with temperature, it seems, generally slightly leading carbon dioxide. This time, in the present cycle, it seems to be the other way around, with carbon dioxide concentration leading temperature.

Today, of course, with man presumably exacerbating climate change through desertification and rainforest destruction and through fossil fuel burning and animal husbandry, all reinforced by population growth, it seems not surprising to me that if climate change, that was rapid in pre-industrial times, may now become precipitous. Apparently at the end of the last ice age ten thousand or so years ago the area that is now the Sahara desert was covered by vegetation. With the warming of the Earth, the vegetation has gradually died and

more and more of the land area has, and is, continuing to turn into desert. This seems to be true for other desertsaround the world as well. Going by the records, as said before, interglacial periods such as we are now in, seem to last about twenty thousand years and it would seems we are about half way through ours. However, if the trigger for the next ice age is the amount of desertification that exists then, if human activity moves the next ice age closer, no surprise.

I first read the story of Easter Island, an island pretty well isolated in the vast Pacific, in an issue of Scientific American in the 1950's. According to the story the Polynesians who landed on it multiplied willy-nilly. Their survival depended upon fishing but the island is surrounded with cliffs so they depended on the use of wood to build boats. They also involved themselves in the use of logs to move large carved stone heads from the interior of the island to positions on the coast looking out over the ocean, and I suppose they also burned wood. In any case, it seems that at some point, the last tree was cut down. Boat building and consequently fishing became impossible. The Easter Island story apparently ended in starvation, slaughter and cannibalism. Unfortunately for the many, too often there seems to be someone around who is willing to cut down the last tree. Likewise, with the last dodo bird, or some of today's endangered flora and fauna. For some, the rarer they become, the higher the price on them, and the more likely, extinction.

It seems to me, In a similar vein, the smart thing to do today would be to leave fossil fuels in the ground to a greater degree and concentrate on the development and increase of alternate energy sources still more as they will inevitably be our only sources of energy, while at the same time making sure that alternative energy sources don't further destroy our remaining natural environment. Instead, in my thinking we should be trying harder to restore the Earth's natural environment. Still all said, I feel that Mankind has a long, if, unpredictable future. So for those much younger than myself, fasten your seat belts, and keep your fingers crossed. You're in for turbulent times, and be grateful I haven't mentioned pandemics. Of course you've heard all this before but some of you aren't paying attention. Pay attention!!!

Get Real

Don’t be down-hearted my friend
This is not the end
Just a phase mankind is passing through
A billion here, a billion there
Mother Nature doesn’t care
So eat your greens and watch the cues
Then be smart in what you choose
Banal it’s true
But then
So are you

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